

METHODICAL RECOMMENDATIONS FOR PRACTICAL CLASSES

Classes 1 Subject and place of pediatrics, main stages of development. Organization medical and preventive care for children in Ukraine. Periods of childhood, their characteristics and features.

Aim: to know how to evaluate the general state of a child on the basis of knowledge of the peculiarities of development of a child in different age groups, to learn to conduct anthropometric measurements in children of different ages, to evaluate the physical development of a child by different methods for discovering disorders of different origin, to know the methods of загартування of children.

Professional motivation of students: one of the peculiarities of the development of a child is the non stop growth, development, and improvement of structures and functions of organ and systems. Because of this every period of the life of a child has its own specific peculiarities. The knowledge of these peculiarities allows one to evaluate physical development of a child, and at the same time diagnose and correctly treat different age related pathologies in children, and to make specific prophylaxis and rehabilitation.

After self-training

the student must know the following:

1. Different childhood periods chronology, critical periods.
2. Peculiarities of all critical childhood periods.
3. Peculiarities of the newborn's organism and transitory states of the newborn period.
4. Morbidity peculiarities at different childhood periods.

Having covered the topic, the student must be able to:

1. Define the periods of children's age.
2. Single out critical periods in children's development.
3. Define maturity and ripeness of newborns, transitory states of the newborn period, estimate the state of a newborn child.

Students should know how to:

1. friendly facial expression and smile.
2. gentle tone of speech
3. greeting and introducing.
3. by means of game playing find a contact with a child.

- 5 .tactful and calm conversation with the parents of sick child.
- 6 .explanation of future steps concerning the child (hospitalization ,some methods of examination ,etc)
7. conversation accomplishment.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

Classes 2 History collection. Clinical examination of the child. Criteria for assessing the general condition of children.

Aim: To be able to prepare the child for Clinical methods of examination.

Professional motivation: The doctors of different specialty should be able to teach to examine the patients, to take care about them, know how to use medical technical apparatus and instruments, to analyze this information ; to organize daily regime and correct feeding; to know basic deontology principals during communication with children and their parents.

Basic level

1. Anatomy-physiological peculiarities of heart and respiratory system ,digestive system, urinary system and its peculiarities in children of different age (normal anatomy and physiology).
2. To know morphological knowledge on structure and pathology changes of different system (histology).
3. To Know anatomic and pathophysiological of pathological states of different system of child organism (pathoanatomy, pathophysiology)
- 4.Peculiarities of clinical examination .
- 5.To interpret the result of clinical and laboratory-instrumental examination (physics and normal and pathological physiology, propaedeutics of child illnesses, propaedeutics of internal diseases).

Student's practical activity.

Names of practical skills:

- Determination of fontanelles sizes and assessment of their edges .
- Determination of clinical signs of rickets: craniotables, „rachitic rosary”, „rachitic bracelets”, frontal and parietal prominents, bowing of occiput, O- and X-shaped deformities of legs, deformation of the chest .
- Determination of spinal cord deformations in children .
- Assessment of muscle tonus in children of different age .
- Calculation of anthropometrical indexes, evaluation of child's physical development .
- Auscultation of lungs in children of different age .
- Auscultation of a heart in children of different age .
- Taking of blood pressure in children of different age .
- Performance of Shalkov's test in children .
- Inspection of a tongue in children .
- Composition of a menu for infants on different types of feeding .
- Performance of control weighing of infants .

Students independent study program:

- a) to use the knowledge of the anatomical and physiological peculiarities of the children's organism for objective examination of patients;
- b) to take anamnesis of children of different age
- c) to analyze the additional data;
- d) to organize correct care for the children of different age;
- e) to underline basic clinical syndromes.

Situate task

The girl 11, was admitted with complains of high temperature, frequent and painful urination, pain in lumbar area. The disease began acutely, temperature increased to 38,0, cold appeared, general weakness, twice vomiting, frequent and painful urination.

Observed: the skin and mucous are pale, temperature is 37,5. PS-82 per minute, AP 90/60 mm.hg.st., heart tone-bright.rhythmically.in lungs-vesicular breathing. Pasternatsky symptom is positive from right side. Urination is frequent you 10-15 times daily, painful. Urine is muddy.

Task

- 1.What instrumental investigation must be carried .
- 2.Give indication for it.

Answer;

- 1.Excretory urogram.
- 2.Acute pielonephritis.

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1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 3 Features of the neonatal period

Practical lessons 3-4

Current relevance of the research. Child's organism is constantly changing in the process of individual development, and different systems and organs formation takes place at definite time. Childhood periodization is the chronological basis for studying and understanding the regularities of child's growing up and developing, as well as the peculiarities of their morbidity depending on their age.

The aim of the lesson: to study the chronological structure of child's age, to study the peculiarities of children's growing, development and morbidity at different age.

After self-training

the student must know the following:

1. Peculiarities of Newborn period.
3. Peculiarities of the newborn's organism and transitory states of the newborn period.
4. Morbidity peculiarities at Newborn period.

Having covered the topic, the student must be able to:

1. Define the periods of children's age.
2. Single out critical periods in children's development.
3. Define maturity and ripeness of newborns, transitory states of the newborn period, estimate the state of a newborn child.

Literature:

3. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
4. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

Topic 4 Physical development of children, anthropometry. Assessment methods

Practical lessons 5-6

Current relevance of the research. Physical development is one of integral indices of a child's state of health, of biological ripeness of all the organism's systems. The main methods of physical development investigation are easy for children of any age, which presupposes their wide application in pediatrics practice.

The aim of the lesson: to master the methods of main anthropometric measurements of children of different age, to be able to estimate a child's physical development by means of different methods, to point out reasons for deviation.

After self-training

the student must know the following:

1. The methods of main anthropometric measurements and necessary equipment.
2. Indexes of the physical development of a newly-born child.
3. The regularities of the enlargement of body weight and length, of thorax and head circumference at different age.
4. Factors which influence children's physical development.
5. Semiotics of physical development deviations.
6. Notions of acceleration and de-acceleration.

Having covered the topic, the student must be able to:

1. Measure the enlargement of body weight and length, of thorax and head circumference.
2. Make approximate calculation of main anthropometrical indexes for a child of any age.
3. Estimate the physical development of a child using centil and sigmal standards schemes.

Tests

1. Physical development is a complex of morphological and functional indexes which characterize:
 - 1.1. Length, weight, and form of a child's body.
 - 1.2. Functions of separate organs and systems.
 - 1.3. Processes of growth and biological ripening of a child.
2. Admissible interval of average indexes of physical development for the method of precise calculation makes:
 - 2.1. 3%.
 - 2.2. 7%.
 - 2.3. 10 %.
3. Average value of the monthly enlargement of child's body length during the first 4 months of life makes:
 - 3.1. 1 cm.
 - 3.2. 2 cm.
 - 3.3. 3 cm.
 - 3.4. 4 cm.
4. Which of the variants of physical development evaluation is the correct one?
 - 4.1. Corresponding to a child's age.

- 4.2. Average.
- 4.3. Within the norm.
5. During the second six months of life the weight of a child enlarges by... per month:
 - 5.1. 700 gr. 5.2. 300gr. 5.3. 400 gr.
6. The weight of a child at the age of 2-10 enlarges annually by:
 - 6.1. 4 kg.
 - 6.2. 3 kg.
 - 6.3. 2 kg. 6.4. 1 kg.
7. How to evaluate a child's physical development if the indexes value of anthropometric examination lie in the interval of 25-10 centils?
 - 7.1. As average.
 - 7.2. As higher than average.
 - 7.3. As lower than average.
 - 7.4. As high.
 - 7.5. As low.
8. What interval must anthropometric examination indexes lie in if physical development is Considered to be low?
 - 8.1. 75-50 centils.
 - 8.2. 50-25 centils.
 - 8.3. 75-97 centils.
 - 8.4. 10-3 centils.
 - 8.5. 25-10 centils.
9. How many variants of physical development evaluation can be used if it is the method of signal standards?
 - 9.1. 3.
 - 9.2. 5.
 - 9.3. 7.
 - 9.4. 9.
10. How many variants of physical development evaluation can be used if it is the method of percentile standards?
 - 10.1.-3. 10.2.-5. 10.3.-7. 10.4.-9.
11. Point out the average values of a newly-born child's body weight.
 - 11.1. 3100-3400 gr.
 - 11.2. 2900-3600 gr.
 - 11.3. 2700-4000 gr.
12. The average child's body enlargement during the first year of life makes:
 - 12.1. 15-20 cm. 12.2. 20-25 cm. 12.3. 30-35 cm.

Correct answers: 1.3; 2.2; 3.3; 4.2; 5.3; 6.3; 7.3; 8.4; 9.2; 10.3; 11.1; 12.2.

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3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 5 Anatomical and physiological features, methods of examination, and semiotics of nervous system diseases in children. Psychomotor development of children and its assessment

Practical lessons 7-8

AIM:

1. To know how to evaluate development of the child in different periods (in children by one year - on months), to exhibit a deviations of various etiology.
- 2.To know a mode of a day and elements of education of children of different age.

PROFESSIONAL MOTIVATION:

The general level of psychological development shows maturing of central nervous system (CNS) of the child. Healthy throughout, rigorous child, that is in rational conditions of a leaving should near to good physical development have also development, appropriate to age and mentality. It is necessary to the practical doctor to know dynamics of development of the child with the purpose of diagnostics of its deviation.

Basic level:

1. To collect history taking.
2. To evaluate development of the child behind the certain criterions (sight, hearing, emotion, intellect development, development of language, habit.
3. To exhibit main kinds of violations of development.

Student's Practical Activities.

Student must know:

1. Main periods of psychomotor development of children.
2. Main criteria of psychomotor development evaluation.
3. Main indexes of psycho-motor development of newborn children.
4. Main indexes of psycho-motor development of preschoolers.

5. Main indexes of psycho-motor development of school-age children.
6. Main indexes of psycho-motor development of teenagers .

Student's will be able to know

1. To evaluate development of the child of the 1-st year of life on months.
2. To evaluate development of children of preschool age.
3. To evaluate development of junior and higher school age.
4. To exhibit in anamnesis the factors, which influence modifications in development.
5. To determine a timetable of a day to children of various century to know elements of education of children of different age and skill.

Students Independent Study Programmer.

I. Objectives for Students independent study. Great attention should be paid to the following items:

1. Main Periods of psychomotor development of children.
2. Main criteria of psychomotor development evaluation.
3. Main indexes of psycho-motor development of newborn children.
4. Main indexes of psycho-motor development of preschoolers.
5. Main indexes of psycho-motor development of school-age children.
6. Main indexes of psycho-motor development of teenagers .

II. Tests and Tasks for Independent Study.

Select the right statements:

1. Main indexes of psycho-motor development of newborn child:

- 1/ hyper tonus of flexor muscles,
- 2/ hyper tonus of extensor muscles,
- 3/ atetos – like movements,
- 4/ photophobia,
- 5/ unconditional reflexes
- 6/ conditional reflexes.

2. Main indexes of psycho-motor development of children second year of life:

- 1/ Understanding of speech,
- 2/ ability to hear,
- 3/ vision,
- 4/ nystagmus

- 5/ sitting,
- 6/ running,
- 7/ jumping.

3. Peculiarities of development children of young school age:

- 1/ development of main movement activities
- 2/ development of behavior self-control,
- 3/ dyscoordination of hormone-related processes,
- 4/ decreasing of muscle tone
- 5/ increasing of attention,

Practical situation to be solved.

Child has 7 months. From 1st pregnancy and pathologic labor, was born mature, but in asphyxia. Was on breast-feeding 3 weeks, all the time – on cow's milk type of feeding. Became to hold his head in 4 months, sit himself in 7 months, knows the voice of mother, don't know the name of simple objects.

Please, evaluate the level of psycho-motor development of child.

show the possible causes.

III. Test and Task Keys for Self-Assessment Study.

Tests: 1)-1,3,4,5, 2)-1,2,3,6,7, 3)-except 3.

Problem situation: retarded development. The causes are asphyxia and bad inadequate nutrition.

Literature:

- 4. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
- 5. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
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Topic 6 Anatomical and physiological features, methods of examination, semiotics of skin diseases, subcutaneous tissue

Practical lessons 9-10

The aim of the lesson: to study the anatomic and physiological peculiarities of skin and subcutaneous fat of children of different age, with symptoms of affection.

Current relevance of the research. Due to its anatomic and physiological peculiarities children's subcutaneous and skin fat takes an active part in all exchange and immune processes, it is treated as tissue characterized by fast development in childhood. That is why skin and subcutaneous fat affections may be the evidences of an affected organism.

After self-training

the student must know the following:

1. Anatomic and physiological peculiarities of skin and subcutaneous fat.
2. Skin and subcutaneous fat functions in age aspect.
3. Peculiarities of skin and subcutaneous fat of newborns, physiological and transitory states of skin and subcutaneous fat with-in the new-born period.
4. Methods of skin and subcutaneous fat investigation.
5. Skin and subcutaneous fat affection semiotics.

Heaving covered the topic, the student must be able to:

1. Collect anamnesis, analyze the complaints typical of skin and subcutaneous fat affections.
2. Evaluate the skin color, its humidity, temperature, skin fold thickness, skin elasticity, dermatographia, the state of capillaries; in case of eruption presence one must be able to find out its nature.
3. Evaluate the state of skin and subcutaneous fat (turgor, edema, infiltration, the state of development).

Literature:

7. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
8. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
9. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 7 Anatomical and physiological features, examination methods, semiotics of the bone system in children.

Practical lessons 11-12

Aim: The state of bone system in children of different age on the basic knowledge's of anatomy-physiological peculiarities, to identify pathological syndromes of osseous system, to organize correct treatment for sick children.

Professional motivation:

Bones system in children permanently changes and perfects, and that's why knowledge of it peculiarities are the central aspect to take care in order to prevent many diseases. That's why doctors are ought to be skilled in diagnostic these states, and to organize inspection and medical care for patients.

Basic level

To Know:

1. Development Peculiarities and functioning of bone system in children (normal anatomy, physiology, microbiology, propaedeutics therapy, propaedeutics of child diseases).
2. Methods of clinical inspection of system bone system in children (propaedeutics therapy, propaedeutics of child diseases).
3. Rates of general blood test, biochemical blood test, system (physics, normal and pathologic physiology, propaedeutic therapy, immunology, x-ray test, propaedeutics of child diseases).
4. Main syndromal diagnosis (pathological physiology, propaedeutics of child illnesses).
5. Semiotics of lesion of bone system in children (normal and pathological physiology, microbiology, propaedeutic therapy).
6. Medical care for sick children.

Student independent study program:

1. Anatomy-physiological peculiarities of bones system.
2. Research Methods of bones system
3. Clinical features of painful syndrome
4. Objective inspection
5. Laboratory methods AND. Biochemical blood test: determination of calcium level, phosphorus, alkaline phosphatase in blood .

Instrumental research methods:

- a) roentgenologic bone research in projections straight and lateral;
- b) tomography bone and receipt joint (of photos ;on layer)
- c) radionuclid bone research and joint ;

- d) arthrography
- g) arthroscopy
- e) joint puncture

6. Semiotics of bones and muscular system

Student's practical activities

1. Determination of fontanel sizes and assessment of their edges
2. Determination of clinical signs of rickets: craniotables, „rachitic rosary”, „rachitic bracelets”, frontal and parietal prominences, bowing of occiput, O- and X-shaped deformities of legs, deformation of the chest
3. Determination of spinal cord deformations in children
4. Assessment of muscle tone in children of different age

Student must know

1. Anatomico-physiological peculiarities of the bone and muscle system.
2. Research methods of the bone and muscle system
3. Clinical features of painful syndrome
4. Objective inspection (normal closing process of fontanelles), palpation of bones and muscular system
5. Laboratory methods
6. Semiotics of the bone and muscle system, basic syndromes
 - painful,
 - hyperplasia of bone system (microcephaly, rachitis)
 - osteomalacia (rachitis)
 - osteoporosis
7. Medical care for children
 - movement of hygienic recommendations;
 - rational feeding according to child age;
 - anthropometry
 - medical physical training and massage
 - examination, palpation of bones and muscular system.

Student should be able to

1. Determination of fontanel sizes and assessment of their edges

- 2.Determination of clinical signs of rickets: craniotables, „rachitic rosary”, „rachitic bracelets”, frontal and parietal prominent, bolding of occiput, O- and X-shaped deformities of legs, deformation of the chest
- 3.Determination of spinal cord deformations in children
- 4.Assessment of muscle tonus in children of different age

Literature:

10. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
11. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
12. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 8 Anatomical and physiological features, examination methods, semiotics of lesions of the muscular system in children.

Practical lessons 13-14

Aim: The state of muscle system in children of different age on the basic knowledges of anatomy-physiological peculiarities, to identify pathological syndromes of system, to organize correct treatment for sick children.

Professional motivation:

Muscle system in children permanently changes and perfects, and that's why knowledge of it peculiarities are the central aspect to take care in order to prevent many diseases. That's why doctors are ought to be skilled in diagnostic these states, and to organize inspection and medical care for patients.

Basic level

To Know:

1. Development Peculiarities and functioning of muscle system in children (normal anatomy, physiology, microbiology, propaedeutic therapy, propaedeutic of child diseases).
2. Methods of clinical inspection of system muscle system in children (propaedeutic therapy, propaedeutic of child diseases).
3. Rates of general blood test, biochemical blood test, system (physics, normal and pathologic physiology, propaedeutic therapy, immunology, x-ray test, propaedeutic of child diseases).
4. Main syndrome diagnosis (pathological physiology, propaedeutic of child illnesses).

5. Semiotics of lesion of bone and muscle system in children (normal and pathological physiology, microbiology, propaedeutic therapy).

6. Medical care for sick children.

Student independent study program:

1. Anatomy-physiological peculiarities of muscular system.

2. Research methods muscular system

3. Clinical features of painful syndrome

4. Objective inspection

5. Laboratory methods AND. Biochemical blood test: determination of calcium level, phosphorus, alkaline phosphatase in blood.

6. Semiotic of muscular system

Student's practical activities

Assessment of muscle tonus in children of different age

Student must know

1. Anatomical-physiological peculiarities of the muscle system.

2. Research methods of the muscle system

3. Clinical features of painful syndrome

4. Objective inspection (normal closing process of fontanelles),
palpation of muscular system

5. Laboratory methods

6. Semiotics of the muscle system, basic syndromes

7. Medical care for children

- movement of hygienic recommendations;

- rational feeding according to child age;

- anthropometry

- medical physical training and massage

- examination, palpation of bones and muscular system.

Having covered the topic, the student must be able to:

1. Point out complaints typical of musculoskeletal system affection; collect the family and individual anamnesis.

2. Conduct an objective muscles investigation of children of different age.

3. Evaluate the data obtained as a result of objective investigation of the given system.

4. Work out the plan for laboratory and instrumental musculoskeletal system investigation and evaluate the data obtained.

Literature:

13. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
14. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
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Practical lessons 15**Anatomical and physiological features of the respiratory system in children.****Methods of clinical examination of the respiratory organs in children and semiotics of lesions (complaints, examination, palpation)**

Current relevance of the research. The respiratory system is one of those which are intensively developed morphologically and functionally in the post-natal period. Anatomic and physiological peculiarities of children's respiratory organs determine the peculiarities of respiratory pathology which takes one of the leading positions in the list of children's morbidity structure. .

The aim of the lesson: to study anatomic and physiological peculiarities of all the sections of the respiratory system, to master the methods of children examination, to study affection semiotics.

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of the respiratory system and gaseous exchange of children.
2. Methods of children's respiratory organs examination: complaints, examination, palpation.
3. Semiotics of lesions. Characteristics of the main symptoms of respiratory diseases (cough, shortness of breath, skin discolouration, etc.)

Having covered the topic; the student must be able to:

1. Denote complaints typical of respiratory organs affection, collect anamnesis.
2. Conduct objective investigation of respiratory organs and evaluate the obtained results for children of different age.
3. Define and interpret symptoms and syndromes of the children's respiratory system affection.
4. Make up a plan of investigation of a child with affected respiratory system.

Tests

1. Which of the given below is not peculiar of the nose mucous tunic of children?
 - 1.1. Covered with delicate epithelium.
 - 1.2. Thin, tender, dry.
 - 1.3. Submucosal layer is well-vascularized.
 - 1.4. Cavernous tissue is well-developed.
 - 1.5. Dry.
2. When do all the paranasal sinuses finish their formation?
 - 2.1. During the 3rd-6th months of pre-natal development.
 - 2.2. They are formed when a child is born.
 - 2.3. Till the 3rd year of life.
 - 2.4. Up to 10 years.
 - 2.5. Up to 15-20 years.
3. What peculiarities are not typical of the larynx of early age children?
 - 3.1. Watering-can-like form.
 - 3.2. The fissure of glottis is broad with developed vocal folds.
 - 3.3. Cartilages are pliable and soft.
 - 3.4. Short and narrow.
 - 3.5. Well-vascularized submucous layer.
4. What peculiarities does trachea of children of early age have?
 - 4.1. Short and narrow.
 - 4.2. Mucous tunic is delicate, thin, dry, and much vascularized.
 - 4.3. The quantity of semi-rings enlarges with age.
 - 4.4. Is located lower than that of adults.
 - 4.5. The bifurcation place is located on the level of the VII cervical vertebra.
5. What is the newborn's respiratory frequency per minute?
 - 5.1. 16-18.
 - 5.2. 25-30.
 - 5.3. 35-40.
 - 5.4. 40-60.
 - 5.5. 50-70.
6. When does children respiratory organs formation finish?
 - 6.1. Up to 1 year.
 - 6.2. Up to 3 years.
 - 6.3. Up to 7 years.
 - 6.4. Up to 10 years.
 - 6.5. Up to 15 years.
7. Voice trembling is enforced during:
 - 7.1. Pneumonia.
 - 7.2. Exudative pleurisy.
 - 7.3. Bronchial asthma.
 - 7.4. Pneumothorax.
 - 7.5. Emphysema.
8. Local weakening of percutory sound may be found:
 - 8.1. If child is healthy.
 - 8.2. If a child is ill with pneumonia.
 - 8.3. If a child is ill with bronchitis.
 - 8.4. If a child is ill with emphysema.
 - 8.5. If a child is ill with bronchiolitis.

9. Crepitation appears as a result of:

- 9.1. Bronchitis.
- 9.2. Pneumonia.
- 9.3. Pulmonary collapse.
- 9.4. Bronchial asthma.
- 9.5. Dry pleurisy.

10. When can the puerile respiration be heard?

- 10.1. When a child is newborn.
- 10.2. When a child is of early age.
- 10.3. At the age of 7-8 years.
- 10.4. At the age of 10-14 years.

Correct answers: 1.4; 2.4; 3.1; 3.2; 4.2; 5.4; 6.3; 7.1; 7.2; 8.4; 8.5; 9.2; 10.3.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.
4. 4930 Methodical instructions for practical lessons on the topic "Anatomical and physiological features, methods of examination and semiotics of respiratory diseases in children" on the discipline "Propaedeutics of pediatrics" [Текст] : or students of specialty 222 "Medicine" of the full-time course of study / O. I. Smiyan, V. A. Horbas, O. G. Vasilyeva. — Sumy : Sumy State University, 2021. — 56 p.

Topic 9. Anatomical and physiological features, methods of examination of the respiratory system in children.

Practical lessons 16

Methods of clinical examination of respiratory organs in children and semiotics of lesions (percussion, auscultation)

Current relevance of the research. The respiratory system is one of those which are intensively developed morphologically and functionally in the post-natal period. Anatomic and physiological peculiarities of children's respiratory organs determine the peculiarities of respiratory pathology which takes one of the leading positions in the list of children's morbidity structure. .

The aim of the lesson: to study topographic and comparative percussion of the lungs in children. To study semiotics of disorders. Comparative lung auscultation. To master the methods of children examination. To study vesicular, puerile, rigid, weakened, bronchial respiration and semiotics of lesions.

After self-training the student must know the following:

4. Topographic and comparative percussion of the lungs in children.
5. Comparative lung auscultation.
6. Vesicular, puerile, rigid, weakened, bronchial respiration and semiotics of lesions
4. Respiratory system affection semiotics of children

Having covered the topic; the student must be able to:

5. Conduct objective investigation of respiratory organs and evaluate the obtained results for children of different age.
6. Conduct Topographic and comparative percussion of the lungs in children
7. Conduct Comparative lung auscultation.
8. Listen and differentiate vesicular, puerile, rigid, weakened, bronchial respiration.
9. Define and interpret symptoms and syndromes of the children's respiratory system affection.
10. Make up a plan of investigation of a child with affected respiratory system.

Basic level:

1. To know methodics of topographic and comparative percussion of the lungs in children
2. To know methodics of comparative lung auscultation.
3. Define and interpret symptoms and syndromes of the children's respiratory system affection.

4. Make up a plan of investigation of a child with affected respiratory system.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.
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Topic 9. Anatomical and physiological features, methods of examination of the respiratory system in children.

Practical lessons 17

Symptoms of major respiratory diseases of respiratory disorders

Aim: To know how to conduct indispensable measures on children nursery with illnesses of a respiratory organs, to afford the indispensable help at pressing condition, compliance with a pathology of a respiratory organs.

Professional motivation:

The system of respiratory organs from the moment of birth of the child has the features of operation, which one predetermine nature of a symptomatology of lesions. With growth (increase) of the child the morphological constitution of the breathing system will be improved not only, but also the functional capabilities increase. A pathology of respiratory organs one with widespread, that is why demands legible knowledge of microsymptoms of the lesion to begin treatments in time.

- Basic level:**
1. To know a history taking in children (propedeutics of children's illnesses).
 2. To know anatomy-physiological features of a system of breathing (anatomy, normal physiology, histology).
 3. To know stages of the embryogenesis of a respiratory organs (histology, anatomy).
 4. To know functional capabilities of respiratory organs (normal physiology).

Students Independent Study Program

Objectives for Students Independent Studies

1. To collect an anamnesis in ill with illnesses of a respiratory organs.
2. To give an estimation to the obtained findings of investigation
3. To secure the main syndromes of a lesion of a respiratory organs.
4. To learn semiotics of a respiratory organs lesions:
 - kinds of tissues;
 - kinds of the dyspnea;
 - innate stridor;
 - a syndrome of respiratory failure, degree;
 - a syndrome of respiratory dissonances.

Key words and phrases:

Respiratory organ, respiratory tract, morphogenesis, bronchology, interrogation, palpation, percussion, auscultation, lesion, dyspnea, innate stridor, respiratory failure, radiography, bronchoscopy, bronchography, tomography, spirometry,

II.

Problem of a software Scientific Research Work of Students:

To perform the abstract on the subject of: «Maintenance (drift) for children with acute stenosis laryngitis volume».

Visual Aids and Material Tools:

Ill children's histories.

Students' Practical Activities:

Students must know:

- Semiotics of lesions of children's respiratory organs.
- Features of maintenance at respiratory organs pathology.
- Padding survey methods at respiratory organs pathology.
- Opening-up and technique of realization of separate diagnostic manipulations.
- Processing of the before doctor's help at acute respiratory failure.
- Symptoms of the main diseases of the respiratory organs in children.
 - kinds of the dyspnea;
 - innate stridor;
 - a syndrome of respiratory failure, degree;
 - a syndrome of respiratory dissonances.

Students should be able to:

1. Evaluate of the data of laboratory-tools and objective survey methods of a breathing system.

2. Draw the conclusion about a condition of a respiratory system for the child under examination, point of the possible cause of detected deviations on the part of respiratory organs and acts of nursery.

3. Execute of a maintenance for the ill with a lesion of a respiratory system.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
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4. 4930 Methodical instructions for practical lessons on the topic "Anatomical and physiological features, methods of examination and semiotics of respiratory diseases in children" on the discipline "Propaedeutics of pediatrics" [Текст] : or students of specialty 222 "Medicine" of the full-time course of study / O. I. Smiyan, V. A. Horbas, O. G. Vasilyeva. — Sumy : Sumy State University, 2021. — 56 p.

Topic 9. Anatomical and physiological features, methods of examination of the respiratory system in children.

Practical lessons 18

Main syndromes of respiratory disorders and respiratory failure, clinical manifestations

Aim: To know how to conduct indispensable measures on children nursery with illnesses of a respiratory organs, to afford the indispensable help at pressing condition, compliance with a pathology of a respiratory organs. To know syndromes of respiratory disorders and respiratory insufficiency, the main clinical manifestations (bronchoobstructive syndrome, croup syndrome, respiratory insufficiency).

Professional motivation:

The system of respiratory organs from the moment of birth of the child has the features of operation, which one predetermine nature of a symptomatology of lesions. With growth (increase) of the child the morphological constitution of the breathing system will be improved not only, but also the functional capabilities increase. A pathology of respiratory organs one with widespread, that is why demands legible knowledge of microsymptoms of the lesion to begin treatments in time.

Basic level: 1. To know a history taking in children (propedeutics of children's illnesses).

2. To know anatomy-physiological features of a system of breathing (anatomy, normal physiology, histology).
3. To know functional capabilities of respiratory organs (normal physiology).
4. To know syndromes of respiratory disorders and respiratory insufficiency,
5. To know the main clinical manifestations (bronchoobstructive syndrome, croup syndrome, respiratory insufficiency).

Students Independent Study Program

Objectives for Students Independent Studies

1. To collect an anamnesis in ill with illnesses of a respiratory organs.
2. To give an estimation to the obtained findings of investigation
3. To secure the main syndromes of a lesion of a respiratory organs.
4. To learn semiotics of a respiratory organs lesions:

- kinds of tissues;
- kinds of the dyspnea;
- innate stridor;
- a syndrome of respiratory failure, degree;
- a syndrome of respiratory dissonances.

Students' Practical Activities:

Students must know:

- Semiotics of lesions of children's respiratory organs.
- Features of maintenance at respiratory organs pathology.
- Padding survey methods at respiratory organs pathology.
- Opening-up and technique of realization of separate diagnostic manipulations.
- Processing of the before doctor's help at acute respiratory failure.
- Symptoms of the main diseases of the respiratory organs in children.

kinds of the dyspnea;

innate stridor;

a syndrome of respiratory failure, degree;

a syndrome of respiratory dissonances.

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of the respiratory system and gaseous exchange of children.
2. Additional methods of children's respiratory organs examination:

- functional (spirometry, pneumotachometry, peakflowmetry, oxymetry);
 - laboratory (general and biochemical blood analysis, nose and throat secretion investigation, phlegm, pleural fluid, biopsy materials);
 - instrumental (X-ray methods of chest organs investigations, computer and unenhanced (baseline) magnetic resonance imaging, thermography, bronchoscopy and bronchography, scanning);
 - methods of allergy diagnostics.
3. Respiratory system affection semiotics of children
 4. Syndromes of respiratory disorders and respiratory insufficiency
 5. The main clinical manifestations (bronchoobstructive syndrome, croup syndrome, respiratory insufficiency).

Having covered the topic, the student must be able to:

11. Denote complaints typical of respiratory organs affection, collect anamnesis.
12. Conduct objective investigation of respiratory organs and evaluate the obtained results for children of different age.
13. Define and interpret symptoms and syndromes of the children's respiratory system affection.
14. Make up a plan of investigation of a child with affected respiratory system.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Geme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
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Topic 9. Anatomical and physiological features, methods of examination of the respiratory system in children.

Practical lessons 19

Functional and instrumental methods of research of respiratory system. Methodology and evaluation of indicators

Aim: To know how to conduct indispensable measures on children nursery with illnesses of a respiratory organs, to afford the indispensable help at pressing condition, compliance with a pathology of a respiratory organs. To know syndromes of respiratory disorders and respiratory insufficiency, the main clinical manifestations. To know Functional and instrumental methods of research of respiratory system". To know respiratory tests, chest radiography, ultrasound, capnography, and scintigraphy. To know spirometry, peakflowmetry in children. Methods of conducting and evaluating indicators. To know types and degrees of ventilatory disorders of pulmonary function. Semiotics of deviations.

Professional motivation:

The system of respiratory organs from the moment of birth of the child has the features of operation, which one predetermine nature of a symptomatology of lesions. With growth (increase) of the child the morphological constitution of the breathing system will be improved not only, but also the functional capabilities increase. A pathology of respiratory organs one with widespread, that is why demands legible knowledge of microsymptoms of the lesion to begin treatments in time.

- Basic level:**
1. To know a history taking in children (propedeutics of children's illnesses).
 2. To know anatomy-physiological features of a system of breathing (anatomy, normal physiology, histology).
 3. To know functional capabilities of respiratory organs (normal physiology).
 4. To know syndromes of respiratory disorders and respiratory insufficiency,
 5. To know the main clinical manifestations (bronchoobstructive syndrome, croup syndrome, respiratory insufficiency).
 6. To know Functional and instrumental methods of research of respiratory system.
 7. To know methods of conducting and evaluating indicators.
 8. To know types and degrees of ventilatory disorders of pulmonary function. Semiotics of deviations.

Students Independent Study Program

Objectives for Students Independent Studies

1. To collect an anamnesis in ill with illnesses of a respiratory organs.
2. To give an estimation to the obtained findings of investigation
3. To secure the main syndromes of a lesion of a respiratory organs.
4. To learn semiotics of a respiratory organs lesions:
 - kinds of tissues;
 - kinds of the dyspnea;

- innate stridor;
- a syndrome of respiratory failure, degree;
- a syndrome of respiratory dissonances.

5. To know of methodics of functional and instrumental methods of research of respiratory system.

Students' Practical Activities:

Students must know:

- Semiotics of lesions of children's respiratory organs.
- Features of maintenance at respiratory organs pathology.
- Padding survey methods at respiratory organs pathology.
- Opening-up and technique of realization of separate diagnostic manipulations.
- Processing of the before doctor's help at acute respiratory failure.
- Symptoms of the main diseases of the respiratory organs in children.
kinds of the dyspnea;
innate stridor;
a syndrome of respiratory failure, degree;
a syndrome of respiratory dissonances.
- functional and instrumental methods of research of respiratory system.
- methods of conducting and evaluating indicators.
- types and degrees of ventilatory disorders of pulmonary function. Semiotics of deviations.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 9. Anatomical and physiological features, methods of examination of the respiratory system in children.

Practical lessons 20

Functional methods of research of the respiratory system. Methodology and evaluation of indicators

Aim: To know how to conduct indispensable measures on children nursery with illnesses of a respiratory organs, to afford the indispensable help at pressing condition, compliance with a pathology of a respiratory organs. To know syndromes of respiratory disorders and respiratory insufficiency, the main clinical manifestations. To know spirometry, spirometry, peak flowmetry in children. To know methodology and evaluation of indicators. To know types and degrees of ventilation disorders of pulmonary function. Semiotics of deviations.

Professional motivation:

The system of respiratory organs from the moment of birth of the child has the features of operation, which one predetermine nature of a symptomatology of lesions. With growth (increase) of the child the morphological constitution of the breathing system will be improved not only, but also the functional capabilities increase. A pathology of respiratory organs one with widespread, that is why demands legible knowledge of microsymptoms of the lesion to begin treatments in time.

- Basic level:**
1. To know a history taking in children (propedevtics of children's illnesses).
 2. To know anatomy-physiological features of a system of breathing (anatomy, normal physiology, histology).
 3. To know functional capabilities of respiratory organs (normal physiology).
 4. To know the main clinical manifestations (bronchoobstructive syndrome, croup syndrome, respiratory insufficiency).
 5. To know spirometry, spirometry, peak flowmetry in children.
 6. To know methodology and evaluation of indicators.
 7. To know types and degrees of ventilation disorders of pulmonary function. Semiotics of deviations.

Students Independent Study Program

Objectives for Students Independent Studies

1. To collect an anamnesis in ill with illnesses of a respiratory organs.
2. To give an estimation to the obtained findings of investigation
3. To secure the main syndromes of a lesion of a respiratory organs.
4. To learn semiotics of a respiratory organs lesions:
 - kinds of tissues;

- kinds of the dyspnea;
- innate stridor;
- a syndrome of respiratory failure, degree;
- a syndrome of respiratory dissonances.

5. To know of methodics of functional and instrumental methods of research of respiratory system.

Students' Practical Activities:

Students must know:

- Semiotics of lesions of children's respiratory organs.
- Features of maintenance at respiratory organs pathology.
- Padding survey methods at respiratory organs pathology.
- Opening-up and technique of realization of separate diagnostic manipulations.
- Processing of the before doctor's help at acute respiratory failure.
- Symptoms of the main diseases of the respiratory organs in children.
kinds of the dyspnea;
innate stridor;
a syndrome of respiratory failure, degree;
a syndrome of respiratory dissonances.
- functional and instrumental methods of research of respiratory system.
- methods of conducting and evaluating indicators.
- types and degrees of ventilatory disorders of pulmonary function. Semiotics of deviations.

After self-training the student must know the following:

3. Anatomic and physiological peculiarities of the respiratory system and gaseous exchange of children.

4. Additional methods of children's respiratory organs examination:

- functional (spirometry, pneumotachometry, peakflowmetry, oxymetry);
- laboratory (general and biochemical blood analysis, nose and throat secretion investigation, phlegm, pleural fluid, biopsy materials);
- instrumental (X-ray methods of chest organs investigations, computer and unenhanced (baseline) magnetic resonance imaging, thermography, bronchoscopy and bronchography, scanning);
- methods of allergy diagnostics.

3. Respiratory system affection semiotics of children Having covered the topic, the student must be able to:

15. Denote complaints typical of respiratory organs affection, collect anamnesis.

16. Conduct objective investigation of respiratory organs and evaluate the obtained results for children of different age.

17. Define and interpret symptoms and syndromes of the children's respiratory system affection.

18. Make up a plan of investigation of a child with affected respiratory system.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 10. APF (anatomical and physiological features) of the cardiovascular system in children (cardiovascular system) organs in children.

(Practical lessons.21-26)

Practical lessons 21

APF of the cardiovascular system in children. Methods of clinical examination of CVC organs (complaints, examination, and palpation) and semiotics of lesions.

Current relevance of the research. The cardiovascular system is one of the vitally important in a child's organism. The cardiovascular system provides oxygen and nutritive material supply to all organs and tissues, carbonic acid and other products of metabolism evacuation, thus taking part in internal environment continuity maintaining. The cardiovascular system of children of different age has a lot of peculiarities which influence its functioning. It determines the necessity of anatomic and physiological peculiarities of children's cardiovascular system studying by students of medical departments.

The aim of the lesson: to study anatomic and physiological peculiarities of the children's cardiovascular system characteristic of different stages of ontogenetic development, to be able to investigate the cardiovascular system of children of different age, to know the most important symptoms of cardiovascular disorders among children.

After self-training the student must know the following:

1. Peculiarities of fetus' and newborn's circulation of blood.
2. Anatomic peculiarities of heart among children of different age.
3. Peculiarities of heart tomography in age respect.
4. Histological peculiarities of child's myocardium.
5. Peculiarities of child's heart intervals and rhythm.
6. Morphological peculiarities of vessels (arteries, veins, capillaries).
7. The frequency of heart contractions among children of different age.
8. Children's arterial pressure at different age.
9. Differential diagnostics of functional and organic systolic murmur, physiological and pathological splitting of the II tone on the children's lung artery.
10. Positive features of physiological peculiarities of the children's cardiovascular system.
11. Negative features of physiological peculiarities of the children's cardiovascular system.

Having covered the topic, the student must be able to:

1. Investigate the cardiovascular system of children.
2. Collect anamnesis among children of different age, taking into account typical complaints about the cardiovascular system of young and older patients.
3. Conduct the children's heart percussion, estimating age dictated heart boundaries.
4. Conduct heart auscultation among children using the knowledge of age peculiarities.
5. Evaluate the results of the main instrumental methods of cardiovascular system investigation among children.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
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Topic 10. APF (anatomical and physiological features) of the cardiovascular system in (cardiovascular system) organs in children.

(Practical lessons.21-26)

Practical lessons 22

Methods of examination of the cardiovascular system in children (percussion, auscultation), semiotics of lesions

Current relevance of the research. The cardiovascular system is one of the vitally important in a child's organism. The cardiovascular system provides oxygen and nutritive material supply to all organs and tissues, carbonic acid and other products of metabolism evacuation, thus taking part in internal environment continuity maintaining. The cardiovascular system of children of different age has a lot of peculiarities which influence its functioning. It determines the necessity of anatomic and physiological peculiarities of children's cardiovascular system studying by students of medical departments.

The aim of the lesson: to study anatomic and physiological peculiarities of the children's cardiovascular system characteristic of different stages of ontogenetic development, to be able to investigate the cardiovascular system of children of different age, to know the most important symptoms of cardiovascular disorders among children.

After self-training the student must know the following:

6. Peculiarities of fetus' and newborn's circulation of blood.
7. Anatomic peculiarities of heart among children of different age.
8. Peculiarities of heart tomography in age respect.
9. Histological peculiarities of child's myocardium.
10. Peculiarities of child's heart intervals and rhythm.
8. Morphological peculiarities of vessels (arteries, veins, capillaries).
9. The frequency of heart contractions among children of different age.
8. Children's arterial pressure at different age.
9. Differential diagnostics of functional and organic systolic murmur, physiological and pathological splitting of the II tone on the children's lung artery.

12. Positive features of physiological peculiarities of the children's cardiovascular system.
13. Negative features of physiological peculiarities of the children's cardiovascular system.

Having covered the topic, the student must be able to:

1. Investigate the cardiovascular system of children.
6. Collect anamnesis among children of different age, taking into account typical complaints about the cardiovascular system of young and older patients.
7. Conduct the children's heart percussion, estimating age dictated heart boundaries.
8. Conduct heart auscultation among children using the knowledge of age peculiarities.
9. Evaluate the results of the main instrumental methods of cardiovascular system investigation among children.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Geme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024. - 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 10. APF (anatomical and physiological features) of the cardiovascular system in children. Metabolism (cardiovascular system) organs in children.

(Practical lessons.21-26)

Practical lessons 23

Symptoms of the main diseases of the cardiovascular system in children

Current relevance of the research. The cardiovascular system is one of the vitally important in a child's organism. The cardiovascular system provides oxygen and nutritive material supply to all organs and tissues, carbonic acid and other products of metabolism evacuation, thus taking part in internal environment continuity maintaining. The cardiovascular system of children of different age has a lot of peculiarities which influence its functioning. It determines the necessity of anatomic and physiological peculiarities of children's cardiovascular system studying by students of medical departments.

The aim of the lesson: to study anatomic and physiological peculiarities of the children's cardiovascular system characteristic of different stages of ontogenetic development, to be able to

investigate the cardiovascular system of children of different age, to know the most important symptoms of cardiovascular disorders among children.

After self-training the student must know the following:

1. Peculiarities of fetus' and newborn's circulation of blood.
2. Anatomic peculiarities of heart among children of different age.
3. Peculiarities of heart tomography in age respect.
4. Histological peculiarities of child's myocardium.
5. Peculiarities of child's heart intervals and rhythm.
6. Morphological peculiarities of vessels (arteries, veins, capillaries).
7. The frequency of heart contractions among children of different age.
8. Children's arterial pressure at different age.
9. Differential diagnostics of functional and organic systolic murmur, physiological and pathological splitting of the II tone on the children's lung artery.
10. Positive features of physiological peculiarities of the children's cardiovascular system.
11. Negative features of physiological peculiarities of the children's cardiovascular system.

Having covered the topic, the student must be able to:

1. Investigate the cardiovascular system of children.
2. Collect anamnesis among children of different age, taking into account typical complaints about the cardiovascular system of young and older patients.
3. Conduct the children's heart percussion, estimating age dictated heart boundaries.
4. Conduct heart auscultation among children using the knowledge of age peculiarities.
5. Evaluate the results of the main instrumental methods of cardiovascular system investigation among children.

Test and Assignments for Self-assessments.

Tests

1. What is the term of formation of the 4-chamber heart in the foetus?
 - a) At 3 weeks of gestation;
 - b) at 5 weeks of gestation;
 - c) at 7 weeks of gestation;
 - d) at 10 weeks of gestation;

e) at 18 weeks of gestation.

2. In which of the following foetal vascular structures is oxygen content the lowest?

- a) The umbilical vein;
- b) the inferior vena cava;
- c) the left atrium;
- b) the umbilical arteries; e) the arterial duct;

3. The change from the foetal to newborn circulation is primarily accomplished by:

- a) clamping the umbilical cord;
- b) closure of the arterial duct;
- c) expansion of the lungs;
- e) closure of the umbilical arteries;

4. The heart's position in the chest and its relative dullness borders can be influenced by the following factors, except for:

- a) shape of the chest;
- b) level of the diaphragm;
- c) size of the spleen;
- d) size of the liver;
- e) meteorism;

5. Tachycardia can be noticed in all the conditions below, but:

- a) intoxication;
- b) hyperthermia;
- c) diseases of the cardiovascular system;
- d) hyperthyroidism;
- e) hypothyroidism.

6. For which age is autonomic vascular dysfunction typical?

- a) newborn period;
- b) infant period;
- c) preschool period;
- d) puberty age.

7. At the examination of a 1-year-old child the heart rate of 150 beats per minute was found. The apex beat was determined in the 5th intercostal space, the left border of the relative heart

dullness is located at 1.5 cm to the left from left midclavicular line. Cardiac sounds are clean, their rhythm is correct.

Task: What are the pathological symptoms and what are their causes?

8. The borders of relative heart dullness of a 2-month-old child are as follows: the upper one - the 2nd rib, the left one - at 2 cm to the left from the left midclavicular line, the right one - the right parasternal line.

Task: Assess the borders of relative heart dullness. Explain the cause of the difference of heart dullness borders in this child versus heart dullness in a 13-year-old child.

9. It was marked during inspection and examination of a healthy 8-year-old child that borders of his heart dullness were displaced to the right. Heart sounds are auscultated not in their typical points of projection, but in the right side of the chest.

Tasks: What is the cause of these changes? What kind of instrumental methods of investigation can be used for diagnosis?

10. It was marked during auscultation of the heart of a 14-year-old child that in the second intercostal space on the left side splitting of the 2ⁿ heart sound appeared in a horizontal position. Cardiac complaints are absent. Response to physical exercises is normal.

Tasks: What is the cause of such a heart rhythm? What should the physician do in order to make a diagnosis?

11. The mother of a 1 -month-old infant complains of small increases of weight - 450 g during one month, perioral cyanosis during breast feeding. The "machine"-type systolic-diastolic murmur over the whole heart region is marked during auscultation, it spreads on heart vessels and on the child's back.

Tasks: What pathology of the heart can be supposed? Which paraclinical methods of investigation must be used?

Answers: 1 - a; 2 - d; 3 - c; 4 - c; 5 - e; 6 - d, 7 - The increased heart rate can be caused by heart disease or restlessness of the child. It is necessary to repeat assessment of heart rate in calm conditions or during sleep. If tachycardia disappears it is caused by excitement of the child. If tachycardia does not disappear the child must be examined by paraclinical methods of investigation (ECG, PCG, ultrasound investigation for diagnosis);

8 - The borders of relative heart dullness of a 2-month-old child are normal. The difference of borders of heart dullness is caused by a comparatively big mass of the heart and a high level of the

diaphragm in young children; the heart position is more horizontal in young children. This difference is more marked if the child is younger;

9 - Dextracardia. ECG with a reverse fixation of electrodes, X-ray picture of the chest, ultrasound investigation of the heart;

10 - Dextracardia. ECG with a reverse fixation of electrodes, X-ray picture of the chest, ultrasound investigation of the heart;

11 - Congenital heart defect: patent arterial duct. ECG, PCG, ultrasound investigation of the heart, X-ray picture of the chest for determination of hypervolaemia of the lungs.

Literature:

4. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.

5. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

6. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Practical lessons 24

Syndromes of CVC lesions, clinical manifestations. Circulatory failure, degree, symptoms

Aim. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify stinging signs, to league them in syndromes, to organize correcting departure for children of different age with diseases of cardio-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity.

Professional motivation. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify clinical signs, to put them in syndromes, to organize correcting care for children of different age with diseases of cardiac-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity. A doctor of any speciality can give emergency care for sharp vascular and cardiac insufficiency.

Basic level.

1. Anatomy-physiological heart peculiarities and vessels in children of different age (normal and topographic anatomy, normal physiology, propaedeutics of internal illnesses, propaedeutics of child diseases).
2. Complaints collection Peculiarity, anamnesis with receipt of information about functional state of cardiac-vascular system (propaedeutics of internal illnesses, propaedeutics of child diseases).

3. To See out an objective inspection of cardiac-vascular system with taking account of century peculiarities (propaedeutics of child illnesses, propaedeutics of internal diseases).
4. To Interpret the results of clinical and laboratory research, to decipher EKG and FKG (physics, normal and patho-physiology, propaedeutics of child illnesses, propaedeutics of internal diseases).
5. To Support by charity for children of different age with stinging of cardiac-vascular system, to assign feeding (propaedeutics of child diseases, propaedeutics of internal diseases).

Student's practical activity:

1. For inspection of cardiac-vascular system in children of different age.
2. To Agglomerate complaints, anamnesis data into children with heart pathology and vessels.
3. To See out an objective child inspection.
4. On complaints base, anamnesis, objective data, got attached to inspection of sick, to pick out the stinging syndromes of cardiac-vascular system.
5. Semiotics of congenital and acquired diseases
6. To Appoint microclimate for workplace, impellent mode, medical feeding, dynamic supervision.
7. Medical care for children .Cardiovascular arrest, emergency care for children with cardiac insufficiency, sudden stop of cardiac activity, cardiac shock.

Students independent study Program

To learn the basic clinical signs of cardiac-vascular system in children of different age:

- a) complaints peculiarities;
- b) discolouration skin;
- c) oedemata presence, pulsations;
- d) changes with sides of osseous system;
- e) displacement of boundary paths of cardiac stupidity;
- f) heart tones sounding change;
- g) noises presence;
- APchange;

To learn the medical care for sick children: a) microclimate; b) impellent mode; c) medical feeding; d) dynamic supervision; e) personal hygiene.

1. To take hold of assignment regulations prehospital help attached to pressing states to children with stinging of cardiac-vascular system attached to: a) to sharp vascular insufficiency; b) to sharp cardiac insufficiency; c) cardiac shock; d) sudden stop of cardiac activity.

Student should be able to:

1. Auscultation and percussion of a heart in children of different age
2. Taking of blood pressure in children of different age
3. Performance of Shalkov's test in children
4. Medical care for children .Cardiovascular arrest, emergency care for children

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 10. APF (anatomical and physiological features) of the cardiovascular system in children. Methods of clinical examination of CVC (cardiovascular system) organs in children. (Practical lessons.21-26)

Practical lessons 25

Laboratory and functional methods of research of the cardiovascular system

Aim. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify stinging signs, to league them in syndromes, to organize correcting departure for children of different age with diseases of cardio-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity.

Professional motivation. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify clinical signs, to put them in syndromes, to organize correcting care for children of different age with diseases of cardiac-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity. A doctor of any speciality can give emergency care for sharp vascular and cardiac insufficiency.

Basic level.

6. Anatomy-physiological heart peculiarities and vessels in children of different age (normal and topographic anatomy, normal physiology, propaedeutics of internal illnesses, propaedeutics of child diseases).
7. Complaints collection Peculiarity, anamnesis with receipt of information about functional state of cardiac-vascular system (propaedeutics of internal illnesses, propaedeutics of child diseases).
8. To See out an objective inspection of cardiac-vascular system with taking account of century peculiarities (propaedeutics of child illnesses, propaedeutics of internal diseases).
9. To Interpret the results of clinical and laboratory research, to decipher EKG and FKG (physics, normal and patho-physiology, propaedeutics of child illnesses, propaedeutics of internal diseases).
10. To Support by charity for children of different age with stinging of cardiac-vascular system, to assign feeding (propaedeutics of child diseases, propaedeutics of internal diseases).

Student's practical activity:

1. For inspection of cardiac-vascular system in children of different age.
2. To Agglomerate complaints, anamnesis data into children with heart pathology and vessels.
3. To See out an objective child inspection.
4. On complaints base, anamnesis, objective data, got attached to inspection of sick, to pick out the stinging syndromes of cardiac-vascular system.
5. Semiotics of congenital and acquired diseases
6. To Appoint microclimate for workplace, impellent mode, medical feeding, dynamic supervision.
7. Medical care for children .Cardiovascular arrest, emergency care for children with cardiac insufficiency, sudden stop of cardiac activity, cardiac shock.

Students independent study Program

To learn the basic clinical signs of cardiac-vascular system in children of different age:

- h) complaints peculiarities;
- i) discolouration skin;
- j) oedemata presence, pulsations;
- k) changes with sides of osseous system;
- l) displacement of boundary paths of cardiac stupidity;
- m) heart tones sounding change;
- n) noises presence;
- APchange;

To learn the medical care for sick children: a) microclimate; b) impellent mode; c) medical feeding; d) dynamic supervision; e) personal hygiene.

2. To take hold of assignment regulations prehospital help attached to pressing states to children with stinging of cardiac-vascular system attached to: a) to sharp vascular insufficiency; b) to sharp cardiac insufficiency; c) cardiac shock; d) sudden stop of cardiac activity.

Student should be able to:

1. Auscultation and percussion of a heart in children of different age
2. Taking of blood pressure in children of different age
3. Performance of Shalkov's test in children
4. Methodics functional methods of research of the cardiovascular system

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468 p.

Topic 10. APF (anatomical and physiological features) of the cardiovascular system in children. Methods of clinical examination of CVC (cardiovascular system) organs in children.

(Practical lessons.21-26)

Practical lessons 26

Instrumental methods of CCC research in children - x-ray, ultrasound, electrocardiography, phonocardiography, echocardiography in children. ECG features in children are normal

Aim. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify stinging signs, to league them in syndromes, to organize correcting departure for children of different age with diseases of cardio-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity.

Professional motivation. To learn a value state of cardio-vascular system in children of different age, to take hold of heart inspection methods and vessels, to can identify clinical signs, to put them in syndromes, to organize correcting care for children of different age with diseases of cardiac-vascular system, to give pressing help attached to sharp vascular and cardiac insufficiency, sudden stopped of cardiac activity. A doctor of any speciality can give emergency care for sharp vascular and cardiac insufficiency.

Basic level.

11. Anatomy-physiological heart peculiarities and vessels in children of different age (normal and topographic anatomy, normal physiology, propaedeutics of internal illnesses, propaedeutics of child diseases).
12. Complaints collection Peculiarity, anamnesis with receipt of information about functional state of cardiac-vascular system (propaedeutics of internal illnesses, propaedeutics of child diseases).
13. To See out an objective inspection of cardiac-vascular system with taking account of century peculiarities (propaedeutics of child illnesses, propaedeutics of internal diseases).
14. To Interpret the results of clinical and laboratory research, to decipher EKG and FKG (physics, normal and patho-physiology, propaedeutics of child illnesses, propaedeutics of internal diseases).
15. To Support by charity for children of different age with stinging of cardiac-vascular system, to assign feeding (propaedeutics of child diseases, propaedeutics of internal diseases).

Student's practical activity:

- 1.For inspection of cardiac-vascular system in children of different age.
- 2.To Agglomerate complaints, anamnesis data into children with heart pathology and vessels.
- 3.To See out an objective child inspection.
- 4.On complaints base, anamnesis, objective data, got attached to inspection of sick, to pick out the stinging syndromes of cardiac-vascular system.
5. Semiotics of congenital and acquired diseases

6. To Appoint microclimate for workplace, impellent mode, medical feeding, dynamic supervision.
7. Medical care for children .Cardiovascular arrest, emergency care for children with cardiac insufficiency, sudden stop of cardiac activity, cardiac shock.

Students independent study Program

To learn the basic clinical signs of cardiac-vascular system in children of different age:

- o) complaints peculiarities;
- p) discolouration skin;
- q) oedemata presence, pulsations;
- r) changes with sides of osseous system;
- s) displacement of boundary paths of cardiac stupidity;
- t) heart tones sounding change;
- u) noises presence;
- APchange;

To learn the medical care for sick children: a) microclimate; b) impellent mode; c) medical feeding; d) dynamic supervision; e) personal hygiene.

3. To take hold of assignment regulations prehospital help attached to pressing states to children with stinging of cardiac-vascular system attached to: a) to sharp vascular insufficiency; b) to sharp cardiac insufficiency; c) cardiac shock; d) sudden stop of cardiac activity.

Student should be able to:

1. Auscultation and percussion of a heart in children of different age
2. Taking of blood pressure in children of different age
3. Performