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"NORTH OSSETIAN STATE MEDICAL ACADEMY"
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DEPARTMENT OF CHILDREN'S DISEASES №2

EDUCATIONAL AND METHODICAL RECOMMENDATIONS
for seminar classes in pediatrics
for students 5 courses of the Faculty of Dentistry

Vladikavkaz, 2022

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Class in a subject:
"PHYSICAL AND PSYCHOMOTOR DEVELOPMENT OF CHILDREN".

ORGANIZATION AND PRINCIPLES OF WORK OF CHILDREN'S HOSPITAL

I. Scientific and methodical justification of a subject.

As to future organizers of health care knowledge of the device, work, the anti-epidemic mode of children's hospitals is necessary for students of medical faculty. Knowledge of features of the anamnesis and an objective research of children of early age will broaden professional horizons of future doctor since many diseases of adults have the sources at children's age.

II. Purpose of activity of students on occupation:

The student has to know:

- structure of a children's hospital;
- the types of the help rendered by children's hospitals;
- anti-epidemic actions for prevention of a drift of an infection and an intrahospital infection;
- indications for hospitalization;
- features and value of the anamnesis in pediatrics;
- features of objective inspection of the child and additional methods of a research (X-ray analysis, ECG, FKG, ultrasonography, laboratory methods, etc.);
- basic rules of care for the healthy and sick child.

The student has to be able:

- to make the plan of anti-epidemic actions for prevention of a drift of an infection in children's hospital;
- to be able to collect the anamnesis at mother and the child taking into account age;
- to give an assessment of the anamnesis of life and a disease;
- to take care for the healthy child of early age and the patient taking into account pathology.

III. Content of training:

1. Children's hospitals (types, features of the device, mode).
2. Prevention of a drift of an infection and intrahospital infections.
3. Hospitalization of the child (indications, rules of registration).
4. Value of the anamnesis in pediatric practice.
5. Features of inspection of the child. An objective research, additional and laboratory

methods of a research in pediatrics.

6. Features of care for the patient and healthy child.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
2. Propaedeutics of children's diseases/T. V. Kapitan. – M.: MEDpress-inform, 2009. – 656 pages.
3. Propaedeutics of children's diseases/Ampere-second. Kalmykova. – M.: GEOTAR-media, 2010. – 920 pages.
4. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
5. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
6. A.V. Mazurin, I.M. Propedevtik's Baneberries of children's diseases. – Volume, 2009. – 505 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Background diseases of children of early age. Manual for students. – Vladikavkaz, 2011. – 64 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. The anamnesis, its role in diagnostics.
2. The anamnesis of life, value of factors of external and internal environment in forming of pathological process.

3. Anamnesis of a disease, its basic rules of collecting.

VII. List of questions for check of final level of knowledge:

1. Features of collecting the anamnesis in pediatrics.
2. Influence of environmental factors on the antenatal and post-natal periods of development of the child.
3. Features of the anamnesis of life of the child during various age periods (a neonatality, chest age, the pubertal period, etc.).
4. Factors which need to be considered when collecting the anamnesis at mother and directly at the child.
5. Features of an objective research of the child.
6. The additional methods applied in pediatrics, their feature.
7. The main differences of the device and the mode of hospitals for adults and children.
8. What factors are considered at distribution of sick children on chambers?
9. Indications for hospitalization of mothers.
10. Anti-epidemic actions for prevention of a drift of an infection in children's hospital.

Information block.

By the form, the medical care and the system of the organization of work provided to the volume and character the children's hospital can be:

a) on a profile – the general, multi-type or specialized;

b) on the system of the organization – integrated or not integrated with policlinic;

c) on activity volume - various categorization (koyechky power).

Multi-field interdistrict and municipal hospitals on 300 beds, are planned for delivery of health care to the children's population of one city or large rural areas on the main and narrow clinical profiles (8-12 specialties). Multi-type – generally hospitals, incorporate not less than 10-12 specialized departments and provide highly skilled medical care to children.

Specialized hospitals (tubercular, cancer, infectious diseases, psychiatric and other diseases hospitals and clinics) provide to the children's population medical care on the corresponding profiles. Radius of their action is defined by local bodies of health care depending on incidence of the population and extent of development of network of these hospitals.

FEATURES OF THE ORGANIZATION OF THE STATIONARY HELP TO CHILDREN

Departments of a children's hospital will be organized on 40-60 beds with the isolated sections on 20-30 of beds. Chambers of a hospital are formed on age and the nature of diseases. Depending on age allocate the following chambers: for premature, for newborns, for children of

chest age, for children of younger age, for children of advanced age. Norms on one bed in children's non-infectious departments are 6, in infectious – 6.5 sq.m, in departments of recovery treatment – 7 sq.m. In departments for children of preschool and school age of chamber have to be small – with number of beds no more than four. It is reasonable to have the glazed partitions between chambers in order that the personnel could watch a condition of children and their behavior. In department, rooms for mothers in bliz of chambers for babies and also the room for decantation of breast milk are surely allocated.

Feature of a children's hospital is the mode providing a complex not only medical, improving and sanitary and hygienic, but also educational actions taking into account anatomo-physiological and age features of a children's organism.

PHYSICAL AND PSYCHOMOTOR DEVELOPMENT OF CHILDREN

I. Scientific and methodical justification of a subject:

From a position of the preventive direction of our medicine and introduction of the unified methods of general medical examination of the population on 5 groups of health gains special practical value pediatric orientation of students of medical faculty. Students have to seize ability to estimate the level of physical, psychological and sexual development of the patient of any age as important criteria of the state of health. To define medical tactics in a specific case. Especially it is important for the doctors working with teenagers (teenage offices of policlinic, the medical commissions, etc.).

II. Purpose of activity of students on occupation:

The student has to know:

- anatomo-physiological features of nervous system of children on the life periods;
- morfo-functional features of skin, hypodermic fatty tissue, bone and muscular systems;
- main stages and mechanisms of sexual development of children;
- options of the pubertal period;
- periods of life of children, anatomo-physiological features of age pathology;
- key indicators of psychological development of children in age aspect; somatometrichesky and somatotoskopichesky criteria of physiological development and modern requirements to their assessment;
- options (physiological and pathophysiological) physical and sexual development of teenagers.

The student has to be able:

- on the basis of objective survey to give an assessment to the psychological (intellectual) level of development of the patient of any age (compliance, lag, advancing in relation to passport age) by the following criteria:
- motive static reactions, sense bodys;
- conditioned, unconditioned reflexes, development of the speech, memory, ability to thinking, neurologic status (tendon jerks, meningeal symptoms).
- to perform the general objective inspection and to define type of the somatic constitution;
- to conduct the main anthropometrical researches and to give an individual assessment of physical development (level, harmony degree);
- to determine the "tooth" age (compliance, lag, advancing of passport age);
- to give a complex assessment of level of somato-biological ripeness (good, satisfactory, unsatisfactory);
- in puberty age on the basis of objective survey to give an assessment of sexual development in relation to passport age;
- to reveal the pathophysiological signs, boundary with norm, which are options of the pubertal period, to give them a clinical assessment, to define medical tactics;
- to define group of health on the basis of complex assessment of results of objective survey;
- to reveal risk factors on indicators of physical, sexual development, to define the general medical tactics of dispensary observation.

III. Content of training:

1. Morfo-funktsionalnye features of central nervous system at children of early age.
2. Characteristic of unconditional reactions.
3. Terms and dynamics of development of sense bodys, conditioned reflexes.
4. Development of the speech.
5. Main stages of development of motive and static abilities.
6. Criteria for evaluation of psychological development (psychophysiological maturity) of children of preschool age.
7. Criteria for evaluation of a psychophysiological condition of school students.
8. Periods of life of children, main physiological characteristic.
9. Main neurologic indicators.
10. Somatometrichesky indicators of physical development, assessment methods.
11. Somatoskopichesky indicators of physical development, assessment methods.
12. Types of the somatic constitution.

13. Concept "tooth" age, assessment.
14. Concept "bone" age, assessment.
15. Stages of forming of a floor.
16. Indicators of sexual development, assessment.
17. Biological age, evaluation criteria.
18. Main criteria of the state of health, group of health.
19. Options of physical development, dispensary tactics.
20. Options of sexual development, clinical assessment, dispensary tactics.

IV. Educational material security.

5. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
6. Educational medical documentation (case histories, laboratory researches, roentgenograms).
7. Technical means of training.
8. Literature.

V. List of references:

1. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
2. Propaedeutics of children's diseases/T. V. Kapitan. – M.: MEDpress-inform, 2009. – 656 pages.
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9. Lectures on pediatrics.

10. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. Questions for independent preparation:

1. What means the term "physical development"?
2. What indicators of physical development are estimated at children?
3. How standards of indicators of physical development in children of different age groups are calculated?
4. What is "acceleration"? What factors influence its speed?
5. What does acceleration differ from the accelerated development caused by overfeeding in?
6. What is "tooth" age in what parameters it is estimated at children?
7. What formulas of calculation of number of milk and second teeth do you know?
8. Give definition to a concept "bone" age on what criterion it is estimated.
9. List key indicators of sexual development by what criteria are estimated.
10. What is meant psychological development?
11. In what parameters the psychological development is estimated?
12. What morfo-functional features of central nervous system at children of early age do you know?
13. Call average terms and dynamics of development of sense bodys in children.
14. Call the main stages of forming of speech skills.
15. Main stages of development of motive and static abilities.
16. Main criteria of the state of health.
17. What groups of health do you know?

Information block.

PHYSICAL DEVELOPMENT OF CHILDREN.

Physical development of the person is understood as set morphological and functional features of an organism in their interrelation.

Intensively proceeding processes of growth and maturing of a children's organism define its special sensitivity to environmental conditions. Features of climate, domestic conditions, a day regimen, the nature of food and also the postponed diseases considerably affect physical development of children. Rates of physical development are influenced by also hereditary factors, a somatotype, metabolic rate, an endocrine background of an organism, activity of enzymes of blood and secretion of digestive glands.

In this regard the level of physical development is considered to be a reliable indicator of health.

At assessment of physical development of children consider the following indicators:

1. Morphological: length and body weight, a thorax circle, and children up to three years have a head circle.
2. Functional indicators: vital capacity of lungs, animal force of hands, etc.
3. Development of muscles and muscle tone, condition of a bearing, musculoskeletal system, development of a hypodermic and fat layer, turgor of fabrics.

Body length.

The indicator of length of a body is the most stable in comparison with other indicators of physical development. The greatest growth rate is noted in the first three months of life of the child (tab. 1).

At the correct development of the child the body length increase in a month can fluctuate from +1 to-1 cm.

For the second year of life the increase of length of a body makes 11-12 cm, for the third year of life – 8 cm, for the fourth – 6 cm. By four years growth of the child reaches 100 cm. Further (up to 10 years) for definition of an increase of length of a body it is possible to use a formula: length of a body of the child R = 100 cm + 6 (n – 4), where n – number of years, 6 – an average annual increase of length of a body, see. The most intensive growth is observed in 5-7 years and in the period of the beginning of puberty.

Body weight.

It is a labile indicator which can change under the influence of constitutional features, neuroendocrine and somatic disturbances, it also depends on the exogenous reasons (food, the mode).

The most intensive increase of body weight of the child is noted on the first year of life and in the pubertal period.

The body weight of the child by 4 - 4.5 months doubles, by a year trebles. Rate of increase in body weight at children after a year weakens and averages 2 kg. annually.

The expected body weight of the child up to 10 years can be calculated by a formula:

P = the body weight of the child in 1 year + 2 kg x (n – 1),

where P – the expected weight, n – number of years.

The body weight of the child ***10 years are more senior*** it is possible to define by I.M. Vorontsov's formula: the body weight of children is more senior than 10 years = age x 3 + the last figure of number of years.

Table 1.

Increase of length and body weight at children of the first year of life.

Age, month.	Body length increase in 1 month, see.	Increase body lengths for the expired period, see.	Body weight increase in 1 month, gr.	Body weight increase for the expired period, gr.
1	3	3	600	600
2	3	6	800	1400
3	2.5	8.5	800	2200
4	2.5	11	750	2950
5	2	13	700	3650
6	2	15	650	4300
7	2	17	600	4900
8	2	19	550	5450
9	1.5	20.5	500	5950
10	1.5	22	450	6400
11	1.5	23.5	400	6800
12	1.5	25	350	7150

Circle of the head and thorax.

At the birth *a circle of the head* of the full-term children of 33-37.5 cm, it should not exceed a thorax circle more, than on 1-2 cm. In the first 3-5 months the monthly increase makes 1-1.5 cm, and then 0.5-0.7 cma month.

Calculation of a circle of the head for children of the first year of life is made on a formula: surrounding goal. in **6 months** makes **43** cm, for each missing month about **1.5 cm**are taken away, for everyone the subsequent increases on **0.5 cm.**

By a year the circle of the head increases by 10-12 cmand reaches 46-48 cm. The circle of the head of the child at the age of 1-3 years increases by 1 cma year. From 4 years the head circle annually increases by 0.5 cm. By 6 years it is equal to 50-51 cm, and for all next years increases by 5-6 cm.

Thorax circle at newborn 33–35 cm. The monthly increase on the first year of life averages 1.5-2 cm. By a year the circle of a thorax increases by 15-20 cm, then the intensity of increase of this indicator decreases, and to preschool age the thorax circle on average increases by 3 cm, and in school – by 1-2 cma year.

Calculation of a circle of a breast for children of the first year of life is made on a formula: surrounding gr. in **6 months** makes **45 cm**, for each missing month **about 2.0 cm**are taken away, for everyone the subsequent increases on **0.5 cm**.

The Perednezadny size of a thorax at most of the full-term newborns is less than cross size or is equal to it. At the end of the first year of life the cross size begins to exceed perednezadniya and the shape of a thorax begins to approach the adult's configuration, i.e. to be flattened.

For assessment of proportionality of development of the child it is possible to use some anthropometrical indexes.

Chulitskoy index: 3 circles of a shoulder + a hip circle + a shin circle – body length at children till 1 year equal 25-20 cm, and in 2-3 years – 20 cm, in 6-7 years – 15-10 cm.

Erisman's index: the circle of a thorax exceeds semi-growth at children till 1 year on 13.5-10 cm, in 2-3 years – on 9-6 cm, in 6-7 years – on 4-2 cm, in 8-10 years – is 1 cm more or 3 cm less.

The individual assessment of physical development is carried out by comparison of anthropometrical indicators of the child to the standards and standards developed especially for this region taking into account ethnic origin of the child and klimatogeografichesky conditions of accommodation.

Proportions of a children's body

Assessment of proportions of a children's body is of great importance for judgment of correctness of development of the child. Separate parts of a body of the child grow unevenly, and, therefore, also ratios between them change with age: for example, for the entire period of growth length of the lower extremities increases approximately by 5 times, length of upper extremities – by 4 times, trunks – by 3 times, and head height – only twice.

Height of the head of the newborn is about 1/4 total lengths of a body, at 2-year-old – 1/5, at 6-year-old – 1/6, at 12-year-old – 1/7 and at the adult – 1/8.

For a fruit, and partly for the newborn, some relative underdevelopment of a front part of a skull in comparison with well developed cranial is characteristic. Clearly outstanding frontonasal roller and some underdevelopment of a mandible it is characteristic of the face of the newborn.

The correct assessment of features of his thorax is of great importance for characteristic of physical development of the child. The Perednezadny size of a thorax at most of the full-term newborns is less than cross diameter or is equal to it; within 1 year of life, even at children, weak at the birth, cross diameter begins to prevail over perednezadny: the first doubles by 6 years, the second – only by 14-15 years.

At the full-term newborn child the circle of a breast is 2-4 cm less than a head circle. At very strong newborns they are equal, and rather very seldom the circle of a breast exceeds a head circle. Already during the first half of the year of life the circle of the head is compared to a breast circle, and in the next years the circle of a breast exceeds a head circle approximately on so many centimeters, how many years to the child.

Children of early and preschool age have a constant ratio between perimeters of extremities and a thorax: the trebled circle of a shoulder is equal to a breast circle; the sum of circles of a hip and shin equals the trebled circle of a shoulder and a circle of a breast. Existence of these ratios indicates normal fatness of the child and the correct development in it of the muscular device.

Sexual development

Sexual differences in indicators of physical development are significant only with approach of puberty. The life period when the growing organism reaches biological puberty, is called pubertal and is characterized by emergence of secondary sexual characteristics. Time of emergence of the last depends on the state of health, food, climatic conditions and genetic features. At girls the external manifestations of signs of sexual development are noted in 8 years, at boys is in 9-10 years (tab. 2).

Table 2.

Terms of emergence of secondary sexual characteristics.

Age / years	Boys	Girls
10 years	AxP_{00}	$MeMaAxP_{0000}$
11 years	AxP_{00}	$MeMaAxP_{0000}$ or expressiveness of one - two indicators in a stage 1 or 2
12 years	AxP_{00}	$MeMaAxP_{01\ 11}$– $MaAxP_{222}$or expressiveness of one - two indicators in a stage 1 or 2
13 years	AxP– $AxP_{00\ 11}$or expressiveness of one indicator in a stage 1, and another 0	$MeMaAxP_{0\text{-}1222}$– $MeMaAxP_{2333}$or expressiveness of one - two indicators in a stage 2 or 3;
14 years	AxP– $AxP_{1122}$and expressiveness of one indicator in a stage 1 and another 2	$MeMaAxP_{2\text{-}3333}$expressiveness of one - two indicators in a stage 2; existence of regular monthly
15 years	AxP_{33}or expressiveness of one of indicators in a stage 1	$MeMaAxP_{3333}$or expressiveness of one of indicators of a stage 2
16 years	AxP_{33}– AxP_{34}	$MeMaAxP_{3333}$

Symbols of development of secondary sexual characteristics in girls:

1. Development of mammary glands (Ma – mammae):

Ma_0 – a children's nipple;

Ma_1 – a peripapillary circle is given over skin level;

Ma_2 – a peripapillary circle of the big sizes, together with a nipple forms a cone, gland is given over skin level a little;

Ma_3 – gland is raised, the nipple and a peripapillary circle keep a cone form;

Ma_4 – a nipple rises over a peripapillary circle, gland takes the same forms and the sizes, as at the adult woman.

2. Emergence of hair on a pubis (R – pubis):

P $–_0$ lack of hair;

R– $_1$ single short hair;

P $–_2$ hair on the central part of a pubis more dense, long;

R– $_3$ hair long, dense, curling on all triangle of a pubis;

P $–_4$ the hair located on all area of a pubis pass to hips, dense, curling with characteristic horizontal border.

3. Development of hair in the axillary hollow (And – axillaris):

Ah_0 – lack of hair;

Ah_1 – single hair;

Ah_2 – hair hollows, more dense on the central site;

Ah_3 – hair dense, long on all muscular area.

4. Formation of menstrual function (Me):

Me_0 – lack of periods;

Me_1 – 1 - 2 periods by the time of survey;

Me_2 – irregular periods;

Me_3 – regular periods;

Symbols of development of secondary sexual characteristics in boys:

1. Development of hair on a pubis:

P $–_0$ lack of hair;

P $–_1$ separate direct hairs;

P $–_2$ more thick curly hair, upper bound horizontal;

P $–_3$ dense pilosis on a pubis and beginning in the direction to a navel;

P $–_4$ dense pilosis towards a navel and on the internal surface of hips.

2. Development of hair in the axillary hollow:

And_0 – lack of hair

And_1 – separate direct hairs

And_2 – hair curly, but rare

And_3 – dense pilosis, hair curly, pigmentation of a front axillary fold.

Boys have data on a heterophonia $(V)_{0,1,2}$, development of pilosis of the person $(F)_{0,1,2,3}$, development of an Adam's apple $(L)_{0,1,2}$ are considered in case of lag or advancing of sexual development.

Psychological development

From the moment of the birth the full-term child has a number of congenital, or unconditioned reflexes. Sucking, swallowing, blinking, cough, sneezing, acts of urination, defecation and some other belong to them. They carry out organism adaptation to the environment and until the end of the first year of life are exposed to significant evolution.

Congenital reactions in the form of unconditioned reflexes quite provide existence of the child only in the first days of life. Further the main in activity of the child are the acquired reflexes providing the necessary level of interaction of an organism with external environment.

At the end of the first and at the beginning of the second month of life at the child a number of simple, elementary conditioned reflexes is formed. At the end of the third month of life at him it is possible to develop already compound, differentiated reflexes indicating development of analizatorny function of a cerebral cortex.

Development of higher nervous activity, i.e. acquisition of conditioned reflexes, on the first year of life goes rapidly. The child is much easier, than the adult, forms conditioned connections with the environment, and they at the child are steadier. Rather quickly children get habits, skills of behavior which in the subsequent remain for the rest of life.

The huge role in behavior of the child is played by the speech. Forming of the speech is caused by formation of function of a sensor system and functional maturing of a brain.

It is important to remember that development of the speech is also a product and result of communication of the child with the adult, result of educational activity.

Development and education of the child consists of a certain schedule of life (mode), of instilling in it of necessary skills, creation of conditions which would provide the correct development of its movements, speeches would contribute to the correct physical development, vigorous, cheerful mood.

In table 3 indicators of psychological development of children of the first year of life on months are provided.

Table 3.

Age, month.	Development indicators
0	Holds under review a moving subject (step tracking). To age of 1 month holds under review motionless a subject.

1	Focuses a look on a motionless subject. Begins to trace a moving subject smoothly. Listens to a sound, the adult's voice. Lying on a stomach, tries to lift and hold the head.
2	It is long focuses a look on the face of the adult or on a motionless subject. It is long watches a moving toy or the adult. Turns the head at a long sound, lying on a stomach rises and shortly holds the head. Says separate sounds.
3	Focuses a look in vertical position on the face of the adult speaking with it or a toy; a revival complex with it. Several minutes lie on a stomach, leaning on forearms and having highly raised the head. With support under mice strong plants the feet, bent in hip joints. Holds the head in vertical position on the adult's hands. Considers and tries to take the hanging toy.
4	Recognizes mother, rejoices her. Finds eyes an invisible source of a sound. Loudly laughs in response to the address. Takes the hanging toy. Holds with hands a breast of mother or a small bottle during feeding.
5	Distinguishes close people from strangers (differently reacts). Learns mother's voice, distinguishes strict and tender intonation, the address to him. Accurately takes a toy from the adult's hands, holds a toy in a hand. Long lies on a stomach, leaning on palms of the straightened hands, turns over from a back on a stomach, exactly steadily costs with support under mice. Long melodiously "babbles". Eats semi-dense food from a spoon.
6	Differently reacts to a personal and others' name. Takes toys, being in any situation, and long is engaged in them. Turns over from a stomach on a back. Moves, rearranging hands and creeping. Says separate syllables (beginning of babble). Well eats from a spoon, removing food lips. Drinks from a cup.
7	Toy knocks, swings, shifts it. Well creeps (much, quickly). On the question "where?" finds a look the subject which is constantly in a certain place (for example, hours, a doll). Long murmurs, repeatedly says the same syllables.
	Imitates actions of the adult with toys. Itself sits down, sits and lays down. Holding a barrier, itself gets up, costs t falls. Crosses, holding a barrier. Performs in advance studied simple operations ("pat-a-cake", "give the handle"). Loudly, accurately and repeatedly says various syllables. Eats a bread crust which holds.
	Dance tunes of the movement under a dance tune music (if with the child are engaged). Works with objects differently, depending on their properties (rolls, opens,

8	rattles). Passes from a subject to a subject, slightly adhering for them hands. Knows the name, turns around for call. Itself holds a cup from which drinks. Treats jumping on a pot calmly.
9	Independently at the request of the adult performs the studied operations (opens, takes out, puts). Enters on a high surface and descends from it. Goes with support by both hands forward. At a request "give" finds among other toys and gives familiar objects. Imitates the adult, repeats after him new syllables which are not in his babble.
10	Selective attitude towards children. Removes and dresses rings with big openings on a core. Costs independently without support. Takes the first independent steps. The first generalizations in the understood speech: at a request finds any ball, a doll. At the request of the adult performs the studied operations (feeds, drives a doll). Pronounces the first words – designations, for example: "give", "mother".
11	Learns a familiar face in the photo. Distinguishes two contrast forms of objects. Stretches to other child a toy, accompanies it with laughter or babble. Transfers the actions studied with one subject on another. Goes independently (without support). Understands names of objects, actions, names of adults, carries out instructions: bring, find, give, put back. Understands a word it "is impossible". Pronounces 5-10 facilitated words.
12	

Tasks for independent preparation:

1. Solve situational problems.
2. Carry out anthropometry of the child of the first year of life, estimate its physical development.
3. Solve tasks of test control.

Situational tasks

Task No. 1

Calculate the must parameters of physical development of the child of 5 months if at the birth: body weight – 3500 gr, growth – 50 cm, a head circle – 36 cm, a breast circle – 34 cm.

Task No. 2

The child of 3 years, up to 6 times a year is ill ORZ, growth - 95 cm, weight – 11 kg. Level of psychological development corresponds to age. There are no chronic diseases

Task: Define group of health. Prove your conclusion.

Task No. 3

Determine the age of the child on the level of psychological development if he learns a voice of mother or loved one, distinguishes intonations of a voice, accurately takes a toy from the adult's hands, holds it, turns over from a back on a stomach, steadily costs with support, long melodiously babbles, eats thick porridge from a spoon.

Task No. 4

Determine the age of the child on the level of psychological development if he understands the short story by the adult, answers simple questions on the story, at communication uses three-word offers, selects for a sample or a request of the adult of 3 contrast colors, can step through objects, partially put on the prepared clothes.

Task No. 5

Artur D., 12. Sexual formula Ax P_{00}

Task: Estimate sexual development.

Task No. 6

Katya E. 12 years. Sexual formula Ma Ax P Me_{3332}

Task: Estimate sexual development.

Test control.

1. Average length of a body of the newborn child is:

a) 30 cm. b) 40 cm. c) 45 cm. d) 50 cm.

2. The average weight of the newborn is:

a) 2500 gr. b) 3500 gr. c) 4500 gr. d) 5000gr.

3. At the birth a head circle in relation to a breast circle usually:

a) it is less b) it is more c) same

4. The monthly increase in growth in the second quarter of 1 year of life makes:

a) 3 cm. b) 1 cm. c) 2.5 cm. d) 1.5 cm.

5. The monthly increase of body weight of the child in the first half of the year of life makes near:

a) 1000 gr. b) 200 gr. c) 800 gr. d) 400 gr. e) 300 gr.

6. Monthly increase in the sizes of the head in the first half of the year of life is approximately:

a) 2.0 cm. b) 1.0 cm. c) 2.5 cm. d) 0.5 cm. e) 1.5 cm.

7. The monthly increase of body weight of the child in the second half of the year of life makes near:

a) 200 gr. b) 400 gr. c) 800 gr. d) 300 gr. e) 1000 gr.

8. Monthly increase in the sizes of a breast in the second half of the year of life of the child is approximately:

a) 0.5 cm. b) 2.0 cm. c) 1.5 cm. d) 1.0 cm. e) 2.5 cm.

9. In what parameters assessment of physical development of the newborn child is made?

a) anthropometrical b) organism maturity degrees

c) to a condition of food c) to presence of congenital defects

d) everything listed above

10. At what age do the first milk teeth on average appear?

a) 3 months. b) 5 months. c) 8 months. d) 6 months. e) 10 months.

11. At what age second teeth are cut through?

a) 1 year b) 3 years c) 6 years d) 8 years e) 10 years

12. On what signs the level of sexual development of girls is estimated?

a) growth b) weight c) pilosis of the axillary hollow

d) beginning of periods e) change of a timbre of a voice

e) development of a mammary gland g) everything listed above

13. On what signs the level of sexual development of boys is estimated?

a) growth b) weight c) pilosis of the axillary hollow

d) development of an Adam's apple e) change of a timbre of a voice

e) pilosis of the person g) everything listed above

14. In what age does the child begin to keep a head?

a) since the birth b) since 1 month. c) since 2 months. d) since 3 months. e) since 4 months.

15. At what age at girls do mammary glands begin to develop?

a) 9 years b) 10 years c) 12 years d) 14 years e) 16 years

16. From what age does the child begin to creep actively?

a) since 5 months. b) since 7 months. c) since 9 months. d) since 10 months. e) in a year

17. From what age can the child independently turn over from a back on a stomach?

a) since 2 months. b) since 3 months. c) since 5 months. d) since 7 months. e) since 9 months.

18. From what age does the child independently cost and takes the first steps without support?

a) since 12 months. b) since 6 months. c) since 10 months. d) since 11 months. e) since 8 months.

19. At what age does the child begin to distinguish strangers from the?

a) since 5 months. b) since 1 month. c) since 3 months. d) since the birth e) since 7 months.

20. At what age does the child begin to drink from a cup?

a) since 3 months. b) since 4 months. c) since 5 months. d) since 6 months. e) since 8 months.

21. From what age does the child begin to say separate syllables?

a) since 3 months. b) since 4 months. c) 5 months. d) 6 months. e) 8 months.

22. At what age can the child independently put on and be clasped?

a) since 1 b) since 4 years c) since 2 years d) since 3 years e) since 5 years

23. How the resistance of an organism is defined?

a) durations of diseases b) to number of acute diseases in a year

c) weights of diseases

24. Group of health to which it is possible to carry the child of the adenoid disease which transferred two SARS and two aggravations within a year:

a) I c) III

b) II d) IV

e) V

Class in a subject:
"FEEDING".

I. Scientific and methodical justification of a subject:

The state of health of the child, his physical and psychological development in many respects is defined by the nature of its food. Quantitative and qualitative full value of food, since the birth moment, correctness and timeliness of introduction of feedings up – a necessary condition for forming of the healthy person.

II. Purpose of activity of students.

The student has to know:

- anatomo-physiological features of digestive organs at children;
- value of natural feeding for normal development of the child;
- composition of colostrum and mature female milk;
- technology of carrying out natural feeding;
- reasons of a hypogalactia and methods of treatment;
- types of artificial mixes;
- technology of the artificial and mixed feeding;
- ways of calculation of daily volume of food of children of the first year of life;
- the daily needs for the main ingredients of food and calories at different types of feeding of the child on the first year of life;
- rules of introduction of a feeding up;
- features of feeding of children with anomalies of the constitution, rickets, anemia.

The student has to be able:

- to estimate physical and psychological development of the child;
- to estimate food of the child of the first year of life;
- to calculate the daily volume of food and amount of milk (mix) on one feeding, to make the approximate menu for one day;
- to calculate the daily need for the main ingredients of food and calories to the child of the first year of life;
- to carry out control feeding;
- to carry out correction of food of the child of the first year of life;
- to appoint treatment at a hypogalactia;

- to calculate the needs for the main food ingredients and calories a day, to make the approximate menu for one day to the child years are more senior;
- to make a food allowance to children with rickets, anomalies of the constitution and anemia.

III. Content of training:

1. Concept the natural, mixed and artificial feeding.
2. Lactation. The factors affecting lactic ability of a mammary gland.
3. Colostrum, transitional and mature milk (structure, caloric content, value in the course of feeding).
4. Advantages of natural feeding of the child.
5. Technology of carrying out natural feeding.
6. Difficulties at natural feeding from the child and mother. Contraindications to breastfeeding.
7. The daily need for the main ingredients of food and calories of the child of the first year of life depending on feeding type, correction of food.
8. Hypogalactia (definition, reasons, classification, treatment methods).
9. Rules, terms of introduction of a feeding up.
10. Features of feeding of premature.
11. Indications for the translation on mixed and artificial feeding, technology of carrying out.
12. Characteristic of substitutes of maternal milk.
13. Food of children after a year.
14. Feeding habits of children with rickets, anomalies of the constitution, anemia.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. List of references:

1. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.

2. Propaedeutics of children's diseases/T. V. Kapitan. – M.: MEDpress-inform, 2009. – 656 pages.
3. Propaedeutics of children's diseases/Ampere-second. Kalmykova. – M.: GEOTAR-media, 2010. – 920 pages.
4. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
5. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
6. A.V. Mazurin, I.M. Propedevtik's Baneberries of children's diseases. – Volume, 2009. – 505 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Background diseases of children of early age. Manual for students. – Vladikavkaz, 2011. – 64 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. Anatomo-fiziologichesky features of digestive system at children.
2. Features of digestion at premature.
3. What is "lactation"? What factors affect lactic ability of a mammary gland.
4. Call the main stages of formation of a lactation (colostrum, transitional and mature milk). What value do they have in the course of feeding?

VII. List of questions for check of final level of knowledge:

1. Give definition to concepts the "natural", "mixed" and "artificial" feeding.
2. What advantages does feeding of the child breast milk have?
3. Describe technology of applying of the child to a breast.
4. What difficulties from the child and mother can arise at natural feeding?
5. List contraindications to breastfeeding.
6. Call the daily need for the main ingredients of food and calories of the child of the first year of life depending on feeding type.

7. What is "hypogalactia"? Give basic reasons of its emergence. What methods of treatment are applied at a hypogalactia?
8. Call terms and rules, introductions of a feeding up.
9. Call features of feeding premature.
10. Call indications for transfer to the mixed and artificial feeding.
11. Give characteristic to milk mixes for baby food.
12. Tell about food of children after a year.
13. What features food of children with rickets, anomalies of the constitution, anemia has.

Information block

Balanced diet of children – the important condition providing the correct physical and mental development, immune responsiveness and substantially the defining wellbeing of an organism during all subsequent life. The child of the first year of life feels special need in a full-fledged diet in connection with the intensive growth, rapid psychomotor development and forming of all bodies and systems.

FEEDING OF THE HEALTHY CHILD OF THE FIRST YEAR OF LIFE

Depending on whether the child receives maternal milk and in what quantity, allocate three types of feeding: natural, artificial and mixed.

NATURAL FEEDING

Natural feeding is food of children of chest age maternal milk with introduction of a feeding up from 5th month. At the same time the content of maternal milk in a daily diet has to be not less than 4/5. This type of feeding is most physiologic, its advantages are undoubted as on the structure maternal milk approaches composition of fabrics.

The most important advantages of female milk is the following:

- Female milk is completely deprived of antigenic properties while proteins of cow's milk have pronounced antigenic activity that promotes emergence and strengthening of allergic reactions in babies. Refusal of breast milk in the presence at the child of allergic reactions – the gross blunder though quite often the translation of the child with allergic reactions to artificial, usually acidified milk formulas as though gives positive effect: manifestations of exudative diathesis abate for some time. And all are happy – "cured an allergy". Actually at the same time exclude that allergen which arrived to it through maternal milk from food of the child. In this situation it was necessary to find and exclude the allergen causing reaction in the child from mother's diet and it is obligatory to maintain natural feeding.

- The total amount of protein in breast milk is much less, than in cow, on structure it is close to proteins of cells of the child. In it fine fractions, particles of coarse-dispersion protein of casein several times more small, than in cow's milk prevail that provides curdling of breast milk in a stomach with more gentle flakes and by that its easier digestion.
- Female milk contains unique substance taurine. It is the sulfur-containing amino acid having neuroactive properties.
- At artificial feeding, when feeding inevitably there are proteinaceous overloads as cow's milk contains 3 times more amino acids. These overloads are followed by intoxication leading to delay of development of central nervous system of the child and also damage of kidneys because of disturbance of exchange processes. It is known that at the school students who were within 4-9 first months of life on natural feeding, intellectual opportunities are higher in comparison with other children.
- Female milk, especially the colostrum which is emitted in the first 3-4 days after the delivery is very rich with immunoglobulins, mainly class A, and 90% are the share of secretory to IGA which plays a fundamental role in local immunity of digestive tract of newborns. Leukocytes of breast milk synthesize interferon; milk contains a large number of macrophages, lymphocytes, and the level of lysozyme is 300 times higher, than in cow's milk. Also the antibiotic laktofelitsin is a part of female milk. Thanks to it natural feeding provides formation of immunobiological protection of the baby in this connection, the incidence and mortality among the children receiving maternal milk are much lower, than among the children who are on artificial feeding.

Quite often obesity of adults originates in the period of early children's age. Artificial feeding promotes obesity of babies. At many of them during puberty the secondary obesity remaining during all life is observed, generally it is connected with a proteinaceous reforage too.

- The amount of fat in female and cow's milk is almost identical, but there is a considerable difference in its Ingredients: breast milk contains several times more unsaturated fatty acids. The dislipidemiya which big role in emergence, is played by lack of breast milk in the child's diet, especially in the first 5 months of life is the cornerstone of development of atherosclerosis of adults. The lipolysis at babies begins in a stomach under the influence of a lipase of breast milk; it stimulates emergence of actual acidity in a stomach, promotes regulation of its evakuatorny function and earlier discharge of pancreatic juice. All this facilitates digestion and digestion of fat which separate components are a part of cells of all fabrics and biologically active agents, are spent for myelination of nerve fibrils, providing the increased need for fats of the child of the first year of life.

- Carbohydrates in breast milk contain in rather large number. They substantially define microbic flora of intestines. β-lactose (up to 90%) which together with oligoaminosakharida stimulates growth of normal flora with prevalence of bifidobacteria is their part, suppressing thereby proliferation of pathogenic microorganisms and colibacillus. Besides, β-lactose participates in synthesis of vitamins of group B.
- Exclusively richly female milk various enzymes: amylase, trypsin, a lipase (it is more a lipase in breast milk, than in cow, almost by 15 times, and amylases - by 100 times). It compensates temporary low enzymatic activity of a GIT of the child and provides assimilation of quite large volume of food.
- Mineral composition of food, the maintenance of microelements in it is important for the growing organism. Concentration of calcium and phosphorus in breast milk is lower, but they are acquired twice better, than the same microelements from cow's milk. Therefore at natural feeding children much easier and less often have rickets. The maintenance of microelements (sodium, magnesium, chlorine, iron, copper, zinc, cobalt, sulfur, etc.) in breast milk corresponds to needs of the child. For example, female milk of iron contains 0.5 mg/l, and in milk mixes – 1.5 mg/l, however degree of bioavailability makes respectively to 50 and 5. For this reason the children who are on natural feeding have anemia much less often therefore there is no need to add to their diet iron up to 6 monthly age. At artificial feeding appoint in addition iron from 4-month age usually in the form of the foodstuff enriched with this microelement. In breast milk of sodium contains 4 times less, than in cow. Excess loadings sodium can be the causes of vegeto-vascular dystonia with fluctuations of arterial blood pressure during puberty and also heavier and more frequent crises in a hypertension of the adult.
- Breast milk differs from cow in higher content and higher activity of vitamins, in particular vitamin B metabolites that also promotes prevention of rickets.

At artificial feeding the gastric secretion increases by 5 times, i.e. the programmed course of biological clock of maturing is broken. Further it contributes to the development a diskinezy GIT, gastroduodenit, cholecystitises, especially with genetic predisposition.

It is established that at the adults who were in chest age on natural feeding the sexual potency is better, the fertility is higher. The players of female milk are changed in the presence of in utero the arisen diseases that is considered as compensatory reaction to development of pathology of a fruit.

At natural feeding the fixed attitudes towards mother and her subsequent influence on the child are put for life and also future parental behavior of the child is formed. As showed observations, at the animals raised from a small bottle, the parental behavior is sharply perverted:

when they become adults, refuse to feed the posterity. Therefore the great value to natural feeding is attached by the psychologists dealing with issues of the family relations. Thus, the refusal of natural feeding is the worst disturbance of the biological chain which developed in evolution "pregnancy-childbirth-lactation".

In conclusion it is necessary to add that mammary glands at the nursing mother, as well as a placenta at the pregnant woman, are the most powerful barrier which is extremely seldom passing microorganisms, salts of heavy metals and other substances, harmful to the child. Therefore recommendations need to belong rather carefully to it, for example, as refusal of natural feeding and conversion of the child to milk mixes because of an adverse ecological situation in this area.

Rare applying of the child to a breast further, a breastfeeding regulation, purely technical approach to control of process of a lactation. The insufficient lactation is not a contraindication to frequent applying to a breast. On the contrary, more frequent feeding, in 2-2.5 h without night interval is recommended. Frequent and unlimited feeding by a breast in the first 2 weeks of life (on average 9 times a day) considerably increases a lactation. In the 80th years in many developed countries began to refuse a strict regulation of breastfeeding. It is impossible to attach too great value to amount of the exhausted milk, especially at single control feeding as the appetite of children during the day can be various. Besides, structure of female milk, and, therefore, and the need for it differ in extreme variability: for example, the protein content in milk of different women fluctuates from 0.9 to 2 gr. in 100 ml. The composition of tissues of the child is individual, and milk of his mother always suits it, but can not suit other child. Therefore feeding of children donor milk is not absolutely identical natural.

As a rule, at mother in mammary glands so much milk how many it is required to the child is formed. It is better to feed from both glands, especially if there is not enough milk as it stimulates a lactation and also reduces risk of a laktostaz. If after feeding in mammary glands there is a milk, it is necessary to decant it until it flows a stream (but it is not allocated with drops).

Treatment of a hypogalactia: niacin, vitamin E, Ural federal district, UVCh, influence by ultrasound, vibration massage, acupuncture, compresses from the terry fabric moistened with hot water on mammary glands. Use phytotherapy: broth of leaves of a nettle on 1 tablespoon 3 times a day (4-5 tablespoons of a nettle are made in 1 l. waters); hawthorn extract till 20-30 drops 3-4 times a day to food within 10-14 days. Use infusions of roots of a dandelion, marjoram ordinary, fruits of fennel, an anise.

Calculation of necessary volume of food happens at insufficient increase of body weight of the child or his concern during the period between feedings.

It is required to determine a food dose also when feeding by the decanted milk and its substitutes.

The easiest way of calculation of amount of the milk necessary for the newborn in the first 9 days of life, is following: on single feeding 10 ml are required. milk, increased on the date of life (at 6-7 single feeding). From the 10th to the 14th day the daily volume of milk remains invariable. From 2-week age the necessary amount of milk is defined taking into account the daily need for calories on each kilogram of body weight.

The daily need for kilocalories on 1 kg. makes body weights*:*

The I quarter – 120 kcal/kg;

The II quarter – 115 kcal/kg;

The III quarter – 110 kcal/kg;

The IV quarter – 100 kcal/kg.

Knowing age and body weight, it is possible to calculate amount of milk which is required to the child in day (X). For example, the child at the age of 1 month has the body weight of 4 kg., and, therefore, needs in 500 kcal a day; 1 l. breast milk contains 700 kcal. Therefore,

$$X = \frac{500 \times 1000}{700} = 710 \text{ ml.}$$

It is possible to use also less exact, but by simpler method of calculation for volume from body weight. According to it the child has to receive milk aged:

from 2 to 6 weeks – 1/5 from body weight,

of 6 weeks up to 4 months – 1/6 from body weight,

from 4 to 6 months – 1/7 from body weight,

from 6 to 9 months – 1/8 from body weight,

from 9 to 12 months – 1/9 from body weight.

Daily volume of food of children of the first year of life should not exceed ***1000 ml.***

The mode of feeding is set depending on age of the child and amount of milk at mother, considering at the same time individual needs of the child and other moments. In the first 3 months of life of healthy full-term children 7 times, i.e. each 3 h with a 6-one-hour night break

feed. If the child maintains longer period between feedings, it is transferred to 6 and 5 single feeding.

From 5 months most of children feed 5 times a day.

EDUCATIONAL AND METHODICAL RECOMMENDATIONS
for seminar classes in pediatrics
for students 5 courses of the Faculty of Dentistry

FEEDING UP

From 4th month of life include fruit and vegetable juice in food – in the beginning on several drops, gradually increasing volume.

Further the amount of juice is calculated according to the scheme: the age of the child in months increased by 10. As a rule, begin with apple juice.

After 5 months it is possible to enter other juice – carrot, garnet, cabbage, blackcurrant, etc. Lemon juice can also be given from 4th month of life, but in smaller volume: in the first half of the year about 5 ml, in the second – on 10 ml a day. From a citrus children can appoint juice of grapefruits even with allergic mood.

From 4.5 months, except juice, it is possible to enter the homogenized fruit puree as homogenization of food considerably increases the surface of contact of food particles with enzymes into a diet, accelerating thereby digestion and assimilation of feedstuffs.

Feeding up – introduction of the new food which was more concentrated and caloric which gradually and consistently replaces feeding with a breast. In 5-6 months the first feeding up is entered in the form of vegetable puree for the purpose of a covering first of all of micronutrient deficiency. For preparation of puree use various vegetables – potatoes, pumpkin, vegetable marrows, carrots, beet, turnip, green peas, cabbage.

From 5.5-6.5 months enter the second feeding up in the form of 7%, and after 10% of porridge on vegetable broth or on water with addition of 50% of milk in the beginning. In 2 weeks it is possible to cook porridges on whole milk. Considering that the child managed to get used to dense food, receiving vegetable puree, it is possible to begin with 10% of porridge at once.

From 6-7 months add a boiled (abrupt) egg yolk at first on 1/4 2 times a week, then every other day on 1/2 yolks.

Cottage cheese as a dish of a feeding up is recommended to appoint only from 6-7 months and no more than 40 gr. in day. Its earlier appointment is used for correction of food at deficiency of protein. In such cases it can be applied from 4-5 months.

From 7 months the child receives mincemeat from boiled beef, no more than 60-70 gr. in day (in 9 months). It is added to vegetable puree.

In 8 months one more feeding is replaced with a feeding up kefir.

Mincemeat from 10 months is replaced with quenelles, from 12 months – steam cutlets. In the same time give bread and apples pieces. Usually wean the child at the age of 1 year. In 12-16 months the morning and evening feeding is replaced with whole cow's milk or kefir with cookies or crackers.

Thus, by the end of the first year of life of the child transfer to a table d'hote, but food has to be mechanically and chemically sparing, balanced on the main ingredients, to provide an intensive metabolism of the child.

ARTIFICIAL FEEDING

Artificial feeding is a feeding of the child of the first year of life milk mixes – so-called substitutes of female milk – at total absence of the last or existence in quantity less than 1/5 daily volumes of food.

It is desirable to provide children of the first 2-3 months of life with donor milk though its use and is not identical to natural feeding, however in the absence of maternal milk it is an optimal variant. If it is not possible to receive donor milk, appoint adapted (i.e. as close as possible on structure to difficult milk) milk mixes.

Negative sides of artificial feeding is the following:

1. Disturbance of the principle of species-specific food;

2. Lack of biological factors of protection against diseases and allergy;

3. Lack of biologically active components of food defining regulation of rates of maturing, managing directors of growth and a fabric differentiation;

4. Non-optimal structure and ways of a metabolization of food nutrients – "metabolic stress", creating the increased risk of developing "civilization diseases" and other pathology;

5. Lack of protection against the damaging action of excess intake of food nutrients;

6. Possibility of forming of chronic diseases of the digestive system, in connection with tension of the device of digestion and ease of disturbances of a biocenosis of intestines;

7. Weakening of psycho-emotional bonds between mother and the child;

8. Possibility of contamination of milk mixes ecological and infectious pathogens.

For artificial feeding of babies use now mainly adapted milk mixes which everywhere force out simple as the increased protein content and mineral substances in the child's diet when feeding by plain mixes leads to excess load of kidneys. The size of this loading depends on extent of adaptation of a product to female milk. Pretreatment of cow's milk is directed to decrease in it in protein, salts of calcium, sodium, increase in amount of irreplaceable fatty acids, enrichment with its vitamins, microelements, lysozyme, etc.

The principles of change of structure of cow's milk for creation of the adapted milk mixes:

1. Decrease in the general protein content;

2. Enrichment with seralbumins for the best digestion of protein and correction of amino-acid structure;

3. Change of composition of fats: partial or full replacement of animal fat by vegetable fats for optimization of level of polyunsaturated fatty acids, especially classes ω6, ω3;

4. Increase in level of carbohydrates due to additional administration of lactose and other sugars;

5. Correction of mineral composition – decrease in level of sodium, potassium, calcium, the general ash-content and osmolarity;

6. Enrichment with a complex of mineral salts, vitamins and microelements;

7. Enrichment with taurine, nucleotides, carnitine, inositol and other biologically active compounds;

8. Enrichment with bifidogenic and protective factors.

All artificial mixes are subdivided on:

- ***basic mixes for feeding of healthy children;***
- ***medical mixes for children with special dietary needs;***
- ***treatment-and-prophylactic artificial mixes.***

Children's milk mixes, depending on age of the child, are subdivided into initial (starting) – since the birth to 4-6 months of life (are designated by figure 1) and the subsequent – from 6 to 12 months (are marked by figure 2).

Both initial, and subsequent mixes can be dry and liquid, ready to the use, fresh and sour-milk.

THE MIXED FEEDING

At this type of feeding in connection with insufficiency of milk at mother enter a supplementary feeding the same milk mixes, as at artificial feeding. At first the child is put to a breast and only after its full depletion finished feeding mix. For the purpose of preservation of a lactation of the child put to a breast not less than 3-4 times a day.

Alternation of feedings by a breast and mixes is undesirable as it leads to decrease in a lactation and difficulty of digestion of products of cow's milk. It is recommended to enter a supplementary feeding through a pacifier with the small opening imitating a papilla of the breast not to cause refusal of the child of a breast. As well as at artificial feeding, need of the child for proteins, fats, carbohydrates, terms of introduction of a feeding up depend on a type of the milk mixes used at a supplementary feeding.

Tasks for independent preparation:

1. Solve situational problems
2. Make tasks for test control on a subject.

Situational tasks

Task No. 1

The woman gave rise in time. Condition of the child satisfactory. Body weight at the birth 3300 gr., length of a body is 51 cm. To a breast it is attached in 6 h a breast took well; feeding 6 single. Mother has flat nipples. Tranzitorny decrease of weight of 9%. By 10th day of life does not maintain intervals between feedings.

Question. Specify a basic reason of a hypogalactia.

A. Age of the woman (35 years).

B. Flat nipples.

C. Late first applying to a breast.

D. 6-times feeding.

E. Any of above-mentioned.

Task No. 2

The woman gave birth to the healthy child in time. To him it was executed 1 month. Is on natural feeding, sucks well, milk at mother enough. Added in weight 600 gr. Psychomotor development corresponds to age. Since the birth at the child an unstable chair, 5-6 times a day, sometimes liquid with impurity of greens and lumps.

Question. Specify the most probable cause of instability of a chair at the child.

A. Staphylococcal coloenteritis.

V. Kolya infection.

S. Tranzitornaya lactose intolerance.

D. Reforage.

E. All above-mentioned is possible.

Task No. 3

At repeated visit at the age of 2.5 months the psychomotor development of the child corresponds to age, added in weight for the second month 800 gr., sucks well, mother has enough milk. The chair of 4-6 times a day, remains unstable.

Question. What most rational recommendation about the child's food now?

A. To add juice.

B. To enter the acidified milk formulas (adapted).

C. To add cottage cheese.

D. To give to drink vegetable broth.

E. Nothing from listed above.

Task No. 4

At the next visit at the age of 4.5 months, physical and psychomotor development of the child corresponds to age. Mother has enough milk. The chair was normalized.

Question. What dishes does the child need to enter in the nearest future?

A. Vegetable puree, cottage cheese, egg yolk.

B. Vegetable puree.

Page of 5% semolina porridge on milk.

D. Cottage cheese, egg yolk.

E. Egg yolk.

Task No. 5

To the child 6.5 months were executed. Natural feeding remains.

Question. What dish from following does not correspond to an age diet?

A. Mincemeat.

B. Vegetable puree.

Page of 10% semolina porridge.

D. Kefir.

E. Vegetable oil.

Task No. 6

The woman gave birth to the healthy child in time. To him it was executed 1 month. Is on natural feeding, sucks well, milk at mother enough. Added in weight 600 gr. Psychomotor development corresponds to age. Since the birth at the child an unstable chair, 5-6 times a day, sometimes liquid with impurity of greens and lumps.

Question. Your recommendations in this situation?

A. Antibacterial therapy.

B. A bacteriological research of milk and at detection of flora refusal of breastfeeding.

C. Bacteriological research calla.

D. Administration of juice.

E. Continuation of observation of the child.

Class in a subject:

"DEFICIENCY DISEASES IN CHILDREN

(RICKETS, SCARCE ANEMIAS, CHRONIC DISORDERS OF FOOD"

"RICKETS"

I. Scientific and methodical justification of a subject.

Rickets is one of the most widespread diseases of children of early age. Without being a cause of death, rickets, nevertheless, indirectly increases the lethality of children since promotes heavier and adverse course of all diseases of children of the first year of life. The expressed forms of rickets lead to permanent deformations of skeletal system which remain for the rest of life. Doctors of different specialties (therapists, oculists, stomatologists) will deal with consequences of this pathology. In this regard recognition and timely treatment and prevention of this disease is important.

II. Purpose of activity of students on occupation:

The student has to know:

- the contributing factors to development of rickets;
- main pathogenetic links of rickets;
- morphological changes in a bone tissue in rickets;
- main clinical symptoms of rickets;
- functional changes from internals and systems in rickets;
- classification of rickets;
- laboratory and radiological diagnostic methods of rickets;
- basic principles of treatment and prevention of rickets;
- possible complications at vitamin D use.

The student has to be able:

- to purposefully collect the anamnesis;
- to perform objective examination of the child;
- to interpret laboratory and radiological data;
- to make the developed diagnosis taking into account classification;
- to make the treatment plan of the patient;
- to write prescriptions on the main medicines;
- to define preventive actions.

III. Content of training:

1. The major factors contributing to development of rickets.
2. Main pathogenetic links of rickets. A role of epithelial bodies in pathogenesis of rickets
3. Morphological changes in a bone tissue in rickets.
4. Main clinical symptoms of rickets.
5. Classification of rickets (the principles of division on the periods, a course, weight).
6. Laboratory and radiological changes in rickets.
7. Treatment and prevention of rickets at children.

IV.Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. - M.: GEOTARmedia, 2009. - 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. - SPb: SpetsLit, 2006. - 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. - M.: GEOTAR-media, 2009. - 464 pages.
4. F.P. Romaniuk Rickets. A grant for doctors. - SPb.: 2002.
5. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Background diseases of children of early age. Manual for students. - Vladikavkaz, 2011. - 64 pages.
6. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. - Vladikavkaz, 2011. - 51 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. - Vladikavkaz, 2011. - 38 pages.
8. Lectures on pediatrics.
9. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. What features of the structure of long tubular bones at children?
2. Call morphological features of a bone tissue at children.
3. What need for phosphorus and calcium at children of chest age?
4. Call features of a mineral metabolism at children.
5. What role of vitamin D in a human body?
6. Call the main metabolic transformations of vitamin D in an organism.

VII. List of questions for check of final level of knowledge:

1. List the major factors contributing to development of rickets.
2. Characterize the main pathogenetic links of rickets.
3. Classification of rickets (the principles of division on the periods, a course, weight).
4. Call the main clinical symptoms of rickets depending on the period and a course.
5. What laboratory and radiological changes can be revealed at the patient with rickets.
6. Call the main methods treatment and prevention of rickets at children. What is specific and

nonspecific methods of treatment and prevention of rickets?

7. Give basic reasons of development of a hypervitaminosis of D in children.
8. List clinical manifestations of a hypervitaminosis of D.
9. What does prevention and treatment of this state consist in?

Information block.

RICKETS

- the disease of children of early age caused by disorder of calcic and phosphoric exchange in connection with deficiency of vitamin D is shown by disturbance of processes of education and a mineralization of bones and also functions of nervous system and internals.

Epidemiology

Classical rickets remains one of the most widespread diseases of children's age. It strikes children during rapid growth, aged up to 2-Z years the frequency of rickets reaches 35%.

Etiology and pathogenesis

At deficiency of vitamin D the synthesis of the calcium connecting protein providing calcium transport in intestines decreases owing to what concentration of calcium in blood decreases. The hypocalcemia stimulates activity of epithelial bodies - the products of parathyroid hormone raise. Owing to its surplus there is a strengthened removal of calcium from a bone tissue

and also the reabsorption of phosphates in renal tubules decreases. Quickly the hypophosphatemia develops, the alkaline reserve of blood decreases, there is acidosis. In the conditions of acidosis the process of a mineralization of ossiform fabric is broken. Reduction of content of salts of calcium and phosphorus in bones leads to osteoporosis and osteomalacy. Bones become soft and are easily deformed. At the same time in regions of growth there is a growth of defective ossiform fabric. The developed acidosis leads to disturbance of the central nervous system functions and internals.

The disease usually develops at the children having any given factors of predisposition which range at each child is individual. The combination of exogenous and internal causes determines terms of a demonstration and weight of a course of rickets.

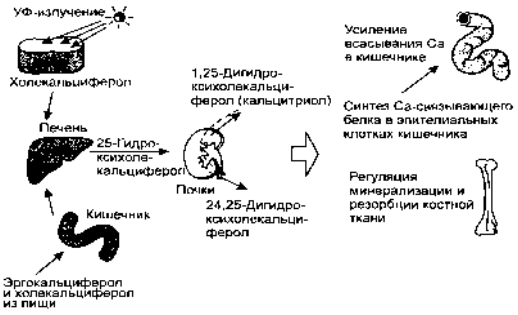
The factors contributing to rickets from the pregnant woman:

- age less than 18 and more than 36 years;
- gestosis;
- extragenital pathology (exchange diseases, pathology of a GIT, kidneys);
- defects of food during pregnancy and a lactation (deficiency of vitamin E), protein, calcium, phosphorus, vitamins of group C);
- non-compliance with a day regimen (insufficient insolation, hypodynamia);
- the complicated childbirth;
- unsuccessful social and economic conditions.

The factors contributing to rickets from the child:

- birth time (the children born from June to December are ill more often);
- prematurity, ZVUR;
- big body weight at the birth (more than 4 kg);
- big increase of body weight within the first 3 months of life.

Exchange of vitamin D and its physiological effects



Classification of rickets

Disease period	Weight of a course	Nature of a course

Initial Disease heat Convalescence Residual phenomena	The I degree (easy) The II degree (cf. weights) The III degree (heavy)	Sharp Subacute Wavy

Clinical picture

The leading clinical signs of rickets - bone changes.

> *Skull bones.*

- Craniotabes - softening and thinning of flat bones of a skull, Usually reveal in occipital or parietal area where the skull is softened so that gives in to squeezing. Not, which authors consider this symptom as the physiological phenomenon up to 4 months.
- Delay of closing of fontanels and seams between skull bones. It should be noted, however, that terms of closing of fontanels and seams of a skull are subject to considerable individual variability
- Delay of emergence of teeth.

> *Thorax.*

- Rachitic "beads" (thickenings on both sides of a breast owing to a hypertrophy of ossiform fabric in the field of costochondral joints).
- Deformation of a thorax (impression in the lower third of a breast - "the shoemaker's breast", its protrusion - a "chicken" or "keeled" breast).

> *Backbone.*

- Lack of physiological bends or appearance of a pathological kyphosis, lordoses and scolioses.

> *Extremities.*

- Thickening of epiphyses because of proliferation of badly calcific bone matrix that is especially noticeable on anklebones and wrists (rachitic "brasletka").
- The deformations of pelvic bones and lower extremities becoming noticeable at the end of the first and the beginning of the 2nd year of life (About - To - or a H-shaped curvature of legs, a flat rachitic basin).

In rickets, besides skeletal system, also other bodies and systems are surprised. Changes from central nervous system are most typical and the phenomenon of muscle weakness. The behavior of the child changes, he becomes irritable, the appetite decreases. Development of conditioned reflexes slows down, and acquired reflexes weaken or absolutely disappear. Hypotonia of muscles leads to decrease in physical activity, a stomach otvisaniye. Frequent

SARS, latent anemia are characteristic.

Depending on expressiveness of clinical manifestations distinguish three severity of rickets. Now easy forms prevail that creates certain difficulties in diagnostics, especially at assessment of activity and sharpness of pathological process.

The course of rickets depends on age of the child, the nature of feeding, a season of year, features of the mode and other factors. The beginning and exacerbation of a disease observe, as a rule, late fall, in the winter and in the early spring. In summertime the process calms down and there occurs recovery. Rickets usually on the 2-3rd month of life, to 5-6-month age begins, especially in the absence of preventive and treatment, in process of development of the profound acidosis the course of the disease becomes sharp and is followed by fast development of all symptoms. If medical measures are not undertaken or they are inadequate, the subacute course of rickets with moderate changes from neuromuscular and bone systems develops. Even easy forms of rickets with hardly noticeable external manifestations reduce body resistance that creates prerequisites for developing of other diseases. Especially adversely rickets at newborn and premature children proceeds.

At some children with rickets, mainly at the age of 5-15 months, note tendency to tonic and toniko-clonic spasms - a so-called spasmophilia the reason of increase in neuromuscular excitability and spasms consider decrease in concentration of the ionized calcium in blood serum and interstitial liquid. Allocate the obvious and hidden forms of a spasmophilia.

The obvious spasmophilia is shown by a laryngospasm, a carpopedal spasm and eklampsichesky attacks.

The laryngospasm proceeds with partial or full closing of a glottis. During a partial laryngospasm at the child observe the scared look, protruding eyes, cyanosis, characteristic "cock" shout on a breath. At full closing of a glottis and the termination of breath there is a loss of consciousness. Attacks proceed from several seconds to 1-2 min. and can repeat several times a day. Each attack poses a threat for life. The external irritating factors provoke attacks: loud sounds, bright light and so forth.

The carpopedal spasm arises at children more often 1 years are more senior and it is shown by tonic myotonia of brushes and feet.

The Eklampsichesky form of a disease proceeds with heavy attacks during which note the tonic and clonic spasms of extremities and trunks which are followed by a loss of consciousness. Attacks repeat, each of them proceeds 2-3 min. and threatens life of the sick child.

At the latent form of a spasmophilia at children reveal the symptoms demonstrating presence of the increased neuromuscular excitability. So, at percussion the reduction of mimic

muscles on the relevant party (Hvostek's symptom) happens a percussion hammer or a halfbent finger between a zygoma and a corner of a mouth. At compression of a neurovascular bunch in a shoulder there is a convulsive reduction of the brush adopting the provision "obstetrical hands" (Trusso's symptom). At a prick of skin of a leg there is short-term an apnoea (normal breath amplifies) - Maslov's symptom.

Diagnostics

In the presence of typical clinical manifestations the diagnosis usually does not cause difficulties. In case of the subacute course of the disease the leading value is gained by laboratory researches. Due to the complexity and inaccessibility for practical health care of methods of early diagnosis of hypovitaminosis by direct definition of concentration in blood of metabolites of vitamin D use indirect diagnostic methods, such as definition in blood serum of concentration of calcium, inorganic phosphorus, activity of alkaline phosphatase.

- Concentration of calcium in blood serum is usually reduced to 2.0-2.2 mmol/l (at norm of 2.42.7 mmol/l).
- Concentration of phosphorus in blood serum can be normal or is reduced to 0.65 mmol/l and below (at norm at children of the first year of life of 1.3-2.3 mmol/l).
- The activity of alkaline phosphatase (more than 220 Pieces/l) increases.
- With urine the increased amount of amino acids - an aminoaciduria more than 10 mg/kg/days is distinguished.
- On roentgenograms of bones reveal diffusion osteoporosis with the significant structural changes of a bone tissue (melkoyacheistost).

Differential diagnostics

Differential diagnosis of rickets is carried out with so-called rakhitopodobny diseases (tubulopatiya).

Treatment

Medical influences at children with rickets are directed to vitamin D shortage control, normalization of calcic and phosphoric exchange, elimination of acidosis, strengthening of processes of an osteogenesis. Children with rickets need good nutrition, it is desirable to keep breastfeeding

Medicinal therapy of rickets consists in prescribing of cholecalciferol (vitamin D). Intake of cholecalciferol should be begun as soon as possible: up to 3 months. Drug is appointed in drops in a daily dose 1500-4000 ME (depending on severity). For these purposes use water (for example, Aquadetrim) or oil (for example, "Videcholum" of 0.125% or 0.25%) solution in drops. Drug is released for intake, 1 ml (30 drops) contains ME cholecalciferol 15,000 for aqueous

solution and 20,000 ME for Solutio oleosa, 1 drop - 500-600 ME (or 1000 ME for 0.25% of solution of "Videcholum"). Drug is recommended to dissolve in a milk spoon, addition of drops in a small bottle is not recommended as at the same time necessary concentration of active ingredient usually is not reached.

At intake of cholecalciferol it is necessary to provide receipt of enough calcium (the diet enriched with calcium or calcium drugs). At oral prescribing of calcium preference is given to bioavailable forms, for example calcium carbonate. Use of glycerophosphate or a gluconate of calcium is also possible. Dosages make from 250-500 mg. in the first half of the year of life up to 400-750 mg in the 2nd half-year.

For improvement of digestion of salts of calcium and phosphorus in intestines, increase in a reabsorption of phosphates in kidneys and strengthenings of processes of bone formation appoint citrate mix on 1 teaspoon 3 times a day within 10-12 days.

For the purpose of normalization of functions of epithelial bodies and elimination of a hypomagnesiemia include one of magniysoderzhashchy drugs in complex treatment of rickets (potassium and magnesium asparaginate) or magnesium sulfate (1% solution) at the rate of 10 mg. magnesium on 1 kg. in day during 3-4 weeks.

Hospitalization is shown to children with an obvious spasmophilia. For stopping of spasms use diazepam (0.1 ml of 0.5% of solution for 1 kg. body weights), magnesium sulfate (0.5 ml of 25% of solution for 1 kg. body weights), piperidic acid (0.5 ml of 20% of solution for 1 kg. body weights). Administration of Calcii chloridum is obligatory (0.3-0.5 ml of 10% of solution for 1 kg. body weights, enter intravenously slowly).

For removal of a laryngospasm create the prepotent center of excitement in a brain by irritation of a mucous membrane of a nose (blow in a nose, tickle, bring liquid ammonia), skin (a prick, pat and douche by cold water), a vestibular mechanism (stirring of the child, change position of a body).

When assigning high doses of vitamin D it is necessary to control a calciuria (Sulkovich's test) and also, whenever possible, and a kaltsiyemiya.

In 2 weeks from the beginning of medicinal therapy include massage and LFK in a complex of treatment by all patient. To children 6 months reasonablly carrying out a balneoterapiya in the form of medical bathtubs are more senior: coniferous, salt or from broth of herbs. Pine needle baths are shown to excitable children. For preparation of a bathtub in 10 l. waters with a temperature of 37 °C add 1 teaspoon of natural liquid coniferous extract or a standard strip of a briquette. The first bathtub is carried out within 5 min., then time is extended up to 6-10 min., all for a course is recommended by 12-15 bathtubs daily or every other day.

After a rate of cholecalciferol the radiation can be appointed a mercury-quartz lamp (Ural federal district). Ural federal district is carried out after determination of individual sensitivity to ultraviolet rays (biodose) and appointed daily or every other day with 1/4 — 1/2 up to 4 biodoses to certain fields at focal length of 50-100 cmand duration of a course of treatment of 20-25 days. During intake of Ural federal district vitamin D do not carry out.

Prevention

Prevention of rickets should be begun till the child's birth. At patronage of pregnant women draw the attention of future mother to need of observance of the correct day regimen with alternation of work and rest, an exception of physical overworks, sufficient stay in the fresh air, a balanced diet. For receipt of adequate amount of calcium the diet of the pregnant woman has to contain enough milk or dairy products, in case of their intolerance appoint calcium drugs. The daily dose of vitamin D for pregnant women makes 400 ME. The feeding woman has to receive 1200 mg a day. calcium and 800 ME vitamins D.

Post-natal prevention of rickets at children is connected with the organization of healthy nutrition of the child from the first days of life. To the children who are on natural feeding, vitamin D is appointed from 3-4th week of life on 500 ME daily, excepting summer months. Prevention is carried out to 1-1.5 years. The children who are on artificial feeding by the adapted mixes receive all necessary vitamins B physiological doses therefore they usually do not need additional intake of vitamin D.

Tasks for independent preparation:

1. Solve situational problems and tasks of test control.
2. Examine the patient with rickets, describe the changes in the state of health revealed by you.
3. Write out in a workbook:

- Videcholum
- calcium gluconate

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- features of feeding of the child;
- gestation term at the birth;
- living conditions;
- features of child care, its stay in the fresh air;

- incidence of the child;
- quality of antenatal and post-natal prevention of rickets.

At an objective research to pay attention on:

- existence at the child of perspiration, hyperexcitability, a sleep disorder, nocturnal myoclonias;
- color of integuments and visible mucous membranes;
- size and form of a head of the child;
- size and condition of edges of a big fontanel;
- state at a palpation of an occipital bone;
- quantity and quality of teeth, terms and sequence of their eruption;
- existence of deformations of a thorax, backbone and extremities;
- decrease in a muscle tone;
- size and shape of a stomach, divergence of direct muscles.

At interpretation of datas of laboratory:

- in complete blood count test to pay attention to the maintenance of erythrocytes, hemoglobin;
- to estimate the content of phosphorus, calcium and alkaline phosphatase in blood serum;
- to give an assessment of test of Sulkovich.

When reading roentgenograms to pay attention on:

- condition of a cortical layer of a bone;
- condition of the region of growth;
- structure of a bone tissue.

Situational tasks

Task No. 1

The girl of 10 months came to clinic with complaints to pallor, a loss of appetite, slackness. Was born full-term (body weight 3300 gr., length of 49 cm), from the I pregnancy proceeding with toxicosis and births in time. From 3.5 months was on artificial feeding, practically did not receive fruit and berry juice, from 5 months it is raised mainly by porridges. Prevention of rickets was not carried out. Began to hold the head from 4 months, to sit from 9 months, the first teeth were cut through in 8 months, only 4 teeth.

At survey: pallor, tearfulness, a hypomyotonia, a stomach it is increased in volume, the umbilical ring is expanded, frontal and occipital hillocks act, at a palpation of a thorax is defined

costal beads. Pulse of 142 beats/min, symmetric, rhythmical, satisfactory filling. The upper bound of warm dullness at the level of II edges, right - the right sternal line, left - the left mamillar line. Cardiac sounds are moderately muffled, on a top gentle systolic noise. The liver acts from under a costal arch on 3 cm, edge equal, smooth. The spleen is not palpated.

Complete blood count test: Ayr - 2,8-1012/1, Hb - 76 g/l, Ley - 13.2-109/1, Tsv. the item - 0.6, reticulocytes - 2.8%, e/f - 1%, p.b. - 2%, with / I am 29%, l/c - 57%, m/c - 8%.

Questions:

1. Your diagnosis?
2. What possibilities of a cause of illness and risk factors?
3. Offer the plan of additional inspection, a balanced diet and medicamentous therapy.

Task No. 2

Mother with the boy of 6 months came to the next preventive reception to the pediatrician.

The child from the IV pregnancy proceeding against the background of toxicosis in the I first trimester. Childbirth in time, with stimulation. Was born with body weight 3500 gr., length - 53 cm, cried at once. Natural feeding up to 2 months, then cow's milk in half with boiled water, semolina porridge, kefir. Mother visits children's policlinic irregularly, inoculations with disturbance of the schedule.

Within the last 2 months mother of the child pays attention that the child began to sweat, shudder strongly in a dream, from pampers a pungent smell of ammonia.

At survey: body weight 8000 gr., length is 66 cm. Flattening and baldness of a nape, pliability of bones of a skull on the course of arrow-shaped and lyambdovidny seams, a big fontanel 3 x 3 cm pays attention, edges are pliable. The lower aperture of a thorax is developed, noticeable Garrisonova a furrow, costal "beads" are palpated. The hypomyotonia, badly leans on legs. In natural folds of skin not plentiful elements of a heat rash, a resistant red dermographism. Mucous clean. Puerile breath, there are no rattles. Clear cardiac sounds, rhythmical, beats/min ChSS-120. The pot-belly spread. The liver on 2.5 see belowedges of a costal arch, a spleen is not palpated. A chair with tendency to constipations.

Questions:

1. Make the preliminary diagnosis.
2. Draw up the plan of inspection.
3. What results do you expect to receive?
4. Appoint treatment.

Task No. 3

The girl of 8 months, in March came to chest department with the profound tonic spasms.

From the anamnesis it is known that the girl from the first pregnancy proceeding with toxicosis, arterial hypotonia, anemia of the I degree, spasms in gastrocnemius muscles. Childbirth in time. Weight at the birth 3800 gr., length - 53 cm. Since the birth on artificial feeding. The feeding up is entered since 4 months. Now receives: porridges, vegetable puree, kefir. From 5 months the rickets is diagnosed. Treatment is appointed vitamin D Solutio oleosa$_2$.

Objectively: the girl of supernutrition, the head of a hydrotsefalny form, frontal and occipital hillocks are expressed. Craniotabes. A big fontanel of 2x2 cm, edges are pliable. The thorax of a keeled form, the lower aperture is developed. The turgor of fabrics is sharply reduced. Tension of gastrocnemius muscles, symptom of "obstetrical hand". Cardiac sounds are slightly muffled, ChSS 159 ud. in min. In lungs non-constant small-bubbling damp rattles. The stomach is spread. The liver on 3 cmacts from under a costal arch, the spleen is not palpated. Sits with a support, is not necessary, periodically tonic spasms.

Task:

1. Formulate the preliminary diagnosis.
2. What researches need to be conducted for confirmation of the diagnosis?
3. What pathogenesis of development of a convulsive syndrome?
4. What therapy of this disease?

Test control:

1. Of rickets it is characteristic:

a) metabolic acidosis

b) alkalosis

c) respiratory acidosis

d) metabolic alkalosis

2. The ratio of level of calcium and phosphorus in blood is normal equally:

a) 2:1

b) 1:2

c) 3:1

d) 1:3

3. 25 hydrocholecalciferol are formed in:

a) kidneys

b) liver

c) in intestines
d) bones

4. 1, 25-digodrokholekaltsiferol it is formed in:
   a) kidneys
   b) liver
   c) in intestines
   d) bones
5. In the period of a heat of rickets it is observed:
   a) muscular hypertension
   b) craniotabes
   c) convulsive syndrome
6. In an organism **does not influence** phosphorus-calcium exchange:
   a) calcitonin
   b) 1, 25-dihydrocholecalciferol
   c) somatotropic hormone
   d) parathormone
   e) corticosteroids
7. Vitamin D contains in:
   a) yolk
   b) bread of a rough grinding
   c) vegetables
   d) meat
8. The preventive dose of water vitamin D makes:
   a) 200 ME
   b) 500 ME
   c) 2-3 thousand ME
   d) 1000 ME
9. Of an initial stage of rickets **it is not characteristic**:
   a) tearfulness
   b) perspiration
   c) loss of appetite
   d) the increased convulsive readiness
   e) bone deformations
10. Is the reason of spasms in a spasmophilia:

a) hypocalcemia
b) hypophosphatemia
c) hypercalcemia
d) hypopotassemia

11. The spasmophilia meets:
a) at newborns
b) at babies
c) in the pubertal period

12. Gipokaltsiyemichesky spasms arise at decrease in the ionized blood plasma calcium below:
a) 0.5 mmol/l
b) 0.85 mmol/l
c) 1.0 mmol/l
d) 1.5 mmol/l

13. Reduction of muscles of the person at percussion on a zygoma is called a symptom:
a) Tail
b) Trusso
c) Maslova

14. Is season when the spasmophilia meets more often:
a) winter
b) fall
c) summer
d) spring

15. The caused muscular contraction reminding the provision "obstetrical hand" is called a symptom:
a) Tail
b) Trusso
c) Maslova

16. An antagonist of vitamin D is vitamin:
a) And
b) In_6
c) In_{12}
d) E

17. The contributing factors to development of a hypervitaminosis of D are:

a) total dose of ME D 1000 000 vitamin and more
b) hypersensitivity to vitamin D
c) chronic diseases of kidneys
d) anemia

18. The porridge having antikaltsifitsiruyushchy property and recommended in the child's diet in a hypervitaminosis of D is:
a) buckwheat
b) rice
c) oat

19. Of the II degree of a hypervitaminosis of D it is characteristic:
a) absence of toxicosis
b) moderate toxicosis
c) loss of appetite
d) vomiting
e) poorly positive test of Sulkovich
f) sharply positive test of Sulkovich
g) falling of body weight

"SCARCE ANEMIAS "

I. Scientific and methodical justification of a subject.

Anemias are widespread as among adults, among children of different age so to a large extent that it is quite often closely interconnected, being implemented through interrelation "mother child". Knowledge of the main medical and diagnostic actions in anemia of different genesis is necessary for the doctor any and specialties.

Considering a set of clinical forms of anemias when passing a course of pediatrics by students of medical faculty, analysis of the scarce anemias which are most often found and having significant effect on an organism of the child and his future, having directly causal relationship with mother's organism developing both at children of early age, and at teenagers is reasonable.

II. Purpose of activity of students.

The student has to know: > types of scarce anemias;

- reasons and risk factors of deficiency of iron of mother and child;
- features of exchange of iron at children and an iron role in an organism;
- main mechanisms of pathogenesis of iron deficiency anemias;
- reasons and mechanism of development of vitaminodefitsitny anemias;
- food role in development of scarce anemias;
- value of background and interkurretny diseases in development, a course and treatment of scarce anemias;
- clinical and hematologic signs of scarce anemias;
- principles of treatment and prevention of iron- and vitaminodefitsitny anemias.

The student has to be able:

- to collect the purposeful anamnesis and to analyze it;
- from the general objective survey to mark out clinical signs of anemia;
- to make the plan of inspection and to appoint the additional researches necessary for disclosure of weight, the nature of anemia;
- to estimate blood test and other additional researches;
- to make the diagnosis according to modern classifications by carrying out the differential diagnosis of anemias of different genesis;
- to make the specific treatment plan of the patient landmark (a hospital, policlinic);
- to appoint dietary food to the patient with anemia or to the child from risk group;
- drug treatment with the indication of doses, duration of courses, etc., depending on weight and pathogenesis of anemia;
- to recommend preventive actions for mother and the child.

III. Content of training:

1. Classification of anemias.
2. The major etiological factors leading to development of anemias in children.
3. Concept "scarce anemias". Reasons of their development.
4. The main pathogenetic mechanisms leading to a clinical syndrome of anemias.
5. Clinical laboratory characteristics of scarce anemias at children.
6. Modern methods of treatment and prevention of scarce anemias at children.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).

3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. - M.: GEOTAR-media, 2009. - 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. - SPb: SpetsLit, 2006. - 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. - M.: GEOTAR-media, 2009. - 464 pages.
4. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. An iron deficiency anemia at children. Manual for students. - Vladikavkaz, 2011. - 41 pages.
5. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Background diseases of children of early age. Manual for students. - Vladikavkaz, 2011. - 64 pages.
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7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. - Vladikavkaz, 2011. - 38 pages.
8. Lectures on pediatrics.
9. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. Physiology of an erythrocyte system (what is erythron, erythrocyte balance, a normal erytrokinetics).
2. Features of an anti- and post-natal erythrogenesis.
3. Functions of an erythrocyte.
4. Iron role (features of forming of depot) in an erythrogenesis.
5. Role of vitamin B_{12}, folic acid in an erythrogenesis.
6. Age dynamics (curve) Hb and erythrocytes.
7. Normal hematologic (laboratory) characteristic of an erythrocyte system.

VII. List of questions for check of final level of knowledge:

1. What is anemia?

2. What types of anemias do you know?
3. What risk factors of developing an iron deficiency anemia do you know?
4. What key clinical laboratory indicators of iron deficiency anemias at children?
5. What treatment is performed at a zhelezodefitsita? Give characteristic to the main ferriferous drugs.
6. What does prevention of iron deficiency states consist in? For what contingent of the children's population similar prevention is necessary?
7. Give basic reasons of development of megaloblastny anemia.
8. What changes of laboratory indicators at the same time are observed?
9. Call methods of treatment and prevention of anemias at a vitaminodefitsita.

Information block

To anemias according to the WHO classification, carry states at which a hemoglobin content lower than 110 g/l at children up to 6 years are reduced and - at children 6 years are more senior than lower than 120 g/l.

There are many options of classification of anemias. It is essentially important that causes of anemias only four:

1. ***blood loss;***
2. ***hemolysis;***
3. ***decrease in products of erythrocytes;***
4. ***deposition (sequestration) of blood.***

The most frequent option of anemias at children are ***microcytic iron deficiency anemias.***

Iron participates in activity of each cell of an organism. The main part of iron is included in hemoglobin (60%) and a myoglobin (9%).

Reduction of content of iron brings in blood serum, marrow and fabric depots to:

- to decrease in rates of synthesis and disturbance of formation of hemoglobin;
- to accumulation of free protoporphyrin in erythrocytes;
- to development of hypochromia anemia;
- trophic to disorders in fabrics.

At children at the highest tension of a metabolism and its anabolic orientation at quite often available immaturity of fermental systems the deficiency of iron is felt most sharply. The deficiency of iron leads to decrease in ferriferous euzymatic systems - cytochrome, a catalase, peroxidase. It considerably influences on fabric and cellular metabolism.

Features of exchange of iron in a children's organism.

Reserves of iron begin to be formed at receipt through a placenta. At normally proceeding pregnancy mother gives to a fruit about 300 mg. gland. Most actively this process proceeds from 28-32 weeks of pregnancy.

To a placenta iron is delivered by transferrin. The placenta is not surmountable for the pregnant woman's transferrin. The exact mechanism of transfer of iron through a placenta is not clear. It is known that iron transport - the active process which is carried out against a concentration gradient only in one direction - from mother to a fruit. It is supposed that in a placenta there is a highly active fermental system extracting iron from maternal transferrin, and transferring to its placentary ferritin or fetal transferrin. Transferrin of a fruit delivers iron in marrow where erythrocytes are synthesized, and in fabric where iron is a part of various fermental systems. The excess of iron is deposited in a liver and muscles in the form of ferritin.

After the birth sources of iron are:

- exogenous iron of foodstuff;
- utilization of iron from endogenous stocks.

Antenatal stocks are quickly exhausted. The daily physiological need for iron at children makes 0.5-1.2 mg/days. If preventive therapy of a sideropenia is not carried out, then even at natural feeding by 3 months at premature and by 5-6 months at full-term development of an iron deficiency anemia is possible.

In exchange of iron in the post-natal period it is possible to allocate the following stages:

- absorption of iron in a GIT;
- iron transport in an organism;
- deposition of iron in an organism.

Absorption of iron in a GIT.

a) bivalent iron is taken cells of a mucous membrane of a small intestine;
b) oxidation of bivalent iron in trivalent in a membrane of microvillis of cells mucous a small intestine;
c) the future of iron depends on iron reserves in an organism:
   - at excess of iron it is late in epithelial cells of a mucous membrane in connection with ferritin. Then with the exfoliated epithelium is removed from an organism;
   - at a lack of iron the speed of its absorption increases. Its most part is soaked up in a blood stream, connects to transferrin.

Within the first 3-4 months of life, maternal milk is the only product which provides balance of exchange of iron. And, iron of female milk is acquired more effectively - 38-49%.

From cow's milk the absorption of iron does not exceed 10%.

When choosing food it is necessary to consider not only quantity, but also a qualitative form of its connections. In iron dried fruits - 15 mg / 100 gr., in beef meat - 2.6 mg / 100 gr., but iron from meat is acquired much more actively that is explained by more effective absorption of gemovy iron. The Zhelezoporfirinovy complex (gem) connects to receptors of a mucous membrane of a small intestine and is soaked up in not changed look. Absorption of a gem in intestines does not depend on acidity of the environment and food factors of an ingibition. At the same time utilization of iron from cereals, fruit and vegetables significantly decreases in the presence of oxalates, phosphates and other inhibitors. Therefore coefficient of absorption of iron from beef meat - 17-22%, from dried fruits - 3%.

Iron transport in an organism.

Transferrin provides:

- delivery of iron from a GIT to eritrokariotsita of marrow and in fabric depots;
- iron transport in marrow from fabric depots;
- iron transport from macrophages where there is its reutilization from the collapsing erythrocytes.

Humoral regulation of an erythrogenesis is carried out by erythropoietin which is synthesized in kidneys. In anemia of 10-15% of erythropoietin it is synthesized in addition in a liver. Erythropoietin accelerates release of reticulocytes from marrow, supports a proliferative pool of erythroidal predecessors, promotes their differentiation.

Deposition of iron in an organism.

The excess amount of iron is deposited practically in all fabrics. Ferritin is most intensively laid in a liver and muscles; hemosiderin - in macrophages of marrow and parenchymatous bodies.

Losses of iron with urine, a stake, then, hair, nails are 0.1-0.3 mg/days. They increase in the pubertal period, in gastrointestinal diseases, bleedings, vasculites.

IRON DEFICIENCY (SIDEROPENIC) ANEMIA

- the morbid condition which is characterized by decrease in a hemoglobin content because of deficiency of iron in an organism as a result of disturbance of its receipt, assimilation or pathological losses.

The reasons of iron deficiency states at children:

1. *Antenatal:*
   - disturbance of uteroplacental blood circulation, placentary insufficiency (toxicoses,

threat of interruption and perenashivany pregnancies, hypoxemic syndrome, exacerbation of somatic and infectious diseases);

- fetomaterinsky and fetoplacental bleedings;
- syndrome of fetal transfusion at polycarpous pregnancy;
- pre-natal melena;
- prematurity, multiple pregnancy;
- deep and long deficiency of iron in the pregnant woman's organism.

2. *Intranatal:*

- fetoplacental transfusion;
- premature or late bandaging of an umbilical cord;
- intranatal bleedings as a result of traumatic obstetric grants or anomaly of development of a placenta and vessels of an umbilical cord.

3. *Post-natal:*

- insufficient intake of iron with food
- the increased needs for iron at children with the accelerated growth rates.
- the increased losses of iron because of bleedings of various etiology; disturbances of intestinal absorption;
- disturbances of exchange of iron in an organism because of hormonal changes, disturbance of transport of iron because of insufficient activity and (or) decrease in content of transferrin in an organism.

Development of clinical manifestations of an iron deficiency anemia is preceded**the period of latent deficiency of iron** which is characterized by decrease in the deposited iron and its transport pool. The activity of ferriferous enzymes decreases. Speed of synthesis of hemoglobin and saturation of erythrocytes by it are not broken.

Laboratory criteria of deficiency of iron.

Indicator	Norm	Latent deficiency of iron	ZHDA
OZhSS, ^mol/l	44.6 - 56.8	>58.0	>58.0
KHT, %	30 - 50	<22	<20
Ferritin of blood serum, mkg/l	32 - 68	<20	<12
Free protoporphyrins of erythrocytes,			

mkg/l	200 - 400	>500	>600
Sideroblasts in a miyelogramma, %	20 - 90	<10	<10

Clinical manifestations of deficiency of iron are shown **by a sideropenic syndrome**:

- epithelial changes (trophic disturbances of skin, nails, hair, mucous);
- faddism of food and sense of smell;
- astheno - vegetative disturbances;
- disturbances of processes of intestinal absorption;
- dysphagy and dispepsichesky changes;
- decrease in local immunity (increase in incidence of ORZ, intestinal infections).

Decrease in level of erythrocytes in volume of blood happens at disappearance of stocks of gland. Hemoglobin synthesis decreases, concentration of protoporphyrins in erythrocytes increases. Erythrocytes gain the morphological features characteristic of ZhDA - ***a microcythemia, an anisocytosis, a poikilocytosis, a hypochromia.***

In clinic the all-anemic symptoms caused by development of an anemic hypoxia join a sideropenic syndrome. Changes join from CCC - tachycardia, muting of tones, anemic systolic noise, a tendency to hypotonia, dystrophic changes on the ECG. Asthenoneurotic disturbances accrue.

ZhDA can lead to a delay of psychomotor development in children of early age. School students with low indicators of hemoglobin have indicators of intelligence and speed of reactions considerably conceded to that at healthy children. The above-mentioned changes of central nervous system connect with a depression of activity of monoaminoxidases and aldoksidaz - the enzymes playing the main role in destruction of false neurotransmitters.

Calculation **of quantity of erythrocytes** occur by two unified methods: under a microscope in the cytometer of Goryaev and by means of the automatic counter.

The color indicator reflects the relative average content of hemoglobin in erythrocytes. It is calculated empirically on a formula of "three":

Tsv. pok. = (Nv x 3): erythrocytes; *where Nv - hemoglobin in g/l; erythrocytes - the first three figures of erythrocytes without comma.* Normal values **- 0.85 - 1.0**.

Average volume of erythrocytes (MCV).

Is defined automatically in hematologic counters or it is calculated by a formula:

MCV = (Ht: Ayr) -1000, *where Ht - a hematocrit of the patient (%), Ayr - the first three figures of erythrocytes without comma.* Normal values 75 **- 100 mkm3.**

The average content of hemoglobin in an erythrocyte (MSN) - reflects an absolute hemoglobin content in one erythrocyte.

MSN = Nv: Ayr, *where Nv - hemoglobin of the patient (g/l); Ayr - the first three figures of erythrocytes from a comma.* Normal values **- 24-33 personal computers.**

Average concentration of hemoglobin - reflects erythrocyte saturation rate **in an erythrocyte (MSNS)** hemoglobin. Is determined automatically or by a formula:

MSNS = (Nv: Ht) -10

Normal values **- 30-38%.**

Serumal iron reflects amount of the negeminovy iron which is in serum. Is defined by the unified technique with batofenantroliny.

Normal value**:**

newborn - 5.0 - 19.3 gmol/l;

children, are more senior 1 month - 10.6 - 33.6 gmol/l.

Indicator of reserves of iron in an organism:

Desferalovy test. It is based on ability of desferal to form connections with the iron which is a part of ferriferous proteins of a stock (hemosiderin and ferritin) and it is removed with urine in the form of complexes.

Normal daily excretion of iron according to the test with desferal is: full-term - 0,1640,19 ±mg/days;

premature - 0,0920,19 ±mg/days;

up to 4 years - 0,410,03 ±mg/days;

5-6 years - 0,570,09 ±mg/days;

7-11 years - 0.71 ±0.05 mg/days;

12 years - 0,730,07 ±mg/days are more senior.

Classification of anemia by severity:

Easy *- Hb of90-120 g/l; erythrocytes - to 3.5 x 1012/l****;***

Moderately severe *- Hb of 70-90 g/l; erythrocytes - 2.5-3.4kh 1012/l;*

Heavy — *Hb less than 70 g/l; erythrocytes - less than 2.5 x 1012/l.*

Treatment of ZhDA

The basic principles of therapy of ZhDA formulated in 1981 by L.I. Idelson are program also today:

1. It is impossible to compensate deficiency of iron without medicinal ferriferous drugs.
2. Therapy of iron deficiency states has to be carried out mainly by drugs for oral administration.
3. Therapy of ZhDA should not stop after normalization of level of hemoglobin.
4. Hemotransfusions at ZhDA have to be carried out only according to vital indications.

Diet

Women of fertile age need observance of adequate food and compensation by iron preparations of the increased its losses.

When choosing food, both for pregnant women, and for children it is recommended to give preference to the products containing iron in the form of a gem (neat's tongue, meat of a rabbit, turkey, chicken, beef). From the products containing iron in the form of hemosiderin and transferrin (a liver, fish) its absorption is much less. Products from meat increase absorption of iron from vegetables and fruit at simultaneous use. The soy protein, polyphenols reduce digestion of negemovy iron (tea, coffee, nuts, bean).

From vegetable products the bigger amount of iron contains in a sea cabbage (16 mg./100 gr.), fresh dogrose (11.5 mg.), buckwheat, oat-flakes (7.8 mg.), pear, apples, apricot (2.3 mg.). At a vegetarian diet no more than 17% of iron are acquired.

The full-fledged and balanced diet allows to cover only the physiological need for iron, but not to eliminate deficit. Therefore in treatment of ZhDA ferriferous medicines are surely appointed.

At ZhDA the contents in an organism of vitamins of group B and their metabolism is not violated. This group of vitamins initiates synthesis of porphyrines which at ZhDA is accelerated. Therefore use of these vitamins B of therapy of iron deficiency states is not justified.

Iron preparations.

Advantage of oral administration of iron preparations is:

1. Oral administration increases hemoglobin level only for 2-4 days later, than parenteral administration.
2. Oral administration extremely seldom, unlike parenteral, results in side effects.
3. Oral administration at wrong interpretation of anemia as iron deficiency does not lead to development of a hemosiderosis.

The greatest number of active iron contains in drugs with fumaraty gland (33% of the general content of iron in drug), ferrous sulfate (20%), an iron gluconate (12%).

Distinguish:

1. **Monocomponent** drugs - Haemoferum, ferrograd, a ferrogradument.
2. **The combined** drugs:

a) gland sulfate + serine (Aktiferrin);
b) gland sulfate + vitamin C (Ferroplexum, Ferrograd With, Sorbifer Durules, Ferroplekt);
c) gland sulfate + vitamin C + mukoproteaza (Tardiferon);
d) gland sulfate + vitamin C + mukoproteaza + folic acid (Ginotardiferon);
e) gland sulfate + folic acid (Ferrograd folik, Fefol).

Besides, there are numerous vitamin drugs as a part of which the amount of iron exceeds a dose of daily physiological requirement.

Recently the drugs containing in the basic bivalent iron salts are used. Utilization of trivalent iron is strictly limited by level rn gastric juice.

Inclusion in composition of ascorbic acid along with increase in absorption of iron contributes to more frequent development of side effects of a ferroterapiya.

The phytin included in complex drugs for stimulation of exchange processes worsens iron absorption.

Wide use of syrup of an aloe with iron therapeutic is a little effective since in 5 ml. drug only 2.5 mg contain. active iron and often the dispepsichesky phenomena develop.

At children of early age the prescribing of ferriferous drugs in a liquid form - drops and syrup is preferable (Haemoferum, Maltofer, Aktiferrin).

At disturbance of a microbiocenosis of intestines the activation of gram-negative opportunistic siderophile flora and development of dispepsichesky disturbances is possible. To these children are justified together with iron preparations to use eubiotik.

For children of advanced age it is better to appoint Tardiferona drugs and Ferrogradumet. They are slowly soaked up, provide the prolonged and uniform absorption of iron in intestines, are well transferred.

It is reasonable to appoint iron preparations in 1-2 hours prior to or after a meal. At bad shipping appoint during meal, but iron absorption at the same time worsens. It is impossible to wash down ferriferous drugs with tea, milk because of decrease in efficiency of digestion of iron.

Some medicines - tetracyclines, levomycetinum, antacids, calcium drugs break iron absorption.

For definition of a necessary medical dose of drug the calculation it is carried out only on elementary (active) iron.

Children up to 3 years have **5-8 mg/kg/days** of elementary iron.

Children up to 7 years have **100-120 mg/days**.

At children 7 years are more senior - to **200 mg/kg/days**.

So, **Haemoferum** contains in 1 drop 7.8 mg. ferric chloride and 2.2 mg. elementary;

aktiferrin in 1 drop of 47.2 mg. ferrous sulfate and 9.8 mg. elementary;

tardiferon in 1 tab. - 256 mg. ferrous sulfate and 80 mg. elementary; **ferro-gradument** in 1 tab. - 525 mg. ferrous sulfate and 105 mg. elementary.

Daily amount of drug = a therapeutic daily dose of elementary iron / quantity of elementary iron in drug.

The starting dose is equal 1/2 - 1/4 from a full dose, therapeutic with the subsequent achievement, within 7-14 days. It is necessary for assessment of individual tolerance of drug the child and reduction of risk of side effects.

The therapeutic effect is shown gradually. In the beginning clinical improvement, then hemoglobin normalization is noted. From clinical symptoms muscle weakness disappears in the beginning (iron is a part of the enzymes participating in reduction of myofibrils). For 8-12 day of treatment the maintenance of reticulocytes in peripheral blood increases. Normalization of hemoglobin happens on 4-5 week of treatment.

After achievement of normal level of hemoglobin it is reasonable to continue a ferroterapiya within 2-3 months the daily dosage decreases on 1/2 from a therapeutic dose.

At premature the ferroterapiya in a maintenance dose is carried out until the end of the 2nd year of life.

Indications to parenteral administration of iron preparations:

1. states after a resection of a stomach, a small intestine;
2. syndrome of the broken absorption;
3. nonspecific ulcer colitis;
4. chronic coloenteritis.

Daily doses of drugs for parenteral iron

Age	Daily dose of elementary iron of mg/days.
1 - 12 months. 1 - 3 years 3 years are more senior	to 25 25 - 40 40 - 45

Course dose of elementary iron (mg) = MT (kg) x (78 - 0.35 x child's Hb).

Course dose of drug on a course (ml) = KJ: SZhP, where KZhD - a course dose of iron (mg); SZhP - the content of iron (mg) in 1 ml. drug.

Quantity of injections on a course = KDP: SDP, where KDP - a course dose of drug (ml); SDP - a daily dose of drug (ml).

Parenterally the drug is administered with an interval of 1-2 days.

Side effects of ferriferous drugs: skin itching, dermahemia, allergic dermatitis, nausea, vomiting, loss of appetite, diarrhea.

Hemotransfusions at ZhDA are carried out only according to vital indications. Preference is given to a hemotransfusion of a packed red cells or the washed erythrocytes in a dose of 10-15 ml/kg of body weight; for children of advanced age from 150 to 250 ml.

Indications to a hemotransfusion:

a) Critical level of Nv in g/l:

The 1st day of life <130

The 2-6th day of life - heavy respiratory disturbances <130

- heavy disturbances of a hemodynamics <110-120
- without disturbance of breath and CCC <100

The 7-28th day of life - with disturbances of breath and CCC <100 - without disturbance of breath and CCC <80

Is more senior than one month <60

b) Disturbance of the central hemodynamics, hemorrhagic shock, anemic prekoma, hypoxemic syndrome.

Scheme of inspection of the patient:

When collecting the anamnesis to pay attention on:

- genetic predisposition;
- presence of anemia at mother during pregnancy;
- features of the obstetric and gynecologic anamnesis of mother;
- features of the perinatal period;
- defects of food of the child;
- symptoms of a disease: their character, terms of emergence, loudspeaker.

At an objective research to pay attention on:

- condition of weight of the child;
- color of integuments and visible mucous;
- condition of a cardiovascular system;
- sizes of a liver and spleen, lymph nodes;
- condition of other bodies and systems.

At interpretation of datas of laboratory to pay attention on:

- characteristic of an erythrocyte system: quantity, form, size, coloring of erythrocytes;

- amount of hemoglobin, contents and concentration of hemoglobin in an erythrocyte;
- gematokritny number;
- quantity of reticulocytes, thrombocytes;
- existence of young forms;
- biochemical analysis of blood (content of serumal iron, general iron-binding ability of serum (GIBAS), LZhSS saturation level transferrin).

Tasks for independent work:

1. Solve situational problems and test control tasks.
2. Write in a workbook prescriptions on drugs for treatment of scarce anemia.

Situational tasks.

Task No. 1

The girl of 10 months came to clinic with complaints to pallor, a loss of appetite, slackness. Was born full-term (body weight 3300 gr., length of 49 cm), from the first pregnancy proceeding with toxicosis. From 3.5 months was on artificial feeding, practical did not receive fruit and berry juice, from 5 months it is raised mainly by porridges. Prevention of rickets was not carried out. Began to hold the head from 4 months, to sit from 9 months, the first teeth were cut through in 8 months, only 4 teeth.

At survey: pallor, tearfulness, a hypomyotonia, a stomach it is increased in volume, the umbilical ring is expanded, frontal and occipital hillocks act, at a palpation of a thorax costal beads are defined. Pulse of 142 beats/min., symmetric, rhythmical, satisfactory filling. The upper bound of warm dullness at the level of II edges, right - the right sternal line, left - the left mamillar line. Cardiac sounds are moderately muffled, on a top gentle systolic noise. The liver acts from under edge of a costal arch on 3 cm, edge equal, smooth. The spleen is not palpated.

Complete blood count test: Ayr - 2,8-1012/1, Hb - 76 g/l, Ley - 13.2-109/1, Tsv. pok. - 0.6, reticulocytes - 2.8%, with / I am 29%, p/ya-2%, l/c of 57%, m/c of 8%, e/f 1%.

Questions:

1. Your diagnosis?
2. What possibilities of a cause of illness and risk factors?
3. Offer the plan of additional inspection, a balanced diet and medicamentous therapy.

Task No. 2

The girl of 14 years came to clinic with complaints to weakness, dizziness, periodically arising pains in epigastric area for 3 years. At first the tendency to constipations was noted, then -

to a diarrhea. Recently the language sizes increased, there were sites of reddening, the appetite decreased.

Moderately severe state, sluggish, emotionally labile. Subnutrition, astenik. Integuments pale with a citreous shade, a subjikterichnost of scleras, mucous clean. Brightly red sites of inflammation are always on the lips. Pulse of 94 beats/min., rhythmical, satisfactory filling. Cardiac sounds are muffled. A stomach painful at a palpation in epigastric area. A liver at edge of a costal arch. The spleen is not increased.

Complete blood count test: Ayr - 3,2-1012/1, Hb - 130 g/l, Tsv. the item - 1.1, Ley - 4.0^ 109/1, e/f - 1%, p.b. - 2%, with / I am 35%, l/c - 55%, m/c - 5%, SOE - 8 mm/h.

In a smear: reticulocytes ++, schizocytes ++, Kebbot's rings ++, Howell-Jolly bodies ++, a significant amount of neutrophils with the polysegmented kernels.

Level of serumal iron is 750 mkg/l, the content of vitamin B_{12} is 10 mkg/ml.

Result ***of a fibrogastroskopichesky research*** - symptoms of atrophic gastritis.

Questions:

1. Your presumable diagnosis?
2. What causes and mechanisms of a course of a disease?
3. Appoint treatment.

Test control:

1. The iron deficiency anemia is characterized by decrease:
   a) hemoglobin
   b) color indicator
   c) hematocrit
   d) quantities of erythrocytes
   e) quantities of reticulocytes
2. Most intensively iron collects in a fruit organism:
   a) the first trimester of pregnancy
   b) the second trimester of pregnancy
   c) the third trimester of pregnancy
3. The iron deficiency anemia on the saturation rate of erythrocytes hemoglobin is:
   a) normochromic
   b) hyperchromic
   c) hypochromia
4. A marrowy hemopoiesis at ZhDA is characterized:
   a) hypoplasia

b) aplasia

c) tension of an erythrogenesis with the advent of a reticulocytosis in peripheral blood.

5. At ZhDA the increase comes to light:
   a) transferrin saturation percent
   b) level of serumal iron
   c) ferritin level in blood serum
   d) concentration of hemoglobin in an erythrocyte
   e) iron-binding ability of blood serum
6. Are the reasons of development of iron deficiency anemias in children all listed below **EXCEPT**:
   a) alimentary
   b) sprue
   c) infectious diseases
   d) marrow aplasia
   e) the increased need of an organism of the child for iron during certain age periods
   f) chronic blood losses
7. The principles of treatment of ZhDA are:
   a) replacement therapy by blood preparations
   b) vitamin therapy by vitamin C
   c) vitamin therapy by group B vitamins
   d) use of the products rich with iron
   e) prescribing of iron preparations
   f) glucocorticoid therapy
8. What products does the child need to appoint with an iron deficiency anemia?
   a) milk
   b) rice
   c) meat
   d) fermented milk products
   e) buckwheat cereal
   f) fruit
9. $_{12}$Is the reason of V-scarce anemia more often:
   a) blood loss
   b) helminthic invasion
   c) disturbance of secretion of an internal factor of Kastl or disturbance of absorption

d) insufficient intake of vitamin B_{12} with food

10. At deficiency of folic acid anemia:
    a) hypochromia
    b) normochromic
    c) hyperchromic
11. V-scarce $_{12}$anemia is characterized:
    a) microcytic anemia
    b) megaloblastny type of a hemopoiesis
    c) decrease in number of reticulocytes
    d) hyperchromic anemia
    e) increase in serumal iron

"CHRONIC DISORDERS OF FOOD"

I. Scientific and methodical justification of a subject.

Chronic disorders of food are frequent pathology of children of early age, reducing body resistance and increasing incidence of children of early age. In this regard it is important to know the reasons, prevention and treatment of this pathology. It is also necessary to consider that the foundation in development of heavy degrees of obesity in adults is quite often laid on the first year of life. In this regard knowledge of this problem is important for doctors of endocrinologists, therapists.

II. Purpose of activity of students.

***The student has to know**:*

- definition of a normotrofiya;
- classification of chronic disorders of food;
- etiology of chronic disorders of food;
- disturbances in a metabolism at various forms chronic disorders of food;
- clinical manifestations and diagnostic methods in chronic disorders of food;
- basic principles of treatment and prevention of chronic disorders of food;
- value of chronic disorders of food in pathology of children of early age.

The student has to be able:

> to purposefully collect the anamnesis, allocating from it the factors of internal and external environment contributing to the development of chronic disorders of food;

> to conduct anthropometry and an objective research of the child;

> to make the diagnosis according to classification;

> to make the treatment plan of the child;

> to write prescriptions on the main medicines;

> to define preventive actions.

III. Content of training:

1. The factors of external and internal environment contributing to development of chronic disorders of food
2. Clinical forms of chronic disorders of food.
3. Role of chronic disorders of food in pathology of children of early age.
4. Hypotrophy (definition, etiology, pathogenesis, clinic, diagnostics, prevention, treatment).
5. Paratrofiya (definition, etiology, pathogenesis, clinic, diagnostics, prevention, treatment).
6. Obesity (definition, etiopathogenesis, clinic, diagnostics, prevention, treatment).

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. - M.: GEOTAR-media, 2009. - 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. - SPb: SpetsLit, 2006. - 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. - M.: GEOTAR-media, 2009. - 464 pages.
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5. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child.

The study guide for students. - Vladikavkaz, 2011. - 51 pages.

6. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. - Vladikavkaz, 2011. - 38 pages.

7. Lectures on pediatrics.

8. Methodical instructions for out-of-class work of students 4 courses of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. Features of the structure of a digestive tract at children.
2. Features of process of digestion at children.
3. Types of feeding at children of the first year of life.
4. What is a hypogalactia? Reasons of its emergence?
5. Types of obesity, development reason.

VII. List of questions for check of final level of knowledge:

1. Give definition of a concept a normotrofiya.
2. List the factors of external and internal environment contributing to development of chronic disorders of food
3. Give the reasons for a congenital hypotrophy.
4. Call clinical forms of chronic disorders of food.
5. List the main disturbances in a metabolism at: a) hypotrophy; b) paratrofiya; c) obesity.
6. What role of chronic disorders of food in pathology of children of early age?
7. Call changes from blood in a hypotrophy.
8. Call the basic principles of treatment: a) hypotrophy; b) paratrofiya; c) obesity.
9. Call the main preventive actions of chronic disorders of food.

Information block.

DYSTROPHIES at children represent the chronic disorders of food connected with the insufficient or excess intake of nutrients, disturbances of their assimilation and a metabolism conducting to a delay of physical and psychological development. Dystrophic states weaken the child's organism, contributing to developing of acute and chronic bacterial and other diseases. The children having dystrophies have to be carried in risk groups on many diseases.

In our country, according to G.N. Speransky's proposal (1945), 3 main types of dystrophy at children are allocated: ***hypotrophy, gipostatura and paratrofiya***.

Is later than G.I. Zaytsev, L.A. Stroganov (1969, 1981) considerably added this classification at the expense of discharge of severity (I, II, III), the disease periods (initial, progressing, stabilization, a convalescence), origins (prenatal, post-natal, prenatal and post-natal) and indications of the reasons (exogenous and endogenous).

HYPOTROPHY

The chronic disorder of food resulting from starvation of an organism when there is no opportunity to compensate the expenses spent for vital processes. The deficiency of feedstuffs can be caused by insufficient receipt them with food or to be result of disturbance of assimilation and utilization of food. The hypotrophy develops at children of the first 2 years of life more often.

Etiology and pathogenesis. Development of a hypotrophy is the cornerstone alimentary, infectious and constitutional factors. From alimentary factors, first of all, it is necessary to allocate disturbances of feeding of quantitative or qualitative character. Insufficient receipt of food can be connected with the reasons depending on mother (a hypogalactia, defect of chest glands - "a hard breast", the flat or pulled-in nipples, etc.) and from the child (an underdevelopment of a sucking reflex at premature children, the birth trauma, defects of development and ugliness complicating suction: splitting of a lip, hard palate, pylorostenosis, etc.).

The hypotrophy can develop also from disturbance of qualitative structure of a diet, at the wrong ratio of proteins, fats and carbohydrates, insufficient receipt any of the main food ingredients (proteins, vitamins). Leaving disturbance, chaotic feeding, insufficient input of the fluid, etc. are of great importance. The hypotrophy arises at the children who are on the mixed and artificial feeding more often.

Diseases of the child, especially acute and persistent infections (intestinal, respiratory and virus, pyoinflammatory, etc.), influence of a number of toxic factors (hypervitaminoses, medicinal poisonings), congenital pathology (mucoviscidosis, a Gee's disease, an enzymopathy) can also be the causes of a hypotrophy. The most frequent cause of a hypotrophy at children of early age - intolerance of proteins of cow's milk, gluten (protein of cereals). The hypotrophy can develop as a result of some hereditary endocrine, immunodeficient diseases, damages of the central nervous system.

The hypotrophy can have congenital character, the disease of mother, a fetopathy, defects of pre-natal development can be its reason.

In development of a hypotrophy the decrease in secretory function of digestive glands and evacuation of food is of great importance. Reduction of secretion of digestive glands leads to disturbance of processes of absorption and decrease in comprehensibility of feedstuffs. Band and

pristenochny digestion is broken, dysbacteriosis develops. Special changes are undergone by protein metabolism, there is a disintegration of fabric protein. The hypoproteinemia, disturbance of a normal ratio of protein fractions, the increased removal of amino acids with urine, negative nitrogenous balance are noted. There is a disappearance of stocks of a glycogen, fat, mineral substances, standard metabolism changes, exhaustion develops.

Clinical picture. The leading clinical symptoms in a hypotrophy are increase delay, a stop of an increase or decrease in body weight. Depending on deficit of body weight distinguish a hypotrophy of the I degree (deficit of the body weight of 10-20%), the II degrees (deficit of the body weight of 20-30%) and the III degrees (deficit of body weight more than 30%).

In a hypotrophy of the I degree the general condition of the child remains satisfactory, coloring of integuments is a little pale, the hypodermic fat layer decreases, the elasticity of skin decreases a little.

In a hypotrophy of the II degree along with lag in body weight occur lag in growth (from 2 to 3-4 cm); the hypodermic fat layer disappears on a trunk and extremities; skin loses elasticity, become dry, easily gathers in folds, on its certain sites there can be a peeling, pigmentation, hair become more rigid and rare, the turgor of fabrics considerably goes down, develops a hypomyotonia.

Disturbances of activity of a number of bodies and systems are characteristic of a hypotrophy of the III degree, besides sharper exhaustion: eyes sink down, the person takes a senile form, wrinkled, skin dry, shelled, with pigmentation, easily gathers pleated and long does not finish, mucous membranes dry, bright, vulnerable that often leads to development of a thrush, stomatitis. There is a hyperexcitability, nervousness or apathy, slackness, a dream uneasy, the appetite is reduced. Development of motor functions (children begin to sit, stand, go later) lags behind or they are lost. Muscles become atrofichny. Changes from a cardiovascular system are noted: dullness of cardiac sounds, the slowed-down pulse, a lowering of arterial pressure. Thermal control, extremities constantly cold is broken. The stomach is involved or blown up, an atony of intestines and a meteorism. Anemia develops.

At children with a hypotrophy the reactivity is lowered, they are ill more often, are susceptible to infections; diseases at them quite often accept difficult character, often there are complications.

Diagnostics. The diagnosis is made on the basis of assessment of clinical symptoms, lag in body weight.

Treatment. Consider a disease etiology, degree of exhaustion and presence of associated diseases. Treatment has to be complex, include correction or elimination of an etiological factor,

a dietotherapy, the rational mode, careful leaving, detection and treatment of the centers of an infection, rickets, anemia and other associated diseases.

At all forms of a hypotrophy particular importance is attached to food. It has to be constructed correctly, taking into account age need of the child for the main feedstuffs and his physiological opportunities. The proper correlation of the main food ingredients has positive impact on normalization of the broken exchange processes and also on physical and psychological development. In a hypotrophy of the I degree often happens to eliminate enough defect of feeding of the child, to adjust the mode and leaving then the deficit of body weight is quickly liquidated. To children with a hypotrophy of II and especially the III degrees, often suffering from the lowered tolerance to food, in the first days of treatment reduce the daily volume of food to 3/4, 2/3 and even up to 1/3 from the relying norm (depending on a condition of the patient).

The missing volume of food is filled with liquid (tea, dogrose infusion, glucose solution, fruit juice, vegetable and fruit broths). At improvement of a condition of the child the amount of food is gradually brought to physiological norm.

Purpose of food to the child having a hypotrophy and also all changes in food have to be made under control of calculations of the chemical composition of a diet. In a hypotrophy of the I degree the calculations and correction of food, as a rule, are made on 1 kg. the must body weight which consists of the body weight of the child at the birth and average norms of increases of body weight for the lived life period. In a hypotrophy of II and III degree when disturbances of exchange processes are significant, and, therefore, and digestion of the main feedstuffs, especially fat, is required accurate individualization of dietary actions. In a hypotrophy of the II degree the amount of proteins and carbohydrates in a daily diet is expected 1 kg. the must body weight, and amount of fats — on 1 kg. the actual body weight or at rather satisfactory condition of the child - on the body weight which is average size between actual and forced. In a hypotrophy of the III degree the necessary amount of proteins and carbohydrates is expected 1 kg. approximately must body weight (the actual body weight + 20% of the actual body weight). The amount of fats is calculated only on the actual body weight as the tolerance to fat at these children is sharply reduced. The specified calculations cannot use in a hypotrophy with the profound toxicosis. In this case it is necessary to eliminate the phenomena of intoxication and in the subsequent it is very careful, observing the principle of gradualness, to increase amount of ingredients and to expand a diet of the child.

In process of normalization of a condition of the child, permanent increase of body weight the food is calculated on the must weight. First of all korrigirut proteinaceous and carbohydrate

structure of a diet and in the last - fat. In the period of a reparation the amount of carbohydrates can be slightly higher than physiological norm as in connection with restriction of fats they represent the main source of energy.

It is important that the nutrition of the children having a hypotrophy was good. It is desirable to provide children of the first months of life with breast milk (in the absence of milk at mother - donor with the corresponding correction). At artificial feeding prefer as the mixes adapted milk and sour-milk. Fermented milk products stimulate production of digestive juices, reduce the dysbacteriosis phenomena, are easier digested and acquired by the child's organism.

For restoration of normal intestinal microflora it is recommended to use the biological products containing natural protective factors: bifidobacteria, lysozyme, lactobacilli.

It is reasonable to carry out correction of a proteinaceous component at the expense of natural products (cottage cheese, a yolk, meat mash) and also specialized canned meat.

Correction of a carbohydrate component is carried out by means of sugar syrup, fruit juice and puree. The fat structure of a diet is recommended to be expanded at full adaptation of the child to the protein arriving with food by inclusion in food of creamy and vegetable oil.

The feeding up to children with a hypotrophy is usually appointed carefully, against the background of positive dynamics of body weight, in the absence of acute diseases. As the first feeding up milk porridge from various grain is entered, then in 1-1.5 weeks appoint the second feeding up in the form of vegetable puree. All types of a feeding up enter gradually, since small doses, and within 7-10 days bring to necessary volume.

At all forms of a hypotrophy to children appoint a complex of vitamins B to a medical age dosage. In a stage of metabolic adaptation fermental drugs are shown (solution of hydrochloric acid with pepsin, Pancreatinum, panzinorm, festal, abomin, etc.). The apilak is applied to stimulation of trophic functions. In the heavy hypotrophy which is badly responding to treatment the hormonal therapy (retabolil) is shown.

Along with medicamentous therapy perform massage and gymnastics. The great value is attached to child care and a raising of its emotional tone.

Prevention has to include rational feeding, the organization of the correct mode, sufficient use of fresh air, careful leaving, physical training and hardening. Also periodic control of increase of body weight, carrying out calculations of food and its timely correction are of great importance.

Tasks for independent work:

1. Solve independently tasks of test control.

2. Examine the patient with chronic disorders of food, using the scheme below. Describe the changes in the state of health of your patient revealed by you in a workbook.

3. Solve situational problems.

4. Write prescriptions in a workbook:

-) festal
-) mezy forte
-) abomin
-) apilak
-) motilium

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- pregnancy course at mother;
- the body weight of the child at the birth;
- the nature of feeding of the child since the birth;
- existence of a hypogalactia at mother;
- timeliness and sequence of introduction of a feeding up;
- to the loudspeaker of an increase of body weight;
- the diseases transferred the child;
- features of child care.

At objective survey to pay attention on:

- color of integuments;
- expressiveness of a hypodermic and fat layer;
- turgor of soft tissues;
- elasticity of skin;
- presence of symptoms of exudative diathesis;
- condition of a muscle tone;
- deficit or surplus of body weight as a percentage;
- presence of symptoms of rickets;
- timeliness of development of static functions;
- psychological development of the child;
- changes from internals;
- appetite of the child;
- nature of a chair.

At interpretation of laboratory analyses to pay attention on:

- complete blood count test (maintenance of erythrocytes, Hb, leukocytes, eosinophils);
- biochemical analysis of blood (protein content and protein fractions);
- clinical analysis of urine.

Situational tasks.

Task No. 1

Mother of the girl of 1 month on reception at the pediatrician with complaints to the increased concern of the child remaining after feeding between feedings maintains no more than 1 hour.

From the anamnesis it is found out that the girl was born from the first pregnancy, physiological childbirth. Body weight at the birth 3050 gr., body length - 49 cm. Is on breastfeeding.

At objective survey: body temperature 36.5CC, body weight 3150 gr., length of a body is 51 cm. Skin with hyperaemia in inguinal and axillary folds. Hypodermic fatty tissue is thinned: thickness of a skin fold at the level of a navel - 0.5 cm, breasts - 0.5 cm, shoulders - 1 cm, a hip - 1.5 cm. Internals without pathology. A chair dense gruel 1-2 times a day. About 10 times a day urinate. The angry shout, emotional, greedy is enough a pacifier and a horn from 5% with glucose. The neurologic status within norm.

Questions:

1. Make the preliminary diagnosis?
2. What development of this state is connected with?
3. Appoint treatment.

Task No. 2

On reception girl of 1.5 months. Mother shows complaints to the frequent vomiting of the child arising both right after food and through some time after feeding and also before meal. The volume of the belched masses non-constant (from 1-2 teaspoons before vomiting by "fountain"), belches stvorozhenny milk more often. Eats greedy, a chair of usual consistence, without pathological impurity, a diuresis sufficient. The body weight increase for the first month of life made 650 gr., in 2 weeks of the second - 300 gr.

From the anamnesis it is known that the girl from the II pregnancy proceeding with toxicosis, interruption threat, childbirth was prompt. The girl is observed by the neuropathologist concerning perinatal encephalopathy, hyperexcitability. Belches from the first days of life.

Questions:

1. Make the preliminary diagnosis.
2. What development of this state is connected with?
3. Appoint treatment.

Test control:

1. Duration of the period of determination of tolerance to food in a hypotrophy of the I degree is:
   a) 1-2 days
   b) 3-7 days
   c) 10 days
   d) up to 14 days
2. Duration of the period of determination of tolerance to food in a hypotrophy of the II degree is: a) 1-2 days
   b) 3-7 days
   c) 10 days
   d) up to 14 days
3. Duration of the period of determination of tolerance to food in a hypotrophy of the III degree is:
   a) 1-2 days
   b) 3-7 days
   c) 10 days
   d) up to 14 days
4. The deficit of body weight at the I degree of a post-natal hypotrophy is:
   a) 5-8%
   b) 5-15%
   c) 10-20%
   d) 20-30%
5. The deficit of body weight at the II degree of a post-natal hypotrophy is:
   a) 5-8%
   b) 5-15%
   c) 10-20%
   d) 20-30%
6. The deficit of body weight at the III degree of a post-natal hypotrophy is:

a) 5-15%
b) 10-20%
c) 20-30%
d) more than 30%

7. States belong to a paratrofiya of the I article with:
a) deficit of weight more than 10%
b) surplus of weight from 5% to 10%
c) surplus of weight from 10% to 20%
d) surplus of weight and height more than 10%

8. Food volume in a post-natal hypotrophy of the I degree during determination of tolerance to food is:
a) 2/3 from norm
b) 1/2 from norm
c) 1/3 from norm

9. Food volume in a post-natal hypotrophy of the II degree during determination of tolerance to food is:
a) 2/3 from norm
b) 1/2 from norm
c) 1/3 from norm

10. Food volume in a post-natal hypotrophy of the III degree during determination of tolerance to food is:
a) 2/3 from norm
b) 1/2 from norm
c) 1/3 from norm

11. Uniform significant deficit of weight and growth is called:
a) paratrofiya
b) hypotrophy
c) gipostatura

12. Exchange disturbance is a basic reason of oppression of immune responsiveness in a hypotrophy:
a) proteins
b) fats
c) carbohydrates

13. Enzymatic drugs and anabolic hormones are shown at treatment of a hypotrophy:

a) are not shown

b) The I degrees

c) The II degrees

d) The III degrees

14. Can lead to developing of a post-natal hypotrophy:

>) alimentary factors

>) infectious diseases

>) untimely vaccinal prevention

>) genetic factors

>) diabetes at mother

>) iron deficiency anemia

Class in a subject:

"DIGESTIVE TRACT DISEASES AT CHILDREN"

I. Scientific and methodical justification of a subject.

Diseases of digestive organs in structure of somatic population morbidity are high on the list. High level of prevalence of gastroenterological diseases and among children is observed. Beginning at children's age, diseases of the digestive system proceed at adults more hard: carry out to development of heavy pathology from a stomach and 12 perstny guts, cholelithiasis, other departments of a gastrobilliarny system also are involved in pathological process. Compliance with it in a task of standards of the broad specialist has to include studying the reasons and conditions of forming of pathology of digestive organs, methods of clinical, laboratory and tool diagnostics, questions of dispensary observation, the principles of continuity of medical care (pediatricians and therapists).

II. Purpose of activity of students on occupation:

The student has to know:

- anatomo-physiological features of a stomach, 12 perstny guts, pancreas at children;
- characteristic of a pain syndrome;
- the principles of functional and special methods of a research in children's gastroenterological practice;
- principles of classification of diseases of a stomach, 12 perstny guts and pancreas;
- diagnostic criteria of diseases of a stomach and 12 perstny guts, pancreas;
- the principles of treatment and dietotherapy in gastroenterological pathology;
- features of dispensary observation for the child with pathology of digestive organs.

The student has to be able:

- to reveal the factors promoting diseases of a stomach, 12 perstny guts and a pancreas at children;
- to examine the patient with diseases of the digestive system, to estimate a pain syndrome, data of the anamnesis;
- to appoint the plan of additional laboratory, tool, X-ray inspection and to estimate their results;
- to make the diagnosis according to the existing classification;

- to appoint a diet and treatment of patients with pathology of digestive system;
- to make the plan of dispensary observation for children with pathology of a stomach, 12 perstny guts and a pancreas.

III. Content of training:

1. The factors contributing to development of gastroenterological pathology.
2. Semiotics of diseases of the digestive system (chronic gastritis, duodenitis, peptic ulcer).
3. Classification of diseases of a digestive tract.
4. Methods of additional inspection of gastroenterological patients.
5. Principles of therapy and prevention of diseases of digestive tract.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. Lectures on pediatrics. A grant for students of medical schools p / an edition M.V. Ehrman. – SPb "Volume", 2001. – 480 pages.

6. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.
8. Lectures on pediatrics.
9. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge.

1. Anatomo-fiziologichesky features of digestive organs at children.
2. Features of a metabolism at children.
3. Composition of normal indestinal flora at children.
4. The contributing factors to development of pathology of digestive organs.

VII. List of questions for check of final level of knowledge.

1. Characteristic of a pain syndrome in diseases of a stomach and a 12-perstny gut.
2. Features of physical inspection of children with diseases of a stomach and a 12-perstny gut.
3. The principles of functional researches in gastroenterological practice.
4. Classification of diseases of a stomach and 12-perstny gut at children.
5. Radiological and tool methods of a research in diseases of a stomach and a 12-perstny gut. Differential diagnostic characters of chronic gastritis, duodenitis, peptic ulcer.
6. The principles of treatment of diseases of a stomach and 12-perstny gut at children.
7. Features of dispensary observation for children with digestive tract diseases.
8. Dietotherapy in diseases of the digestive system.
9. Intestinal dysbiosis at children.

Information block.

CHRONIC GASTRITIS ALSO GASTRODUADENIT

(HG and HGD) – the chronic recurrent phasic inflammation of the mucous membrane of a stomach (MMS) and duodenum (DPK) which is followed by cellular infiltration, disturbance of phisiological regeneration with tendency to progressing and gradual development of an atrophy of the ferruterous device, disorder of secretory, motor, and quite often incretory function of a stomach.

Among etiological factors HG (HGD) associated with an infection of Helicobacter pylori (NR) prevail. HG (HGD) of the allergic nature, reflux often meet at children (associated with the damaging effect of bile).

Most often (80-85%) hyperacid (normoatsidny) HG (HGD) meet, is more rare – gipoatsidny.

Primary obligatory researches at exacerbation of a disease: the general test of blood, urine, the analysis a calla on the occult blood (as necessary), crude protein and protein fractions. Ezofagogastroduodenoskopiya with an aim biopsy SOZH for definition in bioptata of Nr and a histologic research; intragastralny rn a rn-metriya of ultrasonography of abdominal organs for definition of the accompanying pathology; definition of Nr by a noninvasive method.

Clinic: at *hyperacid* (normoatsidny) HG (HGD) of an abdominal pain on an empty stomach or in 1-1.5 hours after a meal, mainly in epigastric, piloroduodenalny area, heartburn, an eructation air, acid, nausea, constipations.

At *gipoatsidny* HG (HGD) – an early abdominal pain, right after food, weight in epigastric area, reduced appetite, nausea, an eructation food, air, tendency to a diarrhea (unstable chair), a meteorism.

Physical status: At *hyperacid (normoatsidny)* HG (HGD) – morbidity at a palpation in piloroduodenalny area, epigastriums, Mendel's symptom (+, ++), a syndrome of chronic intoxication: weakness, increased fatigue, vegetative disturbances.

At gipoatsidny HG (State Duma) – an asthenic constitution, subnutrition, morbidity at a palpation of an upper and average third of epigastric area, symptoms of chronic intoxication.

Diagnostics. At an endoscopic research allocate HG (HGD): superficial (catarral, erythematic), mixed, subatrophic, nodulyarny (hypertrophic and hyperplastic), erosive, hemorrhagic. SOZH and DPK, motor disturbances define prevalence, activity of

inflammatory and destructive changes (a duodeno-gastralny reflux, duodenostaz, insufficiency of the gatekeeper, etc.). At an intragastralny rn of a rn-metriya or fractional gastric sounding) define the stomach sekretoobrazovaniye (raised, normal, lowered), a kislotoobrazovaniye (hyperacidity, the normoatsidnost, a gipoatsidnost) alkalizing function (normal, reduced).

Bioptata SOZH and DPK taken at endoscopic inspection investigate histologically (diagnostics of and the State Duma), define activity of process, the involvement of the ferruterous device, development of a metaplasia, infection of Nr and also for express methods of definition of Nr.

At X-ray inspection reveal signs of inflammation and motor disturbances of a stomach and DPK.

At ultrasonography reveal the accompanying pathology of biliary tract, a pancreas, liver.

Characteristic of treatment: the basic principles of treatment depend on character and form G (State Duma), activity of inflammatory and destructive process, a disease phase.

At aggravation:

1. Solution of a question of treatment conditions (hospital or policlinic).

2. The choice of the motive mode (sparing or usual), use of LFK.

H. Choice of a diet, purpose of dietary food (table No. 1, No. 2, No. 5).

4. Individual selection of complex treatment (taking into account an etiology, the main pathogenetic mechanisms, the leading symptoms).

At (State Duma), associated with Nr-infektsiyey, with the significant activity of process, medicinal therapy there begin with use eradikatsionny (triple or a quadra) therapies on one of the standard schemes. Preference is given to drugs of bismuth (De-nol) as basic, with parallel prescribing of antisekretony drugs.

Modern schemes of treatment of Nr-infektsii at children:

<u>One-week triple therapy with bismuth drug</u>:

1) colloidal subcitrate of bismuth + amoxicillin (roksitromitsin) or klaritromitsin (azithromycin) + furasolidone (makmiror);

<u>One-week triple therapy with blockers of H+/K +-ATFaza</u>:

2) omeprazolum + amoxicillin (roksitromitsin) or klaritromitsin (azithromycin) + furasolidone (makmiror);

One-week kvadroterapiya:

colloidal subcitrate of bismuth + omeprazolum + amoxicillin (roksitromitsin)

or klaritromitsin (azithromycin) + furasolidone (makmiror)

All drugs are appointed 2 times a day (in the morning and in the evening) within 7 days.

After performing eradikatsionny anti-Nr-terapii continue complex treatment of (State Duma), depending on the nature of acid-forming function of a stomach.

At hyperacid (State Duma) – anti-secretory drugs (mainly blockers of N-histamine $_2$receptors: ranitidine or famotidine.

At the second stage of treatment of (State Duma) and also at a reflux gastritis, a syndrome of dyspepsia of diskinetichesky type appoint aluminum - and the magniysoderzhashchy not soaking up antacids (maaloks, megalofit, gelyusit, alyumag, fosfalyugel, etc.) on 5-15 ml. (or 1/2-1 tablet) in 1.5-2 hours after meal and before going to bed. A basic course of treatment 2 weeks, further – reception of antacids on demand.

With antacids at motor disturbances appoint prokinetics (motilium, koordinaks, peristit, etc.) on 0.005-0.01 gr. 3 times a day to food, 10-14 days, then – on demand.

In parallel, if necessary, cytoprotectors and reparant for a period of 2-3 weeks are appointed (the smekt – on 1/2-1 bag 3 times a day to food, gastrofarm – on 1/2-1 tablet 3 times a day to food, liquiritonum – on 0.05-0.1 gr. 3 times a day to food, Biogastronum, ventrosol, tsitotek, etc.). At spasms and the expressed pain syndrome – spasmolysants (Nospanum, Platyphyllinum, buskopan).

After cancellation of anti-secretory drugs – metabolik – for improvement of a trophicity SOZH (spirulina), vitamin drugs.

At gipoatsidny (State Duma) – stimulators of gastric secretion (juice of cabbage, plantain, abomin, atsidin-pepsin, Plantaglucidum) for a period of 2-4 weeks in combination with cytoprotectors and reparant (4-6 weeks), if necessary – for 7-10 days.

When subsiding aggravation use phytotherapy (courses for 2 weeks), a balneoterapiya (courses for 2 weeks, alternating to phytotreatment), physical therapy (for normalization of secretory and motor function of a stomach, improvements of a trophicity SOZH use an

induktoterapiya, KVCh, diadynamotherapy, magnetotherapy, an electrosleep); at gipoatsidny (State Duma) – galvanization of area of a stomach, an electrophoresis with calcium, electrostimulation by DD-currents), a thermotherapy (paraffin, ozokeritovy appliques, etc.).

PEPTIC ULCER (PU)

– the chronic recurrent disease which is characterized by forming of ulcer defect in a stomach and (or) DPK against the background of inflammatory changes SOZH and DPK with involvement in pathological process of other bodies and systems, development of complications, life-threatening the patient. The polyetiological disease which is genetically determined.

The peak of incidence falls on 9-11 years at girls and 12-14 years at boys.

Primary obligatory researches: the general test of blood, urine, blood typing and a Rhesus factor, the analysis a calla on the occult blood, a proteinogramm, an ezofagogastroduodenoskopiya with an aim biopsy SOZH and DPK and also (in need of a periultserozny zone), carrying out the ureazny test for identification of Nr, a histologic research of bioptat, ultrasonography of abdominal organs for detection of the accompanying pathology of a liver, biliary tract, a pancreas.

be in addition carried out: X-ray inspection, intragastralny rn rn-metriya of an immunogramm, noninvasive methods of identification of Nr.

Note: treatment outcome for aggravation at YaB are always estimated by clinical and endoscopic trials in dynamics.

Anamnesis of YaBZh: an onset of the illness gradual, a course recurrent, with seasonal aggravations; communication with alimentary disturbances.

Anamnesis of YaB DPK: genetic predisposition (to 75% of patients), communication of aggravation with psychoemotional overloads, a course is significant – recurrent, the seasonality is significant at 1/3 patients.

Complaints at YaBZh: pains (aching are more often) behind a xiphoidal shoot and in epigastric area in 0.5-1.5 hours after meal, vomiting, a loss of appetite to anorexia, nausea, heartburn.

Complaints at YaB DPK: intensive (aching and paroxysmal) pains in an upper half of

a stomach to food, night, a moyniganovsky rhythm of the pains which are quite often irradiating in a back, in a waist, heartburn, an eructation acid, vomiting (single is more often), tendency to constipations, a headache, emotional lability.

Physical status: YaBZh – palpatorny morbidity, sometimes tension of an abdominal wall in epigastriums.

YaB DPK – the significant local palpatorny and percussion morbidity in a piloroduodenalny zone, a positive molotochkovy symptom, local muscular tension, zones of a skin hyperesthesia of Sacharyin-Hedda, astenovegetativny manifestations.

Complications are observed at 15-20% of patients with YaB, is more often at boys (bleeding – 80%; deformation and a stenosis – 10-11%; perforation – 7-8%; a penetration – 1-1.5%).

Diagnostics: the diagnosis of YaB DPK and its morphological substrate decides only by means of an ezofagogastroduodenoskopiya on an aim biopsy SOZH and DPK. Determine topography, number, the sizes, a stage of ulcer defect, state existence of complications, expressiveness, option and activity of Nr accompanying the State Duma, contamination SOZH.

X-ray inspection is conducted only in case of impossibility of performance of an endoscopic research. Absolute R-signs of YaB (a symptom of "niche", convergence of folds towards ulcer defect, cicatricial and ulcer deformations) at children's age come to light only at 18-25% of patients. **Characteristic of treatment:** the basic principles of treatment of YaB depend on topography of ulcer defect (DPK or a stomach), the period of a disease, weight of a course, existence of complications, communication with Nr.

At aggravation:

1. The choice of a diet (purpose of dietary food with gradual transition from table No. 1a, 1b, 1 to a table 5), the choice of the motive mode (sparing, LFK).

2. Individual selection of complex treatment taking into account an etiology, the leading pathogenetic mechanisms and kliniko-endoscopic symptom complex.

At Nr-assotsiirovannoy of YaB: treatment is begun with NR eradikation: one of the standard schemes (triple or a kvadroterapiya) within 7 days with the subsequent confirmation of efficiency of an eradikation (not less than 4-6 weeks after the end of antikhelikobakterny therapy) any two methods of verification of Nr is appointed.

In parallel, or at once upon termination of eradikatsionny treatment, anti-secretory therapy (preference is given to selection blockers of N_2 of a histamine of 2-4 generations (groups of ranitidine, famotidine), selection M-cholinolytics (gastrotsepin), by blockers of H+/K+ of ATP-ase (group of omeprazolum, a pantoprazol, a lanzoprazol, a rabeprazol) for a period of 3-4 weeks with gradual cancellation, or purpose of a maintenance dose is appointed (up to 6-8 weeks).

After cancellation of antikhelikobakterny therapy and decrease in anti-secretory drugs for the term of 3-4 weeks appoint: complex antacids (maaloks, Almagelum, gelyusit other) cytoprotectors (the smekt, a sukralfata, a licorice root, synthetic analogs of prostaglandins, dalargin); reparant (sea-buckthorn oil, tykveol, spirulina, ayekol, drugs of propolis, aloe); immunoproofreaders (plant origin).

At disturbance of motility (refluxes, duodenostaz) – prokinetics for 2-3 weeks.

Symptomatic treatment: sedative drugs (persen, new Passitum) on the 1st tablet (1 measured spoon) 2-3 times a day (3 weeks); antistressorny drugs (Sibazonum) in an age dosage for 10-14 days; spasmolysants (Platyphyllinum, Nospanum, buskopan) – parenterally for 10-15 days.

Average course of drug treatment of aggravation of YaB DPK – 4-6 weeks, YaBZh – 6-8 weeks.

CHRONIC PANCREATITIS (CP)

– a polyetiological disease with the phase progressing course, focal or diffusion and degenerative, destructive changes of acinar fabric, exocrine and endocrine function of the pancreas (P).

Primary obligatory researches: complete blood and urine count test, blood sugar (on an empty stomach), amylase and a lipase in blood, a koprogramma, ultrasonography of abdominal organs.

Clinic. The dominating symptom – pain (intensive, aching, sometimes surrounding, it is localized in a middle part of epigastriß area and to the left of a midline, amplifies after a meal, decreases in a prone position on the left side or on a stomach). Long nausea, the pernicious vomiting which is not giving relief. At decrease in vneshnesekretorny pancreatic activity – signs of a maldigestiya (plentiful, foamy, semi-fluid chair and a meteorism). Astenovegetativny syndrome (general weakness, headache, dizziness, sleep disorder). The lack of a pain syndrome at increase of symptoms of vneshnesekretorny insufficiency is characteristic of the HP latent form. At a palpation of a stomach the morbidity in Dezharden's points (PZh head projection), Kacha (PZh body projection) and Mayo-Robsona (projection of tail department of PZh) is defined.

Diagnostics: in peripheral blood – a moderate leukocytosis, it is frequent – stab shift, a lymphocytosis.

Amylase of blood (urine). Increase by 3-5 times from the first day of aggravation and normalization within 3-4 days. An indicator of circulator disorders in PZh.

Lipase of blood (urine). Increase by 2-3 times from 5-7 in the afternoon aggravations. Indicator of weight of defeat of PZh.

Koprogramma – polyexcrements, "a grease look", a fetid smell, a steatorrhea, a creatorrhea.

Ultrasonography – PZh hyper echogenicity, alternation hyper - and hypogene sites, increase in the sizes, change of contours and a shape of gland, expansion of Virsungov Canal.

Characteristic of treatment:

1. The first three days at the significant aggravation – hunger and according to indications – parenteral nutrition. Then – table No. 5 (on Pevznera).

2. Stopping of a pain syndrome: analgetik (Baralginum, analginum), spasmolysants (papaverine hydrochloride; Nospanum in oil; fenikaberan in oil); cholinolytics (buskopan 10 mg. 2-3 times a day after a meal, Platyphyllinum hydrotartrate of 1-2 ml of 5% of solution, subcutaneously), narcotic analgetik (Promedolum of 0.5-1 ml of 2% of solution, in oil).

3. Oppression of functional activity of PZh. Has the strongest overwhelming effect on the PZh function oktreotid (sandostatin) on 25-50-100 mt. 2-3 times a day, in/in or subcutaneously, within 5 days. Dalargin (synthetic analog of opioid peptides) on 1 mg. 2 times a day, in oil. Pancreatic ribonuclease on 1-3 mg/kg, in/in struyno in 20-40 ml. isotonic NaC1 solution. Indirectly oppress secretion of PZh antacids (Almagelum, maaloks, fosfalyugel, etc.) or N_2 gistaminoblokator of the second or third of generations (ranitidine, famotidine).

4. Reduction of an enzymatic toxaemia is carried out at severe forms of HP by parenteral administration of inhibitors of proteolysis (Contrykal, Trasylolum, Gordoxum, zimofen, etc.). The dose is selected depending on degree of a fermentemiya and a condition of the child.

5. For prevention of purulent complications at severe forms of HP appoint antibiotics of a wide range (cephalosporins, macroleads, aminoglycosides).

6. After stopping of a pain syndrome (in 4-6 days) appoint the pancreatic enzymes which are not containing bile (Pancreatinum, mezim-forte, kreon, pan-citrate) on 1 dragee 3 times in time or after a meal.

Duration of hospital treatment is 28-30 days (in the absence of complications).

Tasks for independent preparation:

1. Solve situational problems and test tasks.
2. Examine and describe in a notebook the revealed changes in a condition of the patient with gastrointestinal diseases.
3. Write in a notebook prescriptions on:
   a) mezim-forte
   b) kreon
   c) omeprazolum
   d) renitdin

e)-nol

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- family anamnesis;
- family predisposition;
- prescription of a disease.

Complaints at survey:

- General symptoms: weakness, slackness, increased fatigue, irritability, headaches.
- Abdominal pain.
- Appetite – preservation, decrease.
- Dispeptic disorders:

a) to food, after a meal, are not connected with meal, often, seldom;

b) vomiting (communication with meal, gives relief or not);

c) heartburn (often, seldom, intensity);

d) eructation (air, food, bitter, acid, rotten egg);

e) intestinal dyspepsia – a meteorism, an intestines hyperperistalsis, a diarrhea, constipations, a chair).

- Structure of sensation of pain.
- Localization of pains – the right hypochondrium, the left hypochondrium, area of a stomach, around a navel, the right ileal area, diffuse morbidity on all stomach.
- Irradiation of pains – the right shoulder, a right shoulder-blade, area of heart, the left hypochondrium. Inguinal area, lumbar area, lower extremities.
- Frequency of pains – daily, 1-2 times a week, 1-2 times a month, seldom.
- Duration of pains – of several minutes till 1 o'clock, 1-2 hours, more than 2 hours.
- Nature of an abdominal pain and their intensity: sharp, stupid, aching, pricking, paroxysmal, surrounding, feeling of a raspiraniye after meal.
- Communication with meal – to food, on an empty stomach, after a meal (at once, in 30-40 min., in 1.5-2 hours), are not connected with meal.
- Communication of pain with physical activity: arise or amplify at fast walking, run. After exercises, not connected with physical activity.

- Communication with the nature of food: developing of pains after reception – hot dishes, fried, fat, frozen, smoked, cold or carbonated drinks, are not connected with the nature of food.
- Communication of pains with psychological tension (mental traumas, nervousness, fear, etc.).
- Pains pass independently: after intake of milk, soda, drugs, thermal procedures, vomiting.

At an objective research to pay attention on:

- Integuments and mucous – clean, pink coloring, pale. Humidity – norm, dryness or perspiration.
- Intoxication symptoms: a grayish shade of skin, "shadow" under eyes, decrease in elasticity.
- Symptoms of hypovitaminosis: dryness, peeling, cracks in mouth corners, on lips, "perleches".
- Manifestations of exudative diathesis.
- Expansion of venous network – in a thorax, a stomach.
- Peripheral signs.
- Nasal bleedings.
- Hemorrhages on skin.
- Other changes.
- Clean, damp language. Dry, it is imposed with a plaque, "geographical".
- Nature of a plaque: grayish-white, brown, began to smell from a mouth.
- Survey of a stomach: increase in the amount of, it is blown up, muscular tension (in right or left hypochondrium).
- Morbidity at a stomach palpation: in a liver, in a projection of a gall bladder, in epigastriums, around a navel, in a pancreas, on the intestines course (thick, thin, in the Region of a spleen, in the bottom of a stomach).
- Pancreas: morbidity at a palpation in Kass's point, Mayo-Robsona. Condition of intestines

Situational tasks.

Task No. 1

The girl of 11 years, is sick 1 year, complaints to "hungry" pains in epigastriums, appear in the morning on an empty stomach, in 1.5-2 hours after a meal, at night, are stopped meal. Disturb an eructation acid, a chair regular, issued.

Mother of the child has a peptic ulcer of a duodenum, the father has a gastritis, the grandmother in the area of mother has a peptic ulcer of a duodenum. The obstetric and early anamnesis without pathology. Studies at special school of 6 days in a week, 3 times a week are engaged in choreography. On character the introvert.

Survey: height is 148 cm, weight is 34 kg, skin light pink, clean. Stomach: Mendel's syndrome is positive in epigastriums, at a superficial and deep palpation small muscular La Défense and morbidity in epigastriums and piloroduodenalny area, also morbidity in Dezharden's point and Mayo-Robsona. The liver is not increased. On other bodies without pathology.

General blood test: Hb - 128 g/l, C. the item - 0.91, Ayr - 4.2x1012/l; Leyk - 7.2Õ109/l; p.b. - 3%, with / I am 51%, e - 3%, l - 36%, m - 7%, SOE - 6 mm/hour.

General analysis of urine: light yellow color, prozr. half-N; rn - 6.0; density - 1017; there are no squirrels-; sugar - is not present; EDS. C. - 1-2-3 in p/z; leukocytes-2-3 in p/z,

Biochemical analysis of blood: crude protein - 72 g/l, ALT - 19 Pieces/l, nuclear heating plant - 24 Pieces/l, SF - 138 Pieces/l (norm 7-140), amylase - 100 Pieces/l (norm 10-120), thymol turbidity test - 4 pieces, bilirubin - 15 μmol/l, from them svyaz. - 3 μmol/l.

Ezofagogastroduodenoskopiya: mucous a gullet pink, the cardia is closed, In a stomach the muddy slime mucous with focal hyperaemia, in an antruma on walls multiple mixed protrusions. Mucous bulbs duodenum – ochagovo it is hyperemic, hydropic, on a back wall ulcer defect of 0.8x0.6 cm, rounded shape with the hyperemic roller, the bottom is covered with fibrin. The biopsy is taken.

Respiratory ureazny test: positive.

Biopsy test for the NR-infection: positive (++).

Questions:

1. Clinical diagnosis and its justification.

2. Disease etiopathogenesis.

3. Estimate results of the general blood test and whether they correspond to pathology at the child?

4. Modern principles of treatment of this disease.

Test tasks.

2. In chronic gastritis of an abdominal pain:

a) night

b) night and late

c) early

d) depend on localization of gastritis

3. At a chronic gastroduodenit of an abdominal pain:

a) late

b) night

c) early and late

d) late and night

4. An abdominal pain is most characteristic of a peptic ulcer of a 12-perstiy gut:

a) night

b) early and late

c) early and night

d) late and night

5. Drugs possess Antikhelikobakterny action:

a) Almagelum

b) gastrotsepin

c) furasolidone

d) amoxicillin

e) de-Nol

e) Trichopolum

6. At treatment of the diseases associated with Helicobacter pylori it is reasonable to apply a combination of drugs:

a) de-Nol + antibiotic + Trichopolum

b) antacid + de Nol + Trichopolum

c) anti-secretory drugs + antacids + de Nol

d) anti-secretory drugs + de Nol + furasolidone + antibiotic

e) de-Nol + Trichopolum

e) Venter + Trichopolum + antibiotic

7. Of a peptic ulcer of a 12-perstny gut it is characteristic:

a) a normal kislotoobrazovaniye, protective properties of a mucous membrane are reduced

b) the kislotoobrazovaniye is raised, the sekretoobrazovaniye is reduced

c) the kislotoobrazovaniye is reduced, the sekretoobrazovaniye is raised

d) the kislotoobrazovaniye is raised, the sekretoobrazovaniye is raised

8. Clinical signs of bleeding from upper parts of digestive tract are:

a) scarlet blood in a chair

b) weakness

c) girdle pains in a stomach

d) knife-like abdominal pain

e) tar-like chair

e) vomiting "coffee thick"

g) doskoobrazny muscle tension of a stomach

9. Clinical signs of perforation of stomach ulcer and/or a 12-perstny gut are:

a) knife-like pains in anticardium

b) the vomiting which is not giving relief

c) girdle pains

d) liquid chair

e) doskoobrazny muscle tension of a front wall of a stomach

10. Stenozirovaniye of output department of a stomach and/or a 12-perstny gut is shown:

a) eructation

b) the vomiting giving relief

c) expressed meteorism

d) weight loss

e) liquid chair

e) nausea

g) feeling of pressure and completeness in anticardium at once after a meal

11. The pain abdominal syndrome in a peptic ulcer of a 12-perstny gut is characterized:

a) constant character

b) moyninganovsky rhythm

c) chaotic appearance of pain

12. A diagnostic method of gastroduodenal bleeding is:

a) roentgenoscopy of digestive tract with barium

b) survey picture of an abdominal cavity

c) Ultrasonography of an abdominal cavity

d) ezofagogastroduodenoskopiya

13. Complications of a peptic ulcer of a 12-perstny gut are

a) sprue

b) bleeding

c) gullet achalasia

d) penetration

e) perforation

14. For diagnosis of pathology of a stomach and a 12-perstny gut are used:

a) survey picture of an abdominal cavity

b) retrograde pankreatokholangiografiya

c) ezofagogastroduodenoskopiya

d) colonoscopy

21. Specific symptoms of acute pancreatitis at children show

a) vomiting

b) pains in left hypochondrium and/or surrounding

c) gektichesky temperature

d) spotty and papular rash

e) kollaptoidny state

22. Are most informative for diagnostics sharp pancreatitis

a) ultrasonography

b) determination of level of enzymes of a pancreas in blood

c) X-ray inspection

d) koprogramma

23. Biochemical markers of acute pancreatitis are:

a) hyperamilasemia

b) hyperlipasemia

c) disproteinemia

d) decrease in level of standard bicarbonates

e) decrease in level of inhibitor of trypsin

24. Pathogenetic reasonable drugs at treatment of pancreatitis are:

a) streptocides

b) blockers of N-receptors $_2$of a histamine

c) antikholineergichesky drugs

d) sandostatin

e) prokinetics

25. At treatment of a peptic ulcer of a 12-perstiy gut, anti-secretory drugs are used:

a) de-Nol

b) losek

c) ranitidine

d) famotidine

e) fosfalyugel

26. In for the first time the revealed gastritises and a peptic ulcer of a 12-perstny gut associated with a peloric helikobakterioz it is recommended:

a) monotherapy

b) double therapy

c) triple therapy

d) kvadroterapiya

"LIVER DISEASES AT CHILDREN"

I. Scientific and methodical justification of a subject.

Diseases of a gepatobiliarny system occupy one of the leading places in structure of

pathology of digestive organs children. As a rule, these diseases have continuously recurrent course, often with tendency to progressing of clinical manifestations. Besides functional disturbances of a biliary path, to the real place quite often diagnose such diseases as chronic cholecystitises, cholelithiasis, chronic hepatitis for children. Compliance with it in a task of standards of the broad specialist has to include studying the reasons and conditions of forming of pathology of bodies of a gepatobiliarny system, methods of clinical, laboratory and tool diagnostics, questions of dispensary observation, the principles of continuity of medical care (pediatricians and therapists).

II. Purpose of activity of students on occupation:

The student has to know:

- anatomo-physiological features of a liver and biliary tract;
- the factors promoting a disease of a gepatobilliarny system at children;
- the main symptoms of a disease and gepatobilliarny system at children;
- characteristic of a pain syndrome;
- the principles of functional and special methods of a research in children's gastroenterological practice;
- principles of classification of diseases of a liver and biliary tract;
- diagnostic criteria of diseases of a liver and biliary tract;
- the principles treatment and a dietotherapy in pathology of a liver and biliary tract;;
- features of dispensary observation for the child.

The student has to be able:

- to reveal the factors promoting diseases of a stomach, 12 perstny guts and biliary tract at children;
- to examine the patient with diseases of a gepatobilliarny system, to estimate a pain syndrome, data of the anamnesis;
- to appoint the plan of additional laboratory, tool, X-ray inspection and to estimate their results;
- to make the diagnosis according to the existing classification;
- to appoint a diet and treatment of patients with gepatobilliarny pathology;
- to make the plan of dispensary observation for children with pathology of a liver and

biliary tract.

III. Content of training:

1. The factors contributing to development of gepatobiliarny pathology.
2. Semiotics of diseases of bodies of a gepatobiliarny system (chronic hepatitis, chronic cholecystitis, cholelithiasis, dysfunctions of a biliary path).
3. Methods of additional inspection of sick children with chronic diseases of a liver and a biliary path.
4. Classification of diseases of a biliary system.
5. Principles of therapy and prevention of diseases of a gepatobiliarny system.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. Lectures on pediatrics. A grant for students of medical schools p / an edition M.V. Ehrman. – SPb "Volume", 2001. – 480 pages.
6. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.

7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.

8. Lectures on pediatrics.

9. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge.

1. Anatomo-fiziologichesky features of digestive organs and zhelchevydelitelny system at children.
2. Features of a metabolism at children.
3. Composition of normal indestinal flora at children.
4. The contributing factors to development of pathology of digestive organs.

VII. List of questions for check of final level of knowledge.

1. Classification of diseases of a bile-excreting system at children.
2. The factors contributing to the development of diseases of biliary tract.
3. Clinical laboratory characteristic of chronic hepatitis at children.
4. Pathogenetic mechanisms of development of cholecystitis and dyskinesia of biliary tract in children.
5. Clinical signs of cholecystitis, dyskinesia of biliary tract on hypo - and to hyperkinetic type.
6. Dietotherapy in diseases of bodies gepatobiliarny sistemyya.

Information block.

DYSKINESIA OF BILIARY TRACT

(ZhVP) – functional disturbances of motility of a gall bladder and/or a tone of the sphincteric device owing to uncoordinated, untimely, insufficient or excessive reduction of a gall bladder and/or the sphincteric device.

Primary obligatory researches: general blood test, general analysis of urine, serumal cholesterol, alkaline phosphatase, β-lipoproteids, bilirubin the general and fractions; microscopic (fazovokontrastny) and biochemical examination of bile, ultrasonic

examination of bodies of a gepatobiliarny system.

Complaints: pain in right hypochondrium, in a navel, paroxysmal (hyperkinetic type) or stupid, aching (hypokinetic type) – after meal, physical or emotional activity; nausea, vomiting, bitterness in a mouth, a loss of appetite, fatigue, emotional lability, dizziness.

Physical status: morbidity at a palpation, in right hypochondrium, in a navel, positive vesical symptoms are possible, at hypokinetic type – increase in the sizes of a liver (soft, mobile, painless, it is quickly reduced after use of holekinetik), it is possible – a distal hyperhidrosis, a pathological dermographism, tendency to an arterial hypertension, functional systolic noise.

Diagnostics:

1. The general blood and urine count test – without features.

2. In hypokinetic type of dyskinesia the moderate biochemical syndrome of a cholestasia is possible (increase in level of serumal cholesterol, β-lipoproteids, cholinesterases, the general bilirubin at the expense of direct fraction).

3. Ultrasonography – lack of indicators of inflammation (consolidation and a thickening of a wall of a gall bladder), reduction of volume of a gall bladder more than for 64% for 60-90 minutes after giving a holekinetik at hyperkinetic type and less than for 34% at hypokinetic type.

4. Ultrasonic multimoment fractional research: a hyper tone of a sphincter of Oddi – lengthening of the 1st and 2nd phases, a hyper tone of a sphincter of Lyutkens – lengthening of the 3rd and 4th phases.

Characteristic of treatment:

1. A diet – table No. 5 on Pevznera.

2. Medicamentous therapy.

A. Hyperkinetic type:

- sedative drugs – infusion of a valerian, sodium bromide, Seduxenum (2-5 mg a day), Relanium (2-8 mg a day); duration of a course and the choice of drug depends on the degree of manifestation of neurologic disorders;
- holespazmolitichesky drugs: Nospanum (1-1.5 mg/kg 3 times a day), Nicospanum (1 mg/kg 3 times a day), Halidorum (0.05-1 gr. 3 times a day), ditsitet (1 tab. 3 times a day), odeston (1 tab. 3 times a day), spazmopen (1 tab. 2-3 times a day),

duration of a course of 10-14 days, if necessary to continue a course, drug needs to be changed;

- choleretics (the drugs stimulating bile synthesis): true (stimulating synthesis of bile acids) – Convaflavinum (1/2-1 tab. 3 times a day), Flaminum (1/3-1 tab. 3 times a day), oksafenamid (0.25-0.5 gr. 3 times a day), febikhol, dekholin, a galstena (5-15 drops 3 times. in day), Cholosasum (1-2 tsps 3 times a day), or the hydrocholeretics (stimulating synthesis of a water component of bile) sodium salicylate. Drugs are appointed a course for 10-14 days;
- physiotherapeutic procedures: thermal procedures (ozokerite, paraffin appliques, a diathermy on area of the right hypochondrium), an inductothermy, an electrophoresis of spasmolysants on area of the right hypochondrium, ultrasound;
- balneoterapiya – mineral waters of a small mineralization and small gas saturation of 3-5 ml/kg of weight on 1 reception, 3 times a day within 1-1.5 months.

B. Hypokinetic type:

- tonic drugs – tincture of a ginseng, Chinese magnolia vine, an eleuterococcus;
- choleretics;
- holekinetik (the drugs stimulating reduction of a gall bladder): cholecystokinin, magnesium sulfate, Pituitrinum P, sorbite (10 ml of 10% of solution of 1 times a day), xylitol, a mannitol, vegetable oils (sunflower, corn, olive), a flax seed;
- prokinetics: motilium (10 mg. 3 times a day), tsizaprid (prepulsid, koordinaks, peristit – 0.2 mg/kg 3 times a day);
- physiotherapeutic procedures: a magnesium sulfate electrophoresis on area of the right hypochondrium, the sinusoidal modulated currents with dirt solution, electrostimulation of a gall bladder;
- balneoterapiya: mineral waters of an average mineralization and average gas saturation (3-5 ml. on 1 kg. masses on reception 3 times a day within 1 month). Duration of hospital treatment – 2 weeks.

Tasks for independent preparation:

1. Solve situational problems and test tasks.
2. Examine and describe in a notebook the revealed changes in a condition of the patient

with gastrointestinal diseases.

3. Write in a notebook prescriptions on:
   a) Allocholum
   b) Essentiale
   c) karsit
   d) hofitol
   e) odeston

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- family anamnesis;
- family predisposition;
- prescription of a disease.
-

Complaints at survey:

- General symptoms: weakness, slackness, increased fatigue, irritability, headaches.
- Abdominal pain.
- Appetite – preservation, decrease.
- Dispeptic disorders:

a) to food, after a meal, are not connected with meal, often, seldom;

b) vomiting (communication with meal, gives relief or not);

c) heartburn (often, seldom, intensity);

d) eructation (air, food, bitter, acid, rotten egg);

e) intestinal dyspepsia – a meteorism, an intestines hyperperistalsis, a diarrhea, constipations, a chair).

- Structure of sensation of pain.
- Localization of pains – the right hypochondrium, the left hypochondrium, area of a stomach, around a navel, the right ileal area, diffuse morbidity on all stomach.
- Irradiation of pains – the right shoulder, a right shoulder-blade, area of heart, the left hypochondrium. Inguinal area, lumbar area, lower extremities.
- Frequency of pains – daily, 1-2 times a week, 1-2 times a month, seldom.

- Duration of pains – of several minutes till 1 o'clock, 1-2 hours, more than 2 hours.
- Nature of an abdominal pain and their intensity: sharp, stupid, aching, pricking, paroxysmal, surrounding, feeling of a raspiraniye after meal.
- Communication with meal – to food, on an empty stomach, after a meal (at once, in 30-40 min., in 1.5-2 hours), are not connected with meal.
- Communication of pain with physical activity: arise or amplify at fast walking, run. After exercises, not connected with physical activity.
- Communication with the nature of food: developing of pains after reception – hot dishes, fried, fat, frozen, smoked, cold or carbonated drinks, are not connected with the nature of food.
- Communication of pains with psychological tension (mental traumas, nervousness, fear, etc.).
- Pains pass independently: after intake of milk, soda, drugs, thermal procedures, vomiting.

At an objective research to pay attention on:

- Integuments and mucous – clean, pink coloring, pale. Humidity – norm, dryness or perspiration.
- Intoxication symptoms: a grayish shade of skin, "shadow" under eyes, decrease in elasticity.
- Symptoms of hypovitaminosis: dryness, peeling, cracks in mouth corners, on lips, "perleches".
- Manifestations of exudative diathesis.
- Expansion of venous network – in a thorax, a stomach.
- Peripheral signs.
- Nasal bleedings.
- Hemorrhages on skin.
- Other changes.
- Clean, damp language. Dry, it is imposed with a plaque, "geographical".
- Nature of a plaque: grayish-white, brown, began to smell from a mouth.
- Survey of a stomach: increase in the amount of, it is blown up, muscular tension (in

right or left hypochondrium).

- Morbidity at a stomach palpation: in a liver, in a projection of a gall bladder, in epigastriums, around a navel, in a pancreas, on the intestines course (thick, thin, in the Region of a spleen, in the bottom of a stomach).
- Condition of a liver – increase in sizes (the sizes across Kurlov, dense, soft, elastic, painful, painless).
- Condition of biliary tract: Kerr's symptom, Murphy, Ortner's cm, Frenikus-simptom.
- Condition of a spleen: increased, dense, soft, elastic, painful.
- Pancreas: morbidity at a palpation in Kass's point, Mayo-Robsona. Condition of intestines

Situational tasks.

Task No. 1

S.'s belief of 11 years, is sick about a year. Complaints to fervescence, pains in right hypochondrium, amplifying after intake of greasy food, feeling of bitterness in a mouth in the mornings.

Objectively: the state at moderately severe survey, temperature 38.1ºæ, integuments clean, is noted an easy subjikterichnost of scleras. Peripheral lymph nodes (submaxillary, front and zadnesheyny are increased to the 3rd size, mobile, single, painless at a palpation, elastic consistence. In lungs and heart without pathology. The clean pharynx, pink, is a lot of carious teeth. The soft stomach, is blown moderately up, the palpation is painful in right hypochondrium. Kerr, Ortner's positive symptoms, Myussi. The liver and a spleen are not increased. Unstable chair. The diuresis is not broken.

General blood test: Nv –125 g/l, Ayr – 4.7x10 $^{12/l}$, leyk - 12Õ109/l, e e-1, yu-2%, p-10%, with-62%, l-23 of %, sq.m of %, SOE-of 23 mm/hour.

Questions:

1. Preliminary diagnosis.
2. Plan of inspection.
3. Treatment plan.

Test tasks.

1. What of the listed drugs **should not** be applied to stopping of a pain syndrome in bilious colic:

a) atropine

b) papaverine

c) analginum

d) morphine

2. Pains in dyskinesia of biliary tract on hypertensive type have character:

a) surrounding

b) short-term paroxysmal pains in right hypochondrium

c) late pains in an upper half of a stomach

d) constant arching pains in right hypochondrium

e) dull arching aches in paraumbilical area

3. Pains in dyskinesia of biliary tract on hypotonic type have character:

a) surrounding

b) short-term paroxysmal pains in right

c) late pains in an upper half of a stomach

d) constant arching pains in right hypochondrium

4. For final diagnostics of anomalies of a bile-excreting system it is necessary to carry out:

a) Ultrasonography

b) gepatobilistsintigrafiya

c) biochemical research of vesical bile

d) retrograde pankreatokholangiografiya

e) cholecystography

5. In pathogenesis of diseases of biliary tract matter:

a) helikobakterny infection

b) psychological factors

about physical and chemical properties of bile

d) enzymatic insufficiency of a small intestine

e) disturbance of coordinate activity of the sphincteric device

6. Reductions of a gall bladder strengthen:

a) cholecystokinin, gastrin

b) glucagon, calcitonin

c) hypophysis hormones

d) secretin

e) vasoactive intestinal hormone

7. The reasons leading to development of chronic cholecystitis are:

a) disturbance of a diet

b) infectious diseases

c) reflux from a 12-perstny gut in bilious ways

d) food allergy

e) excesses of a gall bladder in the field of a siphon

Class in a subject:

"DISEASES WHICH ARE FOLLOWED BY BLEEDING"

I. Scientific and methodical justification of a subject.

Hemorrhagic diseases are widespread at children. Having begun at children's age, they quite often accompany the patient during all subsequent life. Doctors of all profiles should face these diseases, their complications or consequences. Therefore, knowledge of clinical options and the cornerstone pathological changes in an organism, their timely recognition, the correct organization of adequate medical care are a condition of decrease in lethality in these diseases, preservation of conditions of the correct growth and development of children, and then and working capacity and lifetime of adults.

II. Purpose of activity of students on occupation:

The student has to know:

- the contributing factors to development of hemorrhagic diseases;
- the main pathophysiological mechanisms of disturbances in the system of a hemostasis;
- key laboratory indicators of a system of a hemostasis;
- main nosological forms of hemorrhagic diseases (hemorrhagic vasculitis, trombotsitopatiya, thrombocytopenia, hemophilia);
- complications of hemorrhagic diseases;
- IDCS: etiopathogenesis, clinical laboratory diagnostics, medical tactics;
- emergency aid in hemorrhagic diseases;
- principles of modern pathogenetic therapy of clinical options of hemorrhagic diseases;
- principles of rehabilitation of hemorrhagic diseases, landmark medical examination.

The student has to be able:

- to collect the purposeful anamnesis;
- to perform objective examination of the patient, to allocate disease symptoms;
- to make the plan of necessary additional inspection, to estimate the received results;
- to carry out the differential diagnosis of basic diseases of blood;
- to prove the final diagnosis;
- to make the plan of treatment;

- to write the prescription on the main medicines;
- to make the plan of dispensary observation and rehabilitation of the patient with blood diseases.

III. Content of training.

1. Physiology, pathophysiology of a system of a hemopoiesis.
2. Objective research of the patient and semiotics of diseases of blood.
3. Main methods of laboratory diagnosis of diseases of a system of blood.
4. Classification of hemorrhagic diseases.
5. Hemorrhagic vasculitis (etiology, pathogenesis, classification, clinical and laboratory diagnostics, principles of therapy, complication).
6. Idiopathic Werlhof's disease (etiology, pathogenesis, classification, diagnostics, therapy).
7. Hemophilia (etiopathogenesis, classification, clinical manifestations, laboratory diagnostics, complications, treatment).
8. The differentiated approach in treatment of a hemorrhagic syndrome in blood diseases at children.
9. Dispensary observation and rehabilitation of children with hemorrhagic diathesis.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos, audiogramma.
2. Educational medical documentation (case histories, laboratory researches, roentgenograms).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.

4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.

5. Lectures on pediatrics. A grant for students of medical schools p / an edition M.V. Ehrman. – SPb "Volume", 2001. – 480 pages.

6. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.

7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.

8. Lectures on pediatrics.

9. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. Physiology, pathophysiology of a system of a hemopoiesis.
2. Objective research of the patient and semiotics of diseases of blood.
3. Main methods of laboratory diagnosis of diseases of a system of blood.
4. Physiology and pathology of a system of a hemostasis at children.
5. Classification of hemorrhagic diseases.

VII. List of questions for check of final level of knowledge:

1. Give characteristic to the main etiopatogenetichesky mechanisms of a hemorrhagic vasculitis at children.
2. What principle is the basis for modern classification of a hemorrhagic vasculitis?
3. What main clinical manifestations of a hemorrhagic vasculitis at children? What methods of laboratory diagnostics are used at production of this diagnosis?
4. Call possible complications of a hemorrhagic vasculitis.
5. Call the basic principles of therapy of a hemorrhagic vasculitis at children.
6. Give definition to the concept "idiopathic Werlhof's disease". Give main types of trombotsitopeniye, the reasons for their development.
7. Describe the main clinical manifestations of a hemorrhagic syndrome in thrombocytopenia.
8. What methods of a research can be used for diagnosis "An idiopathic Werlhof's disease"?
9. What modern methods of treatment of a Werlhof's disease do you know?

10. Call etiopatogeneticheskу mechanisms of development of a hemorrhagic syndrome in hemophilia.

11. What data of the anamnesis and clinical manifestation are inherent for the patient with hemophilia?

12. What laboratory diagnostics is necessary for diagnosis "Hemophilia"?

13. What complications can arise in hemophilia?

14. Call the basic principles of therapy, prevention, dispensary observation and rehabilitation of hemophilia at the present stage.

Information block.

HEMOPHILIA

– the hereditary disease caused by deficit or molecular anomalies of one of plasma blood-coagulation factors.

Distinguish: hemophilia And, the classical form connected with deficit of the VIII factor (70-78% of patients of the total number of patients with hemophilia), a Cristmas disease, Kristmas's disease, at deficit of the IX factor (6-13%); hemophilia With, Rosenthal's disease, at deficit of the XI factor (1-2%).

Cristmas disease frequency the different countries fluctuates from 6.6 to 18 cases on 100 thousand male inhabitants.

Hemophilias And yes In are inherited on the recessive, linked to X-chromosome type in this connection only men are ill. Daughters, inheriting X-chromosome from healthy mother and X-chromosome from the father hemophiliac, without having clinical manifestations of a disease, are conductors of hemophilia. The sons who were born from such marriage are healthy and further do not transmit a disease to posterity. Theoretically a half of sons of conductresses of hemophilia can receive abnormal X-chromosome from mother and be born patients, also as well as at a half of the been born daughters the carriage of hemophilia is possible.

Hemophilia With is inherited autosomally, persons of both sexes are ill.

The Cristmas disease to family can sporadically arise, being a consequence of natural mutations of genes in X-chromosome that makes about 28% of hemophilia And yes 9% of a Cristmas disease.

Pathogenesis.

Bleeding arises in connection with disturbance of blood clotting owing to a lack of factors of VIII, IX or X.

Clinic.

Clinically separate forms of hemophilia proceed almost equally, being shown by a hemorrhagic syndrome with gematomny type of bleeding which expressiveness depends on a form of hemophilia and degree of deficiency of the corresponding pro-coagulant. Definition of a form of hemophilia is possible only on the basis of special laboratory researches.

Depending on degree of deficiency of responsible pro-coagulant, allocate:

1) a severe form of a disease with the level of pro-coagulant it is lower than 1-3%;

2) a moderately severe form – with the level of pro-coagulant from 3 to 5%;

3) an easy form – with the level of pro-coagulant from 6 to 15%, but with possibility of heavy bleedings in injuries and the operations performed without sufficient replacement therapy;

4) a latent form – with the level of pro-coagulant it is higher than 15%.

The course of hemophilia is characterized by the periods of the increased bleeding which are replaced by intervals of relative clinical wellbeing.

The disease comes to light, as a rule, at children's age. At easy forms of hemophilia the disease can be shown at youthful and later age (20-23 years). At severe forms of hemophilia some newborns have extensive cephalohematomas, late bleedings from an umbilical cord, hypodermic and intracutaneous, is rare – intracraneal hemorrhages, bleedings during the cutting or a rupture of a bridle of language. At many children hemorrhages are not observed while they do not begin to creep and go. By 1.5-2-m years, bruises on a forehead, extremities, massive intermuscular hematomas on buttocks, gingival bleedings are characteristic in traumatization toys, eruption zu6ov, from a mucous membrane of a throat at shout, crying, cough, menacing with asphyxia. Intramuscular injections, inoculations can also cause bleeding. After three-year age, in connection with increase in physical activity of the child, damages of joints which begin to prevail further join and take the first in frequency place among other symptoms of a disease.

Developing of bleedings at the disturbances of integrity of skin continuing from several hours to many days obviously not adequate to injury force is characteristic. In the postoperative period of surgical interventions, after extraction of tooth the recurrence of bleedings delayed on time several hours can be celebrated.

In case of compression by a hematoma of nervous trunks of extremities, sinews, vessels contractures, paralyzes, an atrophy of muscles, necroses of fabrics develop. The hematomas of submaxillary area and a neck squeezing airways are dangerous.

Bleedings from urinary tract at younger children's age are very rare, but the frequency and intensity of a hamaturia (a gross hematuria in combination with the dysuric phenomena) increases over the years. Bleedings from a digestive tract, first of all, diffusion capillary are also rare. More often there are gastrointestinal bleedings at patients with a Cristmas disease a combination to a peptic ulcer of a stomach, a 12-perstny gut leading to a sharp anemization.

One of the most typical symptoms of hemophilia – damage of joints (hemarthrosis). Defeat knee, talocrural, elbow, is more rare – shoulder, hip, radiocarpal and small joints of brushes and feet is usually connected with an injury which in most cases happens to the insignificant and inadequate size of hemorrhage, or arises spontaneously. Damage of joints takes place a certain staging in classical cases: the hemarthrosis – gemartrit – an anchylosis.

The acute hemarthrosis is characterized by sharp joint pain, increase it in volume, a dermahemia and temperature increase over it. In an extensive hemarthrosis the general state worsens, body temperature increases, SOE accrues and the neutrophylic leukocytosis in blood can develop. At the correct timely treatment the first acute hemarthrosis can resolve completely in 2-3 weeks, without leaving significant changes. Repeated hemorrhages cause secondary inflammatory processes in joint tissues with the subsequent development chronic hemorrhagic - a destructive osteoarthrosis with the significant permanent deformation of a joint, an anchylosis, an atrophy of muscles of extremities and the corresponding radiological changes (osteoporosis, narrowing of articulate cracks, deformation of the articulate ends, metafizarny cross strips of a sclerosis, incomplete dislocations, intra articulate fractures), leading the patient to an invalidization which degree, in many respects defines social suitability of the person.

In diagnosis of hemophilia the family anamnesis is of great importance. However almost at 1/3 patients it negative, and the disease can be suspected on the basis of gematomny type of bleeding, the long delayed bleedings, damages of joints.

Datas of laboratory.

The general blood test at patients during remission usually normal. After plentiful bleeding or in the presence of extensive hematomas the posthemorrhagic anemia of varying severity, a neutrophylic leukocytosis, sometimes – the raised SOE and the increased quantity of thrombocytes is defined. The bleeding time is normal. Retraction of a clot is also not broken. Increase in duration of fibrillation according to Li-Whyte (norm of 5-7 minutes), a calcium clotting time of plasma, heparin time, decrease in consumption of a prothrombin in the course of fibrillation (norm of 80-100%) is characteristic.

The final diagnosis is possible at assessment of high-quality, and quantitative maintenance of separate pro-coagulants that it allows to establish a form of hemophilia and degree of its weight.

Complications in hemophilia appear in process of increase of duration of a disease and, as a rule, are caused by immune mechanisms. This development of a so-called inhibitory form of the hemophilia caused by emergence in blood of sick antibodies anticoagulants – inhibitors VIII or IX of factors which inactivate the anti-hemophilic haemo drugs applied in therapy, appearance of hemolytic anemia, thrombocytopenia, a leukopenia, a glomerulonephritis with an amyloidosis of kidneys and an outcome in HNP. At transfusion hematotherapy there is a danger of transfer of a viral hepatitis, AIDS.

Treatment of hemophilia pathogenetic – introduction to an organism of sick missing blood-coagulation factors in quantity adequate to a specific case for the purpose of a bleeding stop, treatment of consequences of bleedings (a hemarthrosis, hematomas and so forth) and prevention of bleedings.

In hemophilia And VIII, recombinant drugs of a factor VIII apply the cleaned concentrates of a factor of VIII, a high cleaning concentrate of a pork factor. As a last resort, cryoprecipitate use is possible.

In a Cristmas disease such drugs are the cleaned concentrates of a factor of IX, drugs of a recombinant factor IX, concentrates of factors of a prothrombin complex (PPSB).

At inhibitory forms of hemophilia use a concentrate of factors of a prothrombin complex, the recombinant activated factor of VII, Prednisolonum, immunodepressants, desmopressin, also the plasma exchange is effective.

Two programs of treatment of patients with hemophilia are applied: systematic transfusion treatment (at severe forms of a disease) and periodic symptomatic transfusion treatment during the first hours after hemorrhage or an extensive injury.

At a pre-hospital stage haemo static drugs of nonspecific action are used: lagokhilus intoxicating (infusion of 5%, 10% inside on 1 tablespoon, 3-6 times a day; 10% alcohol tincture – on 1 tsp in 1/2 glasses of water of 3-5 times a day; tablets on 0.2 g); an epsilon - aminocapronic acid inside on 1 g, each 4 hours, in/in 100 ml of 5% of solution; Haemophobinum (3% solution inside on 1 tablespoon, 2-3 times a day or for tampons); an absorbable gelatin sponge with thrombin.

Prevention of exacerbations of a disease includes the correct information of parents and the child on the nature of a disease, its complications, consequences, etc.; creation of the guarding mode, since early age, the maximum restriction of traumatic situations, games, sports (swimming is shown), physical education classes, use for protection of joints of the foam guards sewed in clothes; vocational guidance of the patient (brainwork); prevention of infectious and other diseases. Preventive inoculations are resolved (except high doses of gamma-globulin). The place of a prick is recommended to be pressed a finger for several minutes.

In need of treatment of associated diseases of medicine are appointed only inside or intravenously. Such drugs as acetylsalicylic acid, pyrazolon and indolovy derivatives, Brufenum, Euphyllinum, a papaverine, furosemide, nitrofurans, high doses of penicillin and its semi-synthetic analogs, etc. are contraindicated.

Even small surgeries at patients with hemophilia are carried out with obligatory preparation in the form of replacement therapy.

Prevention of hemophilia as diseases assumes establishment of carriage of a pathological gene and prenatal diagnosis of hemophilia And by means of the family analysis of polymorphism of lengths of restrictive fragments of DNA (PDRF the analysis).

AUTOIMMUNE WERLHOF'S DISEASE.

– a disease in which hemorrhagic syndrome is connected with formation of autoantibodies against:

a) antigens of thrombocytes,

b) against antigens of thrombocytes and megacaryocytes,

c) antigens of megacaryocytes,

d) against antigen, the general for thrombocytes and erythrocytes or thrombocytes, erythrocytes and leukocytes.

The immune cytolysis of thrombocytes can be primary when the reason of an autoaggression does not manage to be established also symptomatic – secondary (heteroimmune to thrombocytopenia), caused by destruction of thrombocytes the antibodies which arose in an organism in response to change of an antigenic structure of thrombocytes.

Most often at children's age the idiopathic Werlhof's disease (IWD) which makes 47% among all Werlhof's diseases meets.

The disease occurs in children of all age groups, since chest age (is more often in 3-6 years); in the pubertal period the disease frequency at girls is 2-3 times higher, than at boys.

Etiology.

Can be the previous factors of development of ITP postponed in 2-3 weeks prior to a disease sharp respiratory virus, bacterial infections, use with the medical purpose of medicines, preventive inoculations are more rare (AKDS, protivokorevy, administration of gamma-globulin, etc.). It is not possible to establish a proximate cause of development of ITP more often. However the listed above factors need to be considered rather as pathogenetic.

Pathogenesis.

Immune genesis of ITP is conventional. Thrombocytopenia is caused by the increased destruction of thrombocytes, mainly in a spleen and in the peripheral blood channel, under the influence of the antibodies which are formed, mainly, a splenic pool of lymphocytes. At the same time the products and quantity of megacaryocytes and, respectively, thrombocytes in an inert brain increase in comparison with norm by 2.5-5 times.

It is supposed that autoimmune mechanisms participate in pathogenesis of ITP therefore autoantibodies are developed against own not changed antigen of thrombocytes that defines clinical features of ITP accepting a chronic course. At the same time the therapeutic effect can be gained only when using the immunosuppressive means suppressing an autoaggression or during removal of immunocompetent body – spleens.

In pathogenesis of bleeding at ITP, along with thrombocytopenia, functional features of thrombocytes, their participation in a hemostasis with angiotrofichesky (permeability of a vascular wall) and adhesive and aggregation (formation of a platelet stopper) matter functions.

Clinical picture.

In a course allocate the sharp and chronic ITP forms (lasting purpura more than 6 months) with the periods of aggravation, clinical and kliniko-hematologic remission. At patients with a chronic course of ITP consider the number of a recurrence (with rare, with a frequent recurrence, continuously recurrent course). Distinguish the ITP easy forms at which there is only a skin hemorrhagic syndrome, there are no bleedings. At medium-weight forms bleeding is significant moderately, the number of thrombocytes fluctuates in limits 50-100Õ109/l. At patients with severe forms of ITP the long or plentiful bleedings leading to a heavy anemization are noted, the number of thrombocytes of peripheral blood makes less than 30Õ109/l. However, thrombocytopenia degree not always corresponds to expressiveness of bleeding.

The ITP chronic form most often develops at children of 7-10 years. As a rule, in the anamnesis it is difficult to reveal any previous factor. The gradual beginning at rather satisfactory condition of the patient and normal temperature is characteristic of the ITP chronic form, in the absence of symptoms of intoxication. In the period of crisis in clinical picture ITP on the first in frequency place there is a skin hemorrhagic syndrome – a purpura in the form of polymorphic rashes – ecchymomas from small to the considerable sizes (more than 10 cmin the diameter) and punctate petekhialny rash. Hemorrhages are located asymmetrically on skin of a trunk, extremities, persons, except for a hairy part of the head, palms and feet. Their polikhromnost is characteristic. At 50% of patients of a hemorrhage are localized on a mucous membrane of an oral cavity, tonsils, a back wall of a throat, a soft and hard palate. Hemorrhages in a sclera are sometimes noted.

Hemorrhages usually appear spontaneously, is more often at night. Positive signs of bandage and pinch are characteristic.

The second in frequency symptom at ITP are bleedings which in chronic option of a disease, as a rule, are combined with a skin hemorrhagic syndrome. Persistent, plentiful nasal bleedings, bleedings from a mucous membrane of a mouth, tonsils, a back wall of a throat are most typical. Less often gastrointestinal, renal bleedings meet. At 10% of sick ITP cerebral hemorrhages which can lead to a lethal outcome are noted. Girls the first symptom of a disease can have plentiful long periods.

Datas of laboratory.

In peripheral blood the level of thrombocytes, sometimes is reduced to their total disappearance (norm 150-400Õ109/l). The quantity of erythrocytes and level of hemoglobin is normal, or posthemorrhagic anemia (anisocytosis, a reticulocytosis, a poikilocytosis, a hypochromia of erythrocytes) is noted, the number of leukocytes is not changed. At a research of a gemostaziogramma the lengthening of a bleeding time to 30 minutes and more by the Dyyuka method (is noted at norm within 2-5 minutes), reduction of retraction of a blood clot (less than 75%). Blood clotting according to Li-Whyte, as a rule, normal – 7-10 minutes. The maintenance of plasma blood-coagulation factors is normal. The increased or normal number of megacaryocytes – 0.05-0.15Õ109/l is characteristic of marrow at ITP, it is a lot of young forms, thrombocytes are not found or them very little because of fast receipt them in blood. After splenectomy the quantity of megacaryocytes decreases to norm that needs to be regarded as positive effect of therapy.

Principles of treatment.

In the period of crisis the hospitalization in a specialized hospital is shown. The high bed rest is recommended before recovery of the minimum physiological level of thrombocytes. Both at sharp, and at the ITP chronic form apply:

1) intravenous infusions of immunoglobulin (gamimmun, gamma-globulin) in a dose of 400 mg/kg within 5 days that suppresses immune mechanisms of a course of a disease. This type of therapy can be a splenectomy alternative and also be used at the ITP forms refractory to treatment by corticosteroids, immunodepressants, to splenectomy;

2) corticosteroids (Prednisolonum – 2 mg/kg/days), according to indications in a look pulse therapy;

3) at inefficiency of hormonal means and splenectomy apply immunodepressants (cyclophosphamide, Azathioprinum, vinblastine, etc.), a synthetic androgen danazol;

4) the plasma exchange at ITP leads to almost total disappearance of antithrombocytic antibodies and the CEC from blood of the patient and to the antibodyformation termination;

5) splenectomy is shown only at inefficiency of therapy by immunoglobulin and drugs of steroid hormones at the ITP chronic form and also in sharp cases when it is impossible to stop heavy bleedings, life-threatening patients or the cerebral hemorrhages interfaced to threat. The efficiency of a method is 75-90%;

6) the symptomatic therapy directed to increase in resistance of a vascular wall, improvement of functional properties of thrombocytes and performed with the haemo static purpose: vitamins C, P, A, calcium pantothenate, aminocapronic acid, thrombin, absorbable gelatin sponge, cryotherapy, Adroxonum, Dicynonum, phytotherapy (nettle, dogrose, corn stigmas, water pepper, yarrow);

7) in the profound anemia the transfusion of the washed erythrocytes is possible.

The medicines breaking aggregation properties of thrombocytes are contraindicated (aspirin, Butadionum, indolovy derivatives, etc.).

The scheme of inspection of the patient with a hemorrhagic disease.

When collecting the anamnesis to pay attention on:

- diseases of the haematogenic system among the immediate family (bleeding, hemorrhage, a condition of their emergence, communication with food, diseases);
- family living conditions (food, unhealthy work conditions);
- incidence of a SARS (frequency, weight, reaction of the haematogenic system, appearance of hemorrhages);
- time emergence of the first hemorrhagic signs, their character, variability, duration, weight, repeatability, communication with other diseases.

At objective inspection to pay attention on:

- weight of a state;
- assessment of initial development – by the standard methods (compliance of the child I will increase on physical and psychological indicators);

- integuments, mucous (color, vascular drawing), hemorrhagic rashes (quantity, arrangement, size, depth, dynamics, coloring), hemorrhages;
- bone and muscular systems: morbidity in various departments spontaneous, in an injury (adequacy to an injury), localization, existence or lack of palpatorny changes;
- to perform system inspection with emphasis on nervous system (the general neurologic status for identification of secondary deviations), a cardiovascular system, the sizes of a liver and spleen, survey of a chair (identification of impurity of blood);
- to allocate defeat syndromes on systems;
- to carry out the differential diagnosis of hemorrhagic rash.

At assessment of laboratory results to pay attention on:

- morphological composition of peripheral blood in dynamics;
- standard hemorrhagic complex (quantity of thrombocytes, coagulation time, bleeding time), key indicators of a coagulant system of blood, biochemical blood test (bilirubin free, hematocrit, hepatic tests, prothrombin tests).

Test tasks on a subject.

1. Change is characteristic of an idiopathic Werlhof's disease:
   a) bleeding time
   b) coagulation time
   c) and that and another
   d) neither that, nor another
2. At an idiopathic Werlhof's disease bleeding type:
   a) gematomny
   b) vaskulitno-purple
   c) petekhialno-spotty
   d) mixed
   e) angiomatous
3. At an idiopathic Werlhof's disease thrombocytopenia caused:
   a) insufficiency of formation of thrombocytes
   b) the increased destruction of thrombocytes

c) redistribution of thrombocytes

4. At an idiopathic Werlhof's disease in a miyelogramma it is characteristic:

a) oppression of a megakariotsitarny sprout

b) normal number of megacaryocytes

c) irritation of a megakariotsitarny sprout

5. Of a hemorrhagic syndrome at ITP it is characteristic:

a) symmetry of rashes

b) polymorphism of rashes

c) polikhromnost of rashes

d) asymmetry of rashes

e) existence of favourite localization

e) lack of favourite localization

6. Treatment of a hemorrhagic syndrome at ITP is carried out:

a) transfusion of the trombokoncentrat

b) introduction of missing factors of coagulation

c) Dicynonum

d) Vikasolum

e) heparin

e) Prednisolonum

g) antiagregant

h) α-interferon drugs

7. In the general blood test in a hemorrhagic vasculitis it is characteristic:

a) anemia

b) thrombocytopenia

c) thrombocytosis

d) neutrophylic leukocytosis

e) the accelerated SOE

8. Of a hemorrhagic syndrome at GV it is characteristic:

a) presence of an itching

b) existence of favourite localization

c) tendency of elements to merge

d) asymmetry of rashes

e) existence of petechias

e) nasal bleedings

9. The drugs which are applied to treatment of a hemorrhagic vasculitis:

a) Dicynonum

b) Prednisolonum

c) heparin

d) antiagregant

e) concentrates of blood-coagulation factors

e) trombokoncentrat

10. In hemophilia a bleeding time:

a) it is extended

b) does not change

c) it is shortened

11. Mode of inheritance in hemophilia:

a) linked to X-chromosome

b) autosomal and dominant

c) autosomal and recessive

12. Clinical manifestations of hemophilia And are connected with deficit of a factor:

a) VIII

b) IX

c) X

d) XI

13. In what mechanism of coagulation changes in hemophilia are noted?

a) in external

b) in internal

c) both in external and in internal

14. In a Cristmas disease to a koagulogramma change of tests is characteristic:

a) autokoagulyatsionny

b) the activated partial tromboplastinovy time

c) tromboplastinovy time

d) thrombin time

e) plasma calcium clotting time

e) emergence of products of degradation of fibrin

15. At treatment of hemophilia And are applied:

a) native plasma

b) Prednisolonum

c) Dicynonum

d) trombokoncentrat

e) cryoprecipitate

e) concentrate of a factor of VIII

g) Vikasolum

Situational tasks

Task No. 1

The boy of 6 years, arrived with complaints to temperature, rash on hands and legs.

The disease began sharply, temperature to 38.5ºæ rose, on skin of hands and legs the plentiful hemorrhagic rash developed. For the second day the boy was hospitalized.

State at receipt heavy, it is sluggish, pale. On skin of an extensor surface of hands, legs, buttocks the plentiful spotty and papular symmetrically located hemorrhagic rash. The left eyelid is edematous, an eye is closed. Knee, ankle joints are hydropic and sharply painful. All these phenomena kept within 3 days. For the 5th day of a disease the new wave of hemorrhagic rash and at the same time paroxysmal abdominal pain, vomiting appeared. The boy refused food. An abdominal pain kept 4 days, the morbidity at a palpation was localized around a navel, in the right ileal area, feigning an appendicular syndrome. From the 20th day the diseases of new aggravations were not.

Blood test: Ayr. – 3.4 x 1012/l, Nv – 112 g/l, Leyk. – 6.6 x 109/l (during attacks of an abdominal pain a leukocytosis 18.2 x 109/l), blood clot. – 408 x 109/l, a bleeding time – 3 min. 12 sec., a blood clotting time: the beginning – 1 min. 20 sec., the end – 4 min. 10 sec.

The analysis of urine – without pathology.

Questions:

1. Make the diagnosis, prove it.
2. What surgical complications can develop in this disease?
3. Appoint treatment.

Task No. 2

The girl of 12 years is brought in a hospital with the plentiful uterine bleeding which arose for the first time.

The last 6 months notes frequent, plentiful bleedings, education after microtraumas of hemorrhages of different size, a form and coloring.

Serious condition. Pale. On skin multiple asymmetric hemorrhages (from small to extensive). Several sites of hemorrhage on a mucous membrane of a mouth.

Peripheral lymph nodes, liver and spleen are not increased. ABP of 100/55 mm Hg.

Blood test: Ayr. - 3.0 x 1012/l, Nv – 90 g/l, Tsv. pok. – 0.9, reticulocytes – 10%, Leyk. – 11.2 x 109/l, Blood clot. – 32 x 109/l, e/f – 6%, basophiles – 3%, p.b. – 12%, with / I am 55%, limf – 20%, monocytes – 4%, SOE – 12 mm/h.

Questions:

1. Your diagnosis? Prove your assumptions.
2. What research most informatively for confirmation of the diagnosis?
3. Appoint treatment to this patient.

Task No. 3

The boy of 6 years came to reception of children's hospital with the diagnosis "Rheumatism".

State at moderately severe receipt. Subnutrition. Pale. On skin of the right shoulder an ecchymoma with a diameter of 5 cm. Peripheral lymph nodes are slightly increased, mainly in submaxillary area. Carious teeth are partially debrided. Cardiac sounds are slightly muffled, functional systolic noise. The liver and a spleen are not increased. The neurologic status without features. The right knee joint of spherical shape, the movement in it are limited and sharply painful.

From the anamnesis it is known that the child from early age suffers from the increased bleeding: after slight injuries, hematomas on a trunk and extremities are noted.

At a puncture of the right knee joint gemolizirovanny blood is received.

Blood test: eritr. – 3.8 x 1012/l, NV – 110 g/l, leyk. – 6.5 x 109/l, SOE – 23 mm/h, blood clot – 200 x 109/l.

Blood clotting according to Li-Whyte – 18 min. A calcium clotting time – 450 min. Addition of fresh donor plasma normalized a calcium clotting time, addition is long the stored plasma the calcium clotting time did not change.

Questions:

1. Make the preliminary diagnosis. Prove it.
2. What additional researches need to be conducted?
3. What treatment does this patient need to appoint?

Class in a subject:
“INFECTIOUS DISEASES IN CHIKDREN
(MEASLES, SCARLET FEVER, RUBELLA, CHICKEN POX, EPIDEMIC PAROTITIS, DIPHTHERIA)”

"MEASLES"

I. Scientific and methodical justification of a subject:

For the last decade, in connection with active immunization of the children's population, the incidence of measles and whooping cough among adult population increased. In this regard to the doctor of any specialty it is necessary not only to diagnose correctly these infectious diseases, but also to carry out necessary anti-epidemic and treatment.

II. Purpose of activity of students on occupation

The student has to know:

- etiology, pathogenesis, measles epidemiology;
- early diagnostic criteria of measles;
- clinical picture and complications of measles at children;
- differential and diagnostic criteria of measles, etc. the diseases proceeding from enantema;
- the main treatment in measles;
- role of active immunization in prevention of measles;
- the main anti-epidemic actions in the infection center.
- whooping cough etiopathogenesis;
- features of a clinical picture of whooping cough at children of a younger age group;
- methods of laboratory diagnosis of whooping cough;
- the basic principles of treatment and prevention of whooping cough at children.

The student has to be able:

- to collect the anamnesis (to reveal purposefully: possible contacts whether inoculations were carried out);
- to perform clinical examination of the patient;
- to appoint the plan of inspection of the patient;

- to carry out the assessment of datas of laboratory;
- to carry out the differential diagnosis;
- to appoint adequate treatment;
- to hold anti-epidemic events in the center.

III. Content of training.

1. Epidemiological characteristic of measles, whooping cough.
2. Characteristic and properties of causative agents of measles and whooping cough.
3. Preventive measures at identification of the patient in children's collective.
4. Etiopathogenesis, classification and clinical picture of measles and whooping cough.
5. Complications and causes of death in measles.
6. Treatment, preventive actions in measles.
7. Role and tasks of sanitary and epidemic service and organization anti-epidemic and preventive actions.

IV. Educational material security.

9. Visual aids: tables, schemes, multimedia presentations, videos.
10. Educational medical documentation (case histories, laboratory researches).
11. Technical means of training.
12. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. E.K. Tsybulkin. The menacing states at children. – M.: GEOTAR-media, 2007. – 226 pages.

6. V.F. Uchaykin, N.I. Nisevich, O.V. Shamsheva. Infectious diseases at children. – M.: GEOTAR-media, 2010. – 688 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. General patterns of epidemiology of infectious diseases.
2. Main kliniko-pathogenetic mechanisms of infectious diseases.
3. Clinical forms of infectious diseases: complications, immunity. Specific diagnostics.
4. Principles of therapy of infectious diseases (specific and nonspecific).
5. Clinic and treatment of infectious toxicosis.

VII. List of questions for check of final level of knowledge:

1. Call the main epidemiological features of measles.
2. Call patogmonichny symptomatology during the catarrhal period of measles.
3. Give characteristic of a skin enantema in measles.
4. At what children do mitigirovanny measles develop? What features does the clinical picture have at the same time?
5. What complications most often arise in measles?
6. Call the main events held contact with the patient with measles.
7. Call the clinical periods in whooping cough.
8. What clinical manifestations of whooping cough depending on the disease period?
9. Call features of a course of whooping cough at children of early age.
10. What complications can arise at patients with whooping cough?
11. Call the main treatment in whooping cough.
12. Measures of prevention of whooping cough.

Information block.

Measles

Etiology and epidemiology.

The virus of measles belongs to paramyxoviruses. Entrance infection atriums – a mucous membrane of upper airways and eyes. Measles are transmitted in the airborne way, an infection source – only sick, infectious from the moment of emergence of the first symptoms of a disease till 5th day from appearance of rashes (at a complication by pneumonia – till 11th day). The susceptibility to a disease is high at all age, children of the first three months of life are protected by maternal antibodies. After the postponed disease there is a lifelong immunity. The incubation interval is 8-17 days, and at the children receiving immunoglobulin, it can be extended up to 21 days.

Clinical picture.

The catarrhal (prodromal) period lasts 3-5 days, is followed by fervescence, cold, cough, conjunctivitis, emergence on a mucous membrane of cheeks of pathognomonic scaly spots of Belsky-Filatov-Koplika and an enantema on a soft and hard palate. The period of a rash begins new fervescence, rash bright, spotty and papular, appears in the first day behind ears, on a face and a neck, for the second day – on a trunk and for the third day – on extremities. From the fourth day the body temperature decreases, rash begins to fade in the same order, as developed, leaving pigmentation, quite often scaly peeling. In a prodromal stage the leukopenia and a neutropenia, in a rash stage – a leukopenia, an eosinopenia, thrombocytopenia are noted.

New fervescence usually testifies to complications, the most frequent of them is pneumonia. Other complications – otitis, laryngitis, stomatitis, a keratitis, colitis and a coloenteritis, pustulous damage of skin, are much more rare – encephalitis. Lethality in measles reaches 1-2% at the expense of complications. The Mitigirovanny form of measles arises after a seroimmunity and can proceed at the normal body temperature, weak symptomatology, with poor rashes. Measles at imparted by live clumsy vaccine can proceed in the erased form.

Diagnosis.

It is put according to clinical data, in doubtful cases retrospectively investigate credits of protivokorevy antibodies.

Treatment.

Symptomatic. Antibiotics are appointed only at complications (pneumonia, otitis) at severe forms of measles at children of early age, associated diseases and other indications.

Prevention.

Basis of prevention is active immunization. 12 months are more senior than the contact not vaccinated, not having measles children vaccinate (in the first 3-4 days), to children till 1 year and in the presence of contraindications to vaccination enter immunoglobulin (at contact by the patient with measles). The quarantine for not vaccinated is established from the 8th to the 17th day from the contact moment, for received immunoglobulin – up to 21st day.

Inoculation according to the calendar: administration of live vaccine in 12 months.

Tasks for independent preparation:

1. Solve situational problems and a test task.
2. Examine the patient describe the changes in the state of health in a workbook revealed by you.

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- epidemiological data in family, children's collective;
- features of feeding of the child, error in food;
- the diseases postponed earlier, the background pathology complicating a course of infectious process;
- inoculative anamnesis;
- the beginning and dynamics of a disease before arrival of the child in hospital;
- the treatment spent at home.

At an objective research to pay attention on:

- weight of a condition of the child, temperature reaction, neurologic status, meningeal signs;
- presence of symptoms of toxicosis;
- condition of a mucous membrane of an oral cavity (color, enantema, Filatov-Koplika's spots, pharynx hyperaemia), back wall of a throat, condition of a

conjunctiva;

- color and humidity of integuments, nature of rash (spotty, papular, hemorrhagic), localization, emergence time;
- palpation of lymph nodes (the sizes, consistence, quantity, localization, mobility, change of skin over them, morbidity);
- condition of a respiratory system;
- condition of a cardiovascular system (the ABP, heart borders, symptoms of heart failure, characteristic of tones, existence of pathological noise at auscultation).

At interpretation of datas of laboratory:

1. in complete blood count test (maintenance of leukocytes, erythrocytes, hemoglobin, feature of a leukocytic formula, SOE);
2. serological blood test in dynamics (increase of an antiserum capacity);
3. data of RPGA;
4. biochemical blood test;
5. data of ultrasonography of abdominal organs (liver, spleen).
6. conclusion of the ENT specialist;
7. given to a thorax X-ray analysis.

Test control.

1) The incubation interval in measles is:
   a) 1-7 days;
   b) 8-17 days;
   c) 30 and more days;
   d) 25-30 days
2) In measles the antibacterial therapy is appointed:
   a) during a prodromal stage;
   b) at the height of a disease;
   c) in the presence of complications.
3) Rash in measles is characterized:
   a) contemporaneity of a rash;
   b) spotty and papular character;

c) hyperemic background of skin;

d) staging of a rash;

e) tendency to merge of elements of rash.

4) Clinical signs of mitigirovanny measles:

a) toxic syndrome;

b) lack of symptoms of intoxication;

c) staging of a rash;

d) small rash without tendency to merge

e) the extended prodromal stage.

5) On a mucous membrane of a mouth in measles appear:

a) bubble rashes

b) enantema

c) filmy imposings

d) Filatov-Koplika's spots

6) Can be complications of measles:

a) meningitis

b) encephalitis

c) bronchitis

d) pneumonia

e) arthritis

7) In an initial stage of measles reveal:

a) expressed catarrhal phenomena from upper airways

b) the bright delimited pharynx hyperaemia

c) conjunctivitis

d) "papillary" language

e) fever

8) Epidemiological features of measles are:

a) high contagious index

b) general susceptibility

c) rather slow distribution of flash

d) possibility of transmission of infection by the waterway

e) durable immunity after the postponed disease

9) Active immunization against measles is carried out:

a) AKDS-vaccine

b) gamma-globulin

c) anatoxin

d) the live weakened virus vaccine

10) Causative agent of whooping cough:

A) Bordetella pertusis

B) Hemophilus infuenzae

11) Mechanisms of transfer of whooping cough:

A) airborne

B) fecal and oral

C) transplacental

D) parenteral

12) Children of the first month of life whooping cough:

A) are ill

B) are not ill

13) In time a reprise in whooping cough it is complicated:

A) breath

B) exhalation

14) Dissociation of the children contacting to sick whooping cough is supposed on:

A) 10 days

B) 14 days

C) 21 days

E) quantity of repriz during an attack

15) Point out weight of whooping cough:

A) vomiting during fits of coughing

B) frequency of fits of coughing

C) apnoea during cough

D) neurotoxicosis

16) Cough in the spasmodic period of whooping cough is distinguished:

A) reprises

B) apnoea

C) the "barking" character

17) Can be complications of whooping cough:

A) pneumonia

B) myocarditis

C) atelectasis

D) subarachnoidal hemorrhage

E) pyoderma

Situational tasks:

Task No. 1

The girl 3.5 years, came to a hospital for the 3rd day of a disease with complaints to high temperature, cough, cold. Grows and develops according to age. After a year 3 times were transferred by ORZ. Attends kindergarten.

The disease began sharply: temperature to 37.8□C rose, cough, cold developed. The called doctor diagnosed ORZ and appointed symptomatic treatment. Next day temperature increased to 38.5□C, the general state worsened, the headache, a sore throat developed.

At receipt: moderately severe state, temperature 38.2□C, child sluggish, pale, profound cold, dry cough, photophobia, hyperaemia of conjunctivas, injection of vessels of scleras. Pale, clean skin. Bright hyperaemia of handles, back wall of a throat, tonsils, mucous membrane of cheeks. On a transitional fold the molars have very small whitish rashes ("semolina") which are a little towering over a surface. On a soft palate a krupnopyatnisty enantema. Polyadenitis. In lungs without pathology. Tachycardia. Sonorous cardiac sounds. Soft, painless stomach. The liver is probed on 2 see belowa costal arch. A chair – without features.

Questions:

1. What diagnosis should be assumed in this case?
2. What symptoms should be expected a disease in the next days?
3. What treatment the patient should appoint. What prevention of this disease.

Task No. 2

The child of 3 months, came to boksirovanny department for the 14th day of a disease with the diagnosis: "SARS. Pneumonia?". Two weeks ago against the background of the normal temperature and good general condition there was cough which did not respond to treatment, tended to increase, especially at night. It was observed by the doctor with the diagnosis of a SARS. In a week the cough became paroxysmal and was followed by concern, face reddening during an attack, and periodically came to an end with protrusion of language with vomiting. After an attack there occurred improvement. Out of an attack the pallor of integuments, some puffiness of the person was noted. At receipt: sluggish, pale, cyanosis of a nasolabial triangle. Hemorrhage in a conjunctiva of the right eye. Quiet pharynx. Lymph nodes are not increased. In lungs breath rigid, rattles are not listened. Distinct cardiac sounds. Soft, painless stomach. The liver acts from under edge of a costal arch on 1.5 cm. A spleen – at edge of a costal arch. A chair, a diuresis in N.

In department at the child about 25 fits of coughing in day were noted, at the same time periodically during an attack the vomiting was observed. A phlegm viscous and the child hardly coughed up.

General blood test: Ayr – 4,0 x 10 12/l, Nv-140 of g/l, Leyk – 30,0 x 10 9/l, p.b. – 3%, with / I am 20%, l – 70%, m – 7%, SOE of-3 mm/hour.

On the roentgenogram: strengthening of the bronkho-vascular drawing, improving transparency of pulmonary fields

Bacteriological research of slime from a nasopharynx – Bordetella pertussis stick is found

Questions:

1. Make the clinical diagnosis.
2. Carry out diff. diagnosis.
3. Appoint treatment.
4. What preventive actions exist in this disease.

Class in a subject:
"SCARLET FEVER"

I. Scientific and methodical justification of a subject.

Despite decrease in incidence of scarlet fever, this infection still occur among the

children's population, is more rare among adults.

In recent years scarlet fever considerably "matured". At the same time its diagnostics quite often is late since doctors often do not think of a possibility of a disease of adults of children's infections and are not familiar with some features of a clinical course of these diseases.

In this regard to the doctor of any specialty it is necessary not only to diagnose correctly it infectious a disease, but also to carry out necessary anti-epidemic and treatment.

II. Purpose of activity of students on occupation:

The student has to know:

- epidemiological features of scarlet fever;
- infection sources in this disease;
- ways of infection;
- susceptibility;
- incidence and lethality;
- pathogenesis scarlet fever;
- clinical picture of scarlet fever and also differential diagnostics;
- scarlet fever complications;
- methods of laboratory diagnostics;
- basic principles of treatment, prevention;
- features of a course of scarlet fever at adults.

The student has to be able:

- to collect epid. anamnesis;
- to perform objective examination;
- to appoint special laboratory researches, to estimate their results;
- to hold anti-epidemic events in the center (isolation, observation, prevention of a disease at contact).

III. Content of training:

1. Scarlet fever (etiology, epidemiology, pathogenesis, clinic, diagnostics, treatment).
2. Complications in scarlet fever.

3. Prevention in the center, work with contact.
4. Features of a course of scarlet fever at adults.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos.
2. Educational medical documentation (case histories, laboratory researches).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
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4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. E.K. Tsybulkin. The menacing states at children. – M.: GEOTAR-media, 2007. – 226 pages.
6. V.F. Uchaykin, N.I. Nisevich, O.V. Shamsheva. Infectious diseases at children. – M.: GEOTAR-media, 2010. – 688 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. General patterns of epidemiology of infectious diseases.
2. Main kliniko-pathogenetic mechanisms of infectious diseases.
3. Clinical forms of infectious diseases. Complications. Immunity.

4. Specific diagnosis of infectious diseases.
5. Principles of therapy of infectious diseases (specific and nonspecific).
6. Clinic and treatment of infectious toxicosis.

VII. List of questions for check of final level of knowledge:

1. Call the main epidemiological characteristics of scarlet fever.
2. Tell about the main links of pathogenesis in scarlet fever.
3. Describe the condition of a mucous oral cavity characteristic of scarlet fever.
4. Characterize skin rashes in scarlet fever. Differential and diagnostic criteria of a dieback in scarlet fever.
5. On what clinical signs the diagnosis "scarlet fever" can be made on 2-3 week of a disease.
6. What is the "scarlatinal" ("filatovsky") heart?
7. What complications can be in scarlet fever?
8. What methods of laboratory diagnostics does the patient need to appoint? What results do you expect to receive?
9. What treatment does the patient with scarlet fever need to appoint?
10. Prevention of scarlet fever, anti-epidemic work in the center.

Information block.

SCARLET FEVER

– the acute infectious disease which is characterized by symptoms of the general intoxication, a tonsillitis and an enanthesis.

Etiology.

The activator – a β-hemolytic streptococcus of group A. The persons who had scarlet fever gain usually durable immunity to it. However they do not become immune in relation to other forms of a streptococcal infection.

Scarlet fever represents one of manifestations of a streptococcal infection. However it is allocated from this group with existence of the expressed toxic component. As a result of the postponed scarlet fever the durable anti-toxic immunity which does not have standard specificity is developed. At the same time, as the bacterial immunity is type-specific and rather not resistant, in infection with other type of a streptococcus of people,

the anti-toxic immunity which had scarlet fever and having, can ache with any other form of a streptococcal infection.

Epidemiology.

The main source of an infection is sick scarlet fever, the special epidemiological danger is constituted by patients of the scarlet fever erased by a form. Patients (children and adults) with a streptococcal tonsillitis and a nasopharyngitis can also be a source of an infection. The patient becomes infectious from the moment of a disease. Duration of the infectious period is definitely not established. However early use of penicillin in scarlet fever promotes fast release of the patient from carriage of a streptococcus and at the smooth course of the disease (without complications) the child practically does not constitute epidemiological danger in 7-10 days from the beginning of a disease. In the presence of complications, especially purulent (purulent rhinitis, otitis, etc.), duration of the infectious period increases. The danger is constituted also by convalescents with chronic inflammatory diseases (adenoid disease, a nasopharyngitis). At these children longer carriage of a streptococcus is observed.

The infection is transmitted in the drop way at contact with the patient or the bacillicarrier. Transmission of infection through objects of use, a toy, clothes of patients is possible, transmission of infection through the infected products is proved (mainly milk). The contagious index makes about 40%.

From all incidence of scarlet fever of 90% it is the share of children up to 16 years. The greatest incidence is observed among children of preschool and early school age, children aged till 1 year get sick with scarlet fever seldom, children of the first half of the year of life especially seldom are ill.

The maximum of incidence of scarlet fever falls on the autumn and winter period.

After the postponed scarlet fever quite durable anti-toxic immunity, as a rule, is developed. However recently as a result of use of antibiotics for treatment of patients with scarlet fever the hyperimmunity is developed not always in this connection, cases of repeated scarlet fever became more frequent.

Pathogenesis and pathological anatomy.

Most often the infection gets to an organism through tonsils, is more rare – through the injured skin (wound or burn scarlet fever), a mucous membrane of a uterus (postnatal scarlet fever) and in some cases – through lungs.

The streptococcus causes inflammatory and necrotic changes in the place of implementation. On absorbent and blood vessels the activator gets into regional lymph nodes. Toxin of a hemolytic streptococcus, getting to blood and having tropism to vegetative endocrinely and neurovascular device, causes symptoms of the general intoxication, the shown high temperature, rash, defeat central in the autonomic nervous system and the cardiovascular device. Specific toxicosis, expressed to a degree, is noted in all cases of scarlet fever in the first 2-4 days of a disease.

By the end of the 1st at the beginning of the 2nd week the anti-toxic immunity begins to be developed.

Clinically septic line of pathogenesis is shown by purulent complications (lymphadenitis, purulent otitis, a mastoiditis, arthritis, etc.). Septic manifestations can arise irrespective of weight of an initial stage of scarlet fever.

At a toxic form of scarlet fever the sharp catarrh of a pharynx, throat and even gullet with superficial necrosis of an epithelium comes to light. Sometimes on a section of a tonsil find sites of necrosis. In a myocardium dystrophic changes. In sympathetic and parasympathetic ganglions of change in the basic of destructive character. In a brain acute swelling, sharp circulator disturbances.

The suppurative and necrotic focuses in septic scarlet fever can be localized in various fabrics and bodies (an ear, joints, serous cavities, kidneys – interstitial nephrite).

Clinical picture.

The incubation interval lasts 2-7 days more often, but can be shortened about one day and be extended up to 12 days.

The disease, as a rule, begins sharply. Among full health temperature increases, there are vomiting and a sore throat. In several hours it is possible to notice appearance of rash which very quickly extends to the person, a neck, a trunk and extremities. Sometimes rash develops for the 2nd day and later from an onset of the illness.

The punctate rash on a hyperemic background of skin is characteristic of scarlet fever. On a face the rash especially densely is located on cheeks which become bright red,

especially shading ***the pale, not covered with rash nasolabial triangle***. More saturated rash is noted on the side surface of a trunk, in the bottom of a stomach, on the flexion surfaces of extremities, especially in natural folds of skin: in axillary, inguinal, elbow, popliteal areas. Quite often along with punctate rozeolezny rash in these parts can be and small petechias, sometimes rash happens drain. The white dermographism, is distinct.

Rash can be papular when skin takes kind of a shagreen form. Melkopyatnista or hemorrhagic. In more hard cases the rash has a tsianotichesky appearance. The dermographism at the same time is mild, faltering. Scarlet fever can be also without rash (atypical form).

The xeroderma is characteristic of scarlet fever. Rash usually sticks to 3-7 days, disappearing, it does not leave pigmentation. After deflorescence the peeling, in the beginning in places where more gentle skin (lobes of ears, a neck, a scrotum), and then and on all trunk begins. Typically for scarlet fever the macrolaminar peeling, especially on brushes and toes, but can be also small, scaly peeling on lobes of ears, on a neck, At children of chest age the peeling is usually significant very poorly. More plentiful peeling happens after miliary rash.

Tonsillitis – a constant symptom of scarlet fever. The bright hyperaemia of a pharynx (tonsils, a uvula, handles) which is not extending to a mucous membrane of a hard palate is typical. The scarlatinal angina can be catarrhal, follicular, necrotic and false and fibrinous.

Mucous membranes of an oral cavity dry. Language is densely imposed with a gray-yellow plaque in the beginning, from the 2-3rd day begins to be cleaned with edges and a tip, becomes bright red with the expressed nipples ("crimson language"). This symptom keeps during 1-2 weeks.

According to extent of damage of a pharynx are involved in process and regional lymph nodes. They become increased, dense, painful at a palpation. In the cases which are followed by pharynx necroses the cervical cellulose surrounding lymph nodes (periadenitis, an adenoflegmon) also is involved in process.

The expressiveness of symptoms of the general intoxication and high temperature correspond to weight of a disease. Easy forms of scarlet fever can proceed at a normal temperature and without the profound intoxication. At severe forms high temperature (up

to 39-40 °C and above), repeated, sometimes pernicious vomiting, a severe headache, slackness, drowsiness, in toxic cases – the darkened consciousness, nonsense, spasms, meningeal symptoms are always observed. Duration of the feverish period also corresponds to weight of a disease. In mild cases temperature is normalized in 2-3 days, in heavier, especially followed by extensive necroses, temperature increase keeps till 7-9th day from an onset of the illness longer.

Cardiovascular changes in scarlet fever in the form of "infectious" heart usually keep during 2-4 weeks, sometimes and more (within 3-6 months from the date of a disease). Further they are liquidated.

From blood in an initial stage the leukocytosis of neutrophylic character with shift is noted to the left. SOE is raised. In process of normalization of temperature the eosinophilia and a leukopenia are sometimes noted.

Classification of clinical forms of scarlet fever.

The classification offered by A.A. Koltypin is standard. It assumes division of scarlet fever on type, weight and a course.

Typiforms differ ***on weight***: easy, medium-weight and heavy. Besides, are allocated transitional from lungs to medium-weight and from medium-weight to heavy. Indicators of weight are as the general symptoms of intoxication (defeat of CIS and the vascular system and the vegetative and endocrine device), and local changes – extent of damage of a pharynx and regional lymph nodes.

Carry *the erased forms* at which all symptoms are very mild and short-term to group ***of atypical***, some of them can absolutely be absent. These are usually the easiest forms of scarlet fever.

Ekstrabukkalny forms (burn, wounded, postnatal) are characterized by a short incubation interval, absence or very mild tonsillitis. Rash begins and is more saturated about entrance gate.

Carry forms with aggravirovanny symptoms to atypical – *hypertoxical* and *hemorrhagic* at which process develops so violently and hard that death comes before symptoms, typical for scarlet fever develop (rash, a tonsillitis, damage of lymph nodes). Such patients usually arrive with the diagnosis "Encephalomeningitis" or "Food toxicoinfection" and die in 1-2 days at the collapse phenomena as a result of sharp damage

of the nervous, vascular system and the endocrine and vegetative device. These forms meet exclusively seldom.

Complications.

The most frequent complications of scarlet fever: lymphadenitis, otitis, sinuitis, mastoiditis, nephrite, synovitis, purulent arthritis, etc. Complications arise on the 2-3rd week from the beginning of a disease more often. Two factors – an allergy and consecutive infection a streptococcus of the same or other serovar play a role in genesis of complications.

Allergic complications (simple lymphadenitis, synovitis, nephrite) develop usually in the second period of a disease. Purulent complications can arise both in early, and in late terms of a disease. They are more often observed at children of early age.

Outcomes.

Now scarlet fever is a slight disease, as a rule, with a favorable outcome. Patients with an adenoid disease and at the children sick with rheumatism, in the scarlet fever convalescence period quite often have a long subfebrile condition, various complications and also there can be an aggravation of rheumatic process.

Scarlet fever differs in a number of features now: existence of mainly easy forms of a disease, lack of purulent complications, fast sanitation of an organism from a hemolytic streptococcus that is reached by early use of penicillin and creation of the correct conditions of hospitalization excluding reinfection (simultaneous filling of chambers with patients).

Diagnosis and differential diagnosis.

Recognition of scarlet fever in typical cases does not present difficulty. Difficulties arise at late arrival of patients when rash already turned pale. Promote diagnostics "saturation" of skin folds which keeps longer, than rash on other sites of skin, existence of petechias on a neck, in underarms and "crimson language". It is also necessary to pay attention to xeroderma and early peeling on lobes of ears and on a neck.

In later period (on the 2-3rd week) diagnosis of scarlet fever is based on detection of lamellar peeling, manifestations of "scarlatinal heart". Presence of lymphadenitis also facilitates diagnosis of scarlet fever in this period, certainly, at the same time it is

necessary to consider the anamnesis and an epidemiological situation in the patient's environment.

At diagnostics of the erased form of scarlet fever it is necessary to be guided generally by the nature of damage of a pharynx (the delimited hyperaemia of a soft palate from a pale hard palate). Single vomiting in an onset of the illness quite often happens also at the erased scarlet fever form.

It must be kept in mind the scarlatiniform rash arising in a prodromal stage of measles and in chicken pox.

Babies a reason for wrong diagnosis of scarlet fever can have an emergence of a heat rash. Various medicines (streptocides, antibiotics, etc.) can cause scarlatiniform rash. However rash at the same time is located on not changed skin background, it is more on extensor surfaces, does not spare a nasolabial triangle and has more rough character. In rare instances scarlet fever should be differentiated from exudative diathesis.

Treatment

Treatment of patients with an easy form of scarlet fever under the corresponding conditions (opportunity to isolate the patient in the separate room) is carried out in house conditions.

Scarlatinal departments have to consist of chambers on 2-3 persons. Filling of these chambers with patients is carried out at the same time within 1-2 days. Patients of one chamber should not have contact with patients of other chamber. It excludes a possibility of cross infection with a streptococcus.

Regime of the patient within 5-6 days bed. Food has to correspond to age of the child and contain all necessary food ingredients.

Considering that even at an easy form of scarlet fever there can be complications, it is recommended to apply antibiotics irrespective of weight of a disease.

Duration of a course of antibiotic treatment is 5-7 days. It is the most reasonable to apply penicillin intramusculary 2 times a day at the rate of 20000 PIECES/kg of body weight or Bicillinum-3 once intramusculary in a dose of 20000 PIECES/kg of body weight, but no more than 800,000 PIECES.

To treatment of a septic form penicillin is applied in a dose by not less than 50000 PIECES/kg of the body weight (daily dose) 3 — 4 times a day. At treatment in house

conditions it is convenient to use phenoxymethylpenicillin inside. Its daily dose doubles in comparison with intramuscular introduction and is given in 3-4 receptions.

Treatment of complications is carried out by the general rules depending on their character. At purulent complications (otitis, lymphadenitis, a sinuitis, etc.) antibiotics appoint. Early prescription of antibiotics in otitises and lymphadenites warns suppuration. Except antibiotics, appoint symptomatic therapy (UVCh, quartz, dry heat); according to indications the operational treatment is carried out. Treatment in nephrites includes a bed rest, a diet, antibiotics.

Prevention.

Specific prevention of scarlet fever is not developed.

General measures of prevention come down to early detection and isolation of a source of scarlet fever. The children who got sick with scarlet fever are hospitalized in hospital or isolated in house conditions for a period of 10 days from the moment of a disease. It is possible to send to child care facility of the child in 22 days from the beginning of a disease. In child care facilities in the center of scarlet fever are isolated as well patients with a tonsillitis (children and adults). They are not allowed in children's collectives within 22 days from the date of their disease (as well as patients with scarlet fever).

Children with heavy and not severe form of scarlet fever and when in house conditions it is impossible to isolate the child are subject Wednesdays to obligatory hospitalization and to provide him the corresponding care. Discharge from hospital is made according to clinical indications and in the absence of complications and inflame the telny phenomena in a nasopharynx, but not earlier than 10 days from the beginning of a disease.

After discharge from hospital or isolation at home children are not allowed in preschool child care facilities in the 1st and in the 2nd by classes of school within 12 days after clinical recovery.

At contact for preschool children and children of the 1st and 2nd classes of school the quarantine for 7 days from the moment of isolation of the patient is established. Final disinfection in the center is not carried out.

Task for independent work:

1. Solve situational problems and tasks of test control.
2. Examine the patient and describe the revealed changes in state of his health.

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- Epid. anamnesis: disease source, contacts, incubation interval, visit of child care facilities).
- Inoculations.
- The background diseases complicating a course of infectious process.
- Presence of perinatal encephalopathy.
- Presence of exudative diathesis, allergic diseases or reactions, intestinal dysbacteriosis.

At an objective research to pay attention on:

- Weight of a state, temperature reaction, neurologic status, meningeal signs, defeat peripheral and central nervous system, severity of infectious toxicosis.
- State mucous mouth, conjunctiva (color, dieback, its localization, color of language), condition of a pharynx.
- Condition of integuments, nature of rash (description, emergence time, localization), peeling (character, localization).
- Condition of hypodermic cellulose of a neck.
- Palpation of lymph nodes (size, consistence, morbidity, mobility).
- Condition of a cardiovascular system (ABP, vascular insufficiency, "infectious heart", myocardites).
- Sizes of a liver and spleen.
- Existence of the dysuric phenomena, color of urine, daily urine.
- Survey of other bodies and systems.

At interpretation of datas of laboratory:

- Complete blood count test (leukocytosis, leukocytic formula, SOE)
- Analysis of urine.
- Bacteriological research smears from a pharynx and a nose).
- Serological blood test in dynamics (increase of an antiserum capacity).

- ECG, FKG, EhoKG.

Situational tasks.

Task No. 1

Seryozha M. 5 years. Ached sharply: there was a weakness, a sore throat, temperature 38.2ºæ. At survey: pale integuments, on the flexion surface of extremities, it is especially dense in natural folds (inguinal, axillary, elbow bends) and the side surface of a trunk the punctate rash on a hyperemic background of skin, without tendency to merge, single petekhialny elements is found. The resistant white dermographism is defined. Rash is densely located on a face, leaving clean a nasolabial triangle. At survey of a pharynx the profound hyperaemia of handles comes to light, tonsils are increased, hyperemic, in lacunas purulent contents, mucous a hard palate pale, language at a root is densely imposed with a grayish plaque, a language tip clean, with the expressed nipples. Submaxillary lymph nodes of 1.5 cm in size, dense, painful at a palpation. In lungs vesicular breath sound. Cardiac sounds are moderately muffled, ChSS – 100 in 1 min. the ABP – 100/70 mm Hg. On other bodies without features.

Questions:

1. Make the preliminary diagnosis. Prove it.
2. Appoint additional inspection.
3. Make the treatment plan.

Test control.

1. Rash in scarlet fever:
   a) papular
   b) punctulate
   c) vesicular
2. Infection source in scarlet fever can be a sick tonsillitis:
   a) truly
   b) incorrectly
3. Causes scarlet fever:
   a) beta and hemolytic streptococcus of group and

b) group streptococcus in

c) green streptococcus

4. Scarlet fever incubation interval:

a) 2 – 3 hours

b) 2 – 7 days

c) 9 – 21 days

5. For treatment of the patient with scarlet fever appoint:

a) penicillin

b) lincomycin

c) Oletetrinum

6. Ways of transfer of scarlet fever:

a) airborne

b) food

c) contact and household

d) transplacental

7. At the beginning of scarlet fever come to light:

a) xeroderma

b) punctate rash on a hyperemic background to skin

c) spotty and papular rash on not changed skin background

d) lamellar peeling

e) white dermographism

8. The most typical complications in scarlet fever are:

a) otitis

b) croup syndrome

c) lymphadenitis

d) glomerulonephritis

e) polyradiculoneuritis

9. Are characteristic of "scarlatinal" heart:

a) tachycardia

b) bradycardia

c) decrease in the ABP

d) increase in the ABP

e) systolic noise

10. Scarlet fever at children of the first year of life proceeds:

a) with a mild toxic syndrome

b) in a hypertoxical form

c) with a necrotic tonsillitis

d) with not plentiful rash

e) with complications in the form of otitis, lymphadenitis

"RUBELLA, CHICKEN POX, EPIDEMIC PAROTITIS"

I. Scientific and methodical justification of a subject:

For the last decade, in connection with active immunization of the children's population, the incidence of a rubella, epid increased. parotitis among adult population. In this regard to the doctor of any specialty it is necessary not only to diagnose correctly these infectious diseases, but also to carry out necessary anti-epidemic and treatment.

II. Purpose of activity of students on occupation

The student has to know:

- etiology, pathogenesis, epidemiology:

  a) rubellas

  b) chicken pox

  c) epid. parotitis
- classification, clinical picture and complications epid. parotitis;
- differential and diagnostic criteria of a rubella, etc. the diseases proceeding from enantema;
- clinical picture of a rubella at children, manifestations of a congenital rubella;
- the main treatment in a rubella, chicken pox, epid. parotitis;
- role of active immunization in prevention epid. parotitis and rubella;
- the main anti-epidemic actions in the infection center.

The student has to be able:

- to collect the anamnesis (to reveal purposefully: possible contacts whether

inoculations were carried out);

- to perform clinical examination of the patient;
- to appoint the plan of inspection of the patient;
- to carry out the assessment of datas of laboratory;
- to carry out the differential diagnosis:
  a) chicken pox;
  b) rubellas;
  c) epid. parotitis;
- to appoint adequate treatment;
- to hold anti-epidemic events in the center in these infections.

III. Content of training.

8. Epidemiological characteristic of chicken pox, rubella, epid. parotitis.
9. Etiopathogenesis, classification and clinical picture of chicken pox, rubella, epid. parotitis.
10. Clinical picture and complications in chicken pox, a rubella, epid. parotitis.
11. Principles of therapy, prevention and complications of chicken pox, rubella, epid. parotitis.
12. Preventive measures at identification of the patient in children's collective.
13. Congenital rubella.
14. Role and tasks of sanitary and epidemic service and organization anti-epidemic and preventive actions.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos.
2. Educational medical documentation (case histories, laboratory researches).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.

2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. E.K. Tsybulkin. The menacing states at children. – M.: GEOTAR-media, 2007. – 226 pages.
6. V.F. Uchaykin, N.I. Nisevich, O.V. Shamsheva. Infectious diseases at children. – M.: GEOTAR-media, 2010. – 688 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. General patterns of epidemiology of infectious diseases.
2. Main kliniko-pathogenetic mechanisms of infectious diseases.
3. Clinical forms of infectious diseases: complications, immunity. Specific diagnostics.
4. Principles of therapy of infectious diseases (specific and nonspecific).
5. Clinic and treatment of infectious toxicosis.

VII. List of questions for check of final level of knowledge:

1. Call the main epidemiological characteristics of chicken pox.
2. Tell about the main links of pathogenesis in chicken pox.
3. Describe the condition of a mucous oral cavity, a conjunctiva of eyes characteristic of chicken pox.
4. Characterize skin rashes in chicken pox. Differential and diagnostic criteria of a dieback in chicken pox.
5. What complications can be in chicken pox? What treatment at the same time is

appointed?

6. Describe changes of sialadens in epidemic parotitis.

7. What complications, are characteristic of epidemic parotitis?

8. What symptoms are characteristic of meningitis of a parotitis etiology?

9. What clinical laboratory signs are characteristic of pancreatitis of a parotitis etiology?

10. Describe changes from genitals at the complicated course of a parotitis infection at boys.

11. Give characteristic to specific prevention of epidemic parotitis.

12. Call features of epidemiological process in a rubella at children.

13. Call the main manifestations of a congenital rubella.

14. What main clinical symptoms of a rubella do you know?

15. Call measures of prevention of a rubella.

Information block.

CHICKEN POX (Varicellae).

Chicken pox – the acute infectious disease which is characterized by emergence on skin and mucous membranes of small bubbles with transparent contents.

Etiology.

The activator – a large virus, contains DNA, letuch, but is unstable in external environment, is not pathogenic for animals. The identity of viruses of chicken pox and the surrounding herpes is established.

Epidemiology.

Source of an infection is the patient, since last (1-2) days of an incubation interval and within 3-4 days of a rash. The patient at the beginning of a rash is especially infectious. Sick Herpes zoster can be a source of infection also. Infection occurs in the airborne way.

Susceptibility to chicken pox high. Often children aged up to 10-12 years are ill. Children of the first 2-3 months of life exclusively seldom have chicken pox in connection with presence of transplacental immunity from mother. After the postponed chicken pox there is a durable immunity.

Clinic.

Incubation interval from 11 to 21 days (on average 14 days).

The disease begins with short-term a prodrome (subfebrile temperature and deterioration in the general state). In the period the prodrome sometimes appears scarlatiniform or korepodobny rash. More often this rash develops in the period of the maximum rash of varicellous elements.

Usually the disease begins sharply with temperature increase and varicellous rash almost at the same time develops. The rash occurs attacks within 2-4 days. Rash can on all departments of a body and on mucous membranes. Primary element of rash – a small spot or the papule towering over skin which in several hours turn into a vesicle with hyperaemia around it.

Varicellous bubbles of round shape are located on neinfiltrirovanny skin. Bubbles through 1-2dnya are opened, dry up, on their place crusts after which falling away, hems it is not formed are formed.

As varicellous elements pour out not at the same time, and kind of tolchkoobrazno with intervals 1-2 days, on skin it is possible to see the elements which are at different stages of development (spot papule, a bubble, a crust). This so-called false polymorphism of skin eruption is characteristic of chicken pox. Each new podsypaniye is followed by the next temperature increase. Varicellous elements can pour out on a hairy part of the head, on mucous membranes of a mouth, nasopharynxes, an eye, is more rare a throat, genitals. Quite often they are complicated by accession of a bacterial infection.

In typical medium-weight cases the chicken pox is followed by the small intoxication which is moderately raised by temperature, a plentiful rash and a small itching of skin. In process of drying of vesicles temperature is normalized and the condition of the child improves.

Carry to atypical forms;

- *rudimentary form* at which the disease is followed by emergence single, insufficiently developed, bubbles with slight increase of body temperature or against the background of normal temperature. The general condition of the child at the same time is not broken;
- *generalized (visceral) form* which is followed by a hyperthermia, heavy intoxication and damage of internals. It is very rare form of a disease;

- *hemorrhagic form* which is found also seldom. At the same time the maintenance of bubbles has hemorrhagic character. Hemorrhages in skin, mucous membranes, nasal bleedings and a hematemesis are observed;

- *gangrenous form* at which in an environment of hemorrhagic bubbles the inflammatory reaction appears then the necroses covered with a bloody scab after which falling away deep ulcers with a dirty bottom and the subdug edges are bared are formed. Ulcers increase in sizes, merge among themselves. These forms arise at the exhausted, weakened patients, at bad leaving when the possibility of accession of secondary microbic flora appears. The course of gangrenous forms long, quite often accepts septic character;

- *bullous form* at which along with usual big bubbles with rather turbid contents arise varicellous bubbles.

Diagnosis.

Difficulties in diagnostics arises at atypical forms. In last years the differentiation of chicken pox from natural had the greatest value. Now natural smallpox is liquidated practically worldwide, however it is necessary to remember it.

Chicken pox in typical cases comes to an end with recovery. Deaths are observed only at malignant forms (generalized, gangrenous, hemorrhagic).

Complications.

Can arise in connection with accession of secondary microbic flora. Lymphadenitis, an ugly face, abscess, phlegmon are observed. The encephalomeningitis arising sometimes for the 5-7th day of chicken pox, apparently, has the virus and allergic nature.

Treatment.

Specific and etiotropic treatment does not exist. It is necessary to watch purity bed and underwear, purity of hands (prevention of purulent complications). Elements of rash grease 5% with solution of potassium permanganate or 1% solution of diamond green. At severe forms enter immunoglobulin (3-6 ml intramusculary), glucose solutions intravenously; pour plasma and blood-substituting liquids. At purulent complications appoint antibiotics (penicillin, tetracycline, etc.).

Prevention.

The patient is isolated by houses. Hospitalization are subject children with the heavy or complicated forms of chicken pox. In the presence of an encephalomeningitis the hospitalization is obligatory. The children of babyhood (to the 3rd) who were in contact with the patient of chicken pox and not being ill earlier are isolated from collective from the 11th to the 21st day from the moment of contact.

Specific prevention in a number of the countries is carried out by means of live vaccine.

RUBELLA.

Etiology and epidemiology.

The disease-producing factor belongs to group of viruses, entrance gate of droplet infection – airways, a source – the patient infectious during a prodromal stage and the first 5-7 days later began rashes. The rubella at pregnant women can lead to pre-natal infection of a fruit. The incubation interval 15-24 days, is more often than 16-18 days.

Clinical picture.

The easy catarrhal phenomena at small body temperature, increase in zadnesheyny, occipital lymph nodes, sometimes the enantema, rash on a face and a neck which is quickly extending on all body spotty and papular.

Emergence in peripheral blood of plasmocytes (to 10-12%), a leukopenia, a lymphocytosis is characteristic.

Complications are rare (thrombocytopenia, encephalitis).

Diagnosis.

It is put according to clinical data, it can be confirmed serological.

Treatment.

Symptomatic.

Prevention.

The patient is isolated for 5 days from the date of appearance of rash. Are carried out vaccination by live vaccine in 12 months, 6 years (both boys and girls), in 13 years (only girls).

EPIDEMIC PAROTITIS.

Etiology, epidemiology.

Disease-producing factor – a paramyxovirus, entrance gate – upper airways, an infection source – the patient infectious from the last days incubations and within 7-9 days

from the beginning of a disease, a way of transfer – airborne. The incubation interval 11-23 days, is more often than 15-18 days.

Clinical picture.

The beginning of a disease is characterized by pasty swelling of a parotid gland, fervescence, morbidity when chewing and swallowing.

Submaxillary (submaxillaritis) sialadens, genitals, in some cases – hypoglossal sialadens, a pancreas and other ferruterous bodies can be involved in process. Typical for a parotitis infection it is necessary to consider also damage of central nervous system (serous meningitis, an encephalomeningitis).

The defeat of any ferruterous body or central nervous system which is found in combination with parotitis or separately should be considered manifestation of a parotitis infection, but not its complication.

Complications.

Meet seldom. Polyneurites, paralyzes of cranial nerves, purulent otitises, etc. are described.

Diagnosis.

It is put according to clinical data, it can be confirmed serological. The urine research on amylase level can assist in diagnostics.

Treatment.

Symptomatic treatment.

Prevention.

Isolation of the patient for 9 days from the beginning of a disease, dissociation of contact children from 11 to 21 days from the contact moment. Active immunization by live vaccine in 12 months and 6 years is carried out.

Tasks for independent preparation:

1. Solve situational problems and a test task.
2. Examine the patient describe the changes in the state of health in a workbook revealed by you.

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- epidemiological data in family, children's collective;
- features of feeding of the child, error in food;
- the diseases postponed earlier, the background pathology complicating a course of infectious process;
- inoculative anamnesis;
- the beginning and dynamics of a disease before arrival of the child in hospital;
- the treatment spent at home.

At an objective research to pay attention on:

- weight of a condition of the child, temperature reaction, neurologic status, meningeal signs;
- presence of symptoms of toxicosis;
- condition of a mucous membrane of an oral cavity (color, enantema, hyperaemia of a pharynx, output channels of sialadens), back wall of a throat, condition of a conjunctiva;
- color and humidity of integuments, nature of rash (spotty, papular, hemorrhagic), localization, emergence time;
- condition of a hypodermic and fat layer, presence of hypostases, swellings of zaushny area;
- palpation of lymph nodes (the sizes, consistence, quantity, localization, mobility, change of skin over them, morbidity);
- condition of a respiratory system;
- condition of a cardiovascular system (the ABP, heart borders, symptoms of heart failure, characteristic of tones, existence of pathological noise at auscultation);
- survey of genitals (the sizes, puffiness of testicles, a dermahemia, morbidity at a palpation);
- sizes of a liver and spleen, condition of intestines, dispepsichesky disorders.

At interpretation of datas of laboratory:

1. in complete blood count test (maintenance of leukocytes, erythrocytes, hemoglobin, feature of a leukocytic formula, SOE);
2. serological blood test in dynamics (increase of an antiserum capacity);
3. data of RPGA;

4. biochemical blood test (blood amylase, urine diastase);
5. liquor research (cytosis, morphological characteristic of uniform elements, protein content, chlorides, sugar);
6. data of ultrasonography of abdominal organs (liver, spleen, pancreas).

Test control.

1. Are characteristic of typical chicken pox:

a) fever

b) cough

c) cold

d) abdominal pain

e) vesicular rash

2. Can be complications of chicken pox:

a) glomerulonephritis

b) meningitis

c) encephalitis

d) phlegmon

3. Encephalitis in chicken pox is:

a) clinical implication

b) complication

4. The incubation interval in chicken pox is:

a) from 8 to 17 days

b) from 11 to 21 days

c) from 8 to 21 days

d) from 2 to 7 days

5. Specific prevention of chicken pox is carried out:

a) live attenuated vaccine

b) gamma-globulin

c) it is not carried out

6. In chicken pox the prescribing of corticosteroid hormones is shown:

a) at a severe form

b) at emergence of purulent complications

c) in encephalitis

d) in pharyngitis

7. Antibacterial therapy in chicken pox is carried out:

a) at emergence of vesicles on mucous membranes of an oral cavity

b) at emergence of purulent complications

c) in encephalitis

d) for the purpose of prevention of complications

8. The surrounding herpes arises at the person who transferred:

a) herpes simplex

b) chicken pox

c) infectious mononucleosis

9. At contact with sick "herpes zoster" the child can get sick:

a) the surrounding herpes

b) herpes simplex

c) chicken pox

10. Rashes in chicken pox arise:

a) within several days tolchkoobrazno:

b) step by step: in the 1st day of a disease – on a face,

in the 2nd day of a disease – on a trunk,

for the 3rd day of a disease – on extremities

11. Polymorphism of skin eruption in chicken pox:

a) false

b) true

12. Chicken pox is told:

a) in the fecal and oral way

b) airborne

c) parenterally

d) in the transplacental way

13. Rubella children aged have more often:

a) till 1 year

b) 1-7 years

c) 7-10 years

14. Infection of children with a rubella occurs:

a) transplantsentarno

b) through breast milk

c) in the airborne way

d) in the kontakno-household way

e) in the fecal and oral way

e) parenterally

15. The main symptoms of a rubella are:

a) spotty and papular rash

b) fervescence

c) increase in lymph nodes

d) headache

e) vomiting

e) punctate rash

g) dyspepsia

16. The catarrhal phenomena in a rubella are characterized:

a) small cold, cough, conjunctivitis

b) the plentiful cold, a severe cough expressed by conjunctivitis

17. In peripheral blood in a rubella are noted:

a) anemia

b) leukopenia

c) relative lymphocytosis

d) agranulocytosis

e) emergence of plasmocytes (up to 10-30%)

18. The syndrome of a congenital rubella includes:

a) jaundice

b) deformation of teeth

c) cataract

d) nanocephalia

e) heart disease

e) deafness

g) lymphadenopathy

h) microphthalmia

19.Specific prevention of a rubella includes:

a) it is not carried out

b) administration of live virus vaccine

c) antibiotic treatment

d) administration of gamma-globulin

20.In a parotitis infection are surprised:

a) ferruterous structures

b) tonsils

c) lymph nodes

d) nervous system

21.Damage of sialadens in epidemic parotitis is characterized:

a) increase in the sizes of gland

b) morbidity

c) dermahemia

d) dense consistence

22.Are characteristic of meningitis of a parotitis etiology:

a) fever

b) repeated vomiting

c) headache

d) meningeal signs

e) hemorrhagic rash

23.Cerebrospinal fluid in meningitis of a parotitis etiology:

a) transparent

b) muddy

c) high level of protein

d) high cytosis

e) neutrophylic cytosis

e) lymphocytic cytosis

24.Are characteristic of an orchitis of a parotitis etiology:

a) increase in the sizes of a small egg

b) morbidity of a small egg

c) hydroscheocele

d) irradiation of pains to the inguinal area

e) the complicated urination

25.Clinical laboratory symptoms of pancreatitis of a parotitis etiology:

a) drowsiness

b) abdominal pain

c) increase in amylase in blood serum

d) increase in transaminases

Situational tasks:

Task No. 1

The child of 5 years, came to a hospital for the third day of a disease with complaints to pains when opening a mouth and chewing, high temperature, a headache. The disease began with temperature increase to 39.2□C and a sore throat. Mother noticed a swelling ahead of an auricle on the right. Next day, the called doctor, noted the following: the general moderately severe state, the boy it is pale, subnutrition, sluggish, temperature – 38.5□C. On the right ahead of an auricle the swelling about 8 x 6 cm in size without accurate contours, pasty consistence is noticeable. The swelling extends to a pole at a corner of a mandible and a kzada from an ear lobe. Skin over a swelling is not changed, palpation without serious consequences. At the left in submaxillary area the swelling of 5x6 cm in size extending kpered to a chin is noted. In submaxillary area the symptom of "zybleniye" is defined at the left. Tonsillar lymph nodes did not manage to be propalpirovat. Handles and tonsils are slightly hyperemic. Mucous cheeks dry, is a little edematous. The opening of Stenonov Canal is surrounded with hyperaemia nimbus. ChSS-120 of beats/min, satisfactory filling, rhythm correct. Sonorous cardiac sounds. In lungs there are no pathological changes. Soft, painful stomach. The liver and a spleen are not palpated. A chair without features.

Questions:

1. Make the diagnosis.
2. What complications can arise in this disease?
3. Appoint treatment.

Task No. 2

The child against the background of swelling of both parotid glands had abdominal pain which was localized in epigastric area in left hypochondrium, from time to time have the surrounding character. The child is disturbed by nausea, vomiting, a headache, temperature 38ºC.

Questions:

1. Your expected diagnosis?
2. What methods of inspection need to be carried out for specification of the diagnosis?
3. Appoint treatment.

Task No. 3

In kindergarten among 6 years which are on a quarantine in connection with a disease of parotitis at the child temperature 38.5ºæ appeared, there was a headache, nausea, there was 2-fold vomiting.

Questions:

1. Your expected diagnosis?
2. What methods of inspection need to be carried out for specification of the diagnosis?
3. What actions does the children's doctor need to undertake?

Task No. 4

In a hospital Vitya N. is brought 3 years. Complaints to a loss of consciousness, spasms. From the anamnesis it is known that the child goes in for with, was not with infectious patients in contact. Ached sharply, in the evening temperature rose up to 39 °C, spasms, a loss of consciousness, emergency doctors gave an injection for decrease in t and delivered to the accident ward.

At survey: state heavy, unconscious, t 38.2ºC. On skin of face, a trunk, a hairy part of the head vesicular rash is plentiful. Frequent, superficial breath. In lungs rigid breath,

there are no rattles. Cardiac sounds are muffled, clean ChD – 40 in / min., ChSS – 110 in / min. Meningeal symptoms are negative.

Questions:

1. Your preliminary diagnosis.
2. What complication of a disease is revealed at the child?
3. What examination needs to be performed?
4. What mistake is made when collecting epid. anamnesis?
5. What treatment it is necessary to appoint?

Task No. 5

Vitya P. 4 years, got sick sharply, temperature to 38.5ºC rose in the evening, mother of the child noticed an enanthesis of a back, a face, extremities, the doctor was called in the morning.

At survey: serious condition, highly is in a fever t to 39ºC. Dry cough, rough, the "barking" timbre, discharge from a nose of mucous character, a small injection of vessels of scleras, ChD 30 in / min. On skin of a body, a face, extremities, a hairy part of the head plentiful vesicular rash with transparent contents, rash elements up to 0.3 cmin the diameter, are located on the neinfiltrirovanny basis, surrounded with hyperaemia nimbus, a small amount of crusts. Single vesicles are located on mucous a mouth (nice fellows of the sky). Sonorous cardiac sounds, a rhythm correct, ChSS – 100 in 1 min. A soft stomach, @/@, the liver, a spleen are not palpated. A chair, a diuresis without pathology. There are no meningeal symptoms.

Questions:

1. Your diagnosis. Prove it.
2. What complication is revealed at the child.
3. What modern diagnostic methods use for identification of the causative agent of this disease?
4. What treatment it is necessary to appoint?

"DIPHTHERIA "

I. Scientific and methodical justification of a subject.

Despite decrease in incidence of diphtheria, this infection still occur among the

children's population, is more rare among adults.

In recent years diphtheria considerably "matured". At the same time its diagnostics quite often is late since doctors often do not think of a possibility of a disease of adults of children's infections and are not familiar with some features of a clinical course of the disease.

In this regard to the doctor of any specialty it is necessary not only to diagnose correctly this infectious disease, but also to carry out necessary anti-epidemic and treatment.

II. Purpose of activity of students on occupation:

The student has to know:

- epidemiological features of diphtheria;
- infection sources in this disease;
- ways of infection;
- susceptibility;
- incidence and lethality;
- pathogenesis of diphtheria;
- clinical picture of diphtheria and also differential diagnostics;
- diphtheria complications;
- methods of laboratory diagnostics;
- basic principles of treatment, prevention;
- features of a course of diphtheria at adults.

The student has to be able:

- to collect epid. anamnesis;
- to perform objective examination;
- to appoint special laboratory researches, to estimate their results;
- to hold anti-epidemic events in the center (isolation, observation, prevention of a disease at contact).

III. Content of training:

1. Diphtheria (etiology, pathogenesis, epidemiology, clinic, diagnostics, diff. diagnostics, treatment).

2. Features of a course of diphtheria at adults.
3. Complications in diphtheria, their treatment.
4. Preventive actions in the diphtheria center.

IV. Educational material security.

1. Visual aids: tables, schemes, multimedia presentations, videos.
2. Educational medical documentation (case histories, laboratory researches).
3. Technical means of training.
4. Literature.

V. The list of the recommended literature.

1. Children's diseases: the textbook / under the editorship of A.A. Baranov. – M.: GEOTAR-media, 2009. – 1008 pages.
2. Pediatrics: The textbook for medical schools. Under the editorship of N.P. Shabalov. – SPb: SpetsLit, 2006. – 895 pages.
3. Propaedeutics of children's diseases / to N.A. Geppa. – M.: GEOTAR-media, 2009. – 464 pages.
4. N.P. Shabalov. Neonatology: Manual. – M.: MEDpress-inform, 2009.
5. E.K. Tsybulkin. The menacing states at children. – M.: GEOTAR-media, 2007. – 226 pages.
6. V.F. Uchaykin, N.I. Nisevich, O.V. Shamsheva. Infectious diseases at children. – M.: GEOTAR-media, 2010. – 688 pages.
7. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Technique of a research of the child. The study guide for students. – Vladikavkaz, 2011. – 51 pages.
8. Z.D. Kaloyeva, K.M. Dzilikhova, S.K. Karyaeva, etc. Scheme of a case history. The study guide for students. – Vladikavkaz, 2011. – 38 pages.
9. Lectures on pediatrics.
10. Methodical instructions for out-of-class work of students of the 5th course of medical faculty on discipline "Pediatrics".

VI. List of questions for check of initial level of knowledge:

1. General patterns of epidemiology of infectious diseases.

2. Main kliniko-pathogenetic mechanisms of infectious diseases.
3. Clinical forms of infectious diseases. Complications. Immunity.
4. Specific diagnosis of infectious diseases.
5. Principles of therapy of infectious diseases (specific and nonspecific).
6. Clinic and treatment of infectious toxicosis.

VII. List of questions for check of final level of knowledge:

1. Etiology, pathogenesis of diphtheria.
2. Call the main clinical forms of diphtheria.
3. List the main clinical diagnostic criteria in diphtheria?
4. What examination does the patient need to perform?
5. With what diseases it is necessary to differentiate diphtheria?
6. Complications in diphtheria, their treatment.
7. Call the principles of pathogenetic therapy of diphtheria.
8. What features does diphtheria at adults have?
9. List preventive actions in the diphtheria center.

Information block.

DIPHTHERIA

– the acute infectious disease caused by Corynebacteria diphtheria, characterized by inflammation of mucous membranes of an upper and average part of respiratory tract, other bodies with formation of fibrinous films and the general intoxication.

Epidemiology.

Infection source – sick diphtheria, the carrier of a toxicogenic strain of a diphtheritic stick in a nasopharynx, on skin. Ways of transmission of infection – mainly airborne, the contact and household way is possible. The post-inoculative anti-toxic immunity does not prevent infection, however the disease proceeds benign.

Etiology and pathogenesis.

Corynebacterium diphtheriae – a gram-positive diphtheritic stick of Leffler (BL).

Entrance gate – mucous membranes of a pharynx, a nose, upper airways, are more rare than eyes and genitals and also the damaged integuments. On the place of entrance gate the activator breeds and emits exotoxin. Necrosis of fabrics with formation of a

fibrinous film is a consequence of local influence of exotoxin. As a result of all-toxic action the heart, peripheral nervous system, adrenal glands, kidneys are surprised.

Principles of classification.

On localization: to a thicket – drinks, throats; more rare – skins, an ear, eyes and genitals.

On weight: non-toxic, subtoxic, toxic (I, II and III degrees), hemorrhagic, hypertoxical.

In a course: uncomplicated and complicated (asphyxia, pneumonia, infectious and toxic shock, toxic hypostasis, paresis and paralyzes of a soft palate, a diphtheritic toxic nephrosis, myocarditis).

Clinic.

Incubation interval up to 12 days (the thicket is 2-7 days old). The syndrome of the general intoxication is characterized by temperature rise of a body from subfebrile figures to 40 °C depending on disease severity, a general malaise, a headache, weakness, pain when swallowing. The catarrhal syndrome is shown by rhinitis, pharyngitis, tonsillitis, laryngitis with an inspiratory asthma. The general feature of a course of the above-stated states is emergence in the place of localization in the first days and the significant development by 2-3rd day of a disease of characteristic diphtheritic films. In the first days of a film can be thin and easily removed. Then plaques become grayish-white color, smooth, brilliant. They tower over a cover mucosal surface, densely are soldered to it, are removed hardly, after removal there is a bleeding Surface on which the new film is formed. The removed film sinks in water, is not pounded between slide plates. The catarrhal syndrome can be followed by regional lymphadenitis and hypostasis of cervical cellulose in toxic diphtheria. The prevalence of hypostasis depends on severity of a disease (the I degree of hypostasis – to the middle of a neck, the II degree of hypostasis – to clavicles, the III degree of hypostasis – below clavicles). Damage of a throat is characterized by clinic of a diphtheritic croup which can lead to asphyxia. At imparted the disease develops in the form of the easy localized forms.

Diagnostics.

Bacteriological research (a smear from a pharynx on BL). Discharge of a toxicogenic strain of a diphtheritic stick.

Serological methods of a research detection of antimicrobic bodies (RPGA) and definition of a caption of antitoxin in dynamics in 7 days from the beginning of a disease.

Treatment and prevention.

The patient is hospitalized in an infectious hospital. Success of treatment is defined by timely administration of antidiphtherial serum. The dose of drug is defined by severity of a disease and its form. For prevention of an acute anaphylaxis previously enter across Bezredko vnutrikozhno 0.1 ml. divorced 1:100 serums, in 30 min. – 0.1 ml. not divorced serum under skin. In the absence of reaction in 1 hour other quantity is intramusculary entered.

Antibacterial therapy is carried out during 2 weeks by penicillin (100000-150000 Pieces/kg/days) or macroleads: erythromycin (50 mg/kg/days), klaritromitsiny (15 mg/kg/days). To carriers of a toxicogenic strain of a diphtheritic stick carry out antibacterial therapy by the same drugs during 1 week.

Recovery occurs not earlier than the 14th day. At the same time there have to be no all clinical symptoms of a disease, triple negative crops on a diphtheritic stick from a nose and a pharynx are necessary. Observation of a convalescent is made within 3-6 months.

Anti-epidemic actions.

Isolation of the patient. On contact impose a quarantine for 7 days. Observation of contact includes LOR-survey, thermometry, daily survey of mucous membranes and a pharynx, smears from a pharynx and a nose on a diphtheria stick. Vaccinated enter diphtheritic antitoxin once of 0.5 ml in oil. Bacillicarriers are hospitalized. Carry out topical treatment. Final disinfection is carried out by 1% by chloroamine solution.

Immunization.

Vaccination is carried out from 3-month age it is triple with an interval of 45 days a diphtherial anatoxin of AKDS (AKDS-M, ADS-M). AKDS revaccination in 18 months. ADS revaccination in 7 and 14 years.

Task for independent work:

3. Solve situational problems and tasks of test control.
4. Examine the patient and describe the revealed changes in state of his health.

Scheme of inspection of the patient.

When collecting the anamnesis pay attention on:

- Epid. anamnesis: disease source, contacts, incubation interval, visit of child care facilities).
- Inoculations.
- The background diseases complicating a course of infectious process.
- Presence of perinatal encephalopathy.
- Presence of exudative diathesis, allergic diseases or reactions, intestinal dysbacteriosis.

At an objective research to pay attention on:

- Weight of a state, temperature reaction, neurologic status, meningeal signs, defeat peripheral and central nervous system, severity of infectious toxicosis.
- State mucous mouth, conjunctiva (color, dieback, its localization, color of language), condition of a pharynx.
- Condition of integuments, nature of rash (description, emergence time, localization), peeling (character, localization).
- Condition of hypodermic cellulose of a neck.
- Palpation of lymph nodes (size, consistence, morbidity, mobility).
- Condition of a cardiovascular system (ABP, vascular insufficiency, "infectious heart", myocardites).
- Sizes of a liver and spleen.
- Existence of the dysuric phenomena, color of urine, daily urine.
- Survey of other bodies and systems.

At interpretation of datas of laboratory:

- Complete blood count test (leukocytosis, leukocytic formula, SOE)
- Analysis of urine.
- Bacteriological research smears from a pharynx and a nose).
- Serological blood test in dynamics (increase of an antiserum capacity).
- ECG, FKG, EhoKG.

Situational tasks

Task No. 1

Vitya S. got sick 6 years sharply: there was a weakness, in unusual time went to bed. By the evening temperature to 38.8ºæ increased, began to complain of a sore throat when swallowing. By the morning the state worsened: there was a slackness, the sore throat amplified. The called doctor at survey found in a pharynx on the internal surface of tonsils grayish-whitish imposings in the form of strips and islands. Plaques were located on convex parts of tonsils, slightly acting over a mucosal surface, in attempt to remove them, blood appeared. Dense plaques, in the form of a pellicle. Hyperaemia in a pharynx moderate, submaxillary lymph nodes are slightly sensitive at a palpation. Cardiac sounds are muffled, pulse 108 in min. Vesicular breath sound. Soft, painless stomach. The liver edge is palpated. A chair, urination without features.

The boy attends kindergarten, was not with infectious patients in contact.

Questions:

1. Your expected diagnosis?
2. Tactics of the district doctor?
3. Main treatment?
4. Necessary actions in kindergarten?

Task No. 2

The girl of 5 years came to hospital in critical condition. Ached 3 days ago when the insignificant sore throat when swallowing developed. The called doctor made the diagnosis "tonsillitis", appointed rinsings of a throat Furacilin, irrigation by Inhalyptum. A condition of the patient there was no swelling in submaxillary area on both sides which by third day extended to a neck and went down below clavicles.

At receipt: the girl is very sluggish, pale, neck hypostasis from two parties to 2 edges in front, in a pharynx the continuous dirty-gray plaques occupying tonsils, a uvula, a soft and hard palate (almost to the teeth). Cardiac sounds deaf, ChSS – 150 in 1 min.

Questions:

1. Formulate the diagnosis.
2. Draw up the plan of inspection.
3. Make the treatment plan of the patient.
4. List the most frequent complications of a disease.

Test control.

1. It is reasonable to bacillicarriers of toxicogenic korinebakteriya of diphtheria to appoint:
    a. anti-toxic antidiphtherial serum
    b. ADS-anatoxin
    c. antibiotic widely spectrum of action
2. The diphtheritic croup is characterized:
    a. sudden emergence of symptoms of a stenosis
    b. gradual development of clinical symptoms
3. When calculating a dose of anti-toxic serum, to the entered patient with diphtheria, consider:
    a. mass of the child
    b. age of the child
    c. clinical form of a disease
4. In pathogenesis of diphtheria the leading role belongs:
    a. a) bacteremia
    b. b) toksinemiya
5. At the localized stomatopharynx diphtheria intoxication:
    a. expressed
    b. weak
6. At suspicion of diphtheria the doctor of policlinic is obliged:
    a. a) to enter to the patient antidiphtherial serum
    b. b) to perform the emergency hospitalization
    c. c) to submit the emergency notice to SES
7. At the localized stomatopharynx diphtheria form:
    a. temperature over 40º C
    b. sharp pain when swallowing
    c. pharynx hyperaemia
    d. the plaques which are not going beyond tonsils
    e. neck cellulose hypostasis
8. Typical complications of toxic diphtheria is:

a. pneumonia
b. myocarditis
c. polyradiculoneuritis
d. glomerulonephritis
e. meningitis

9. Vaccination against diphtheria of early age is carried out:
a. AKDS – vaccine
b. ADS – vaccine
c. ADS-M – vaccine

10. Clinical manifestations of diphtheritic myocarditis:
a. abdominal pain
b. vomiting
c. spasms
d. cantering rhythm
e. dullness of cardiac sounds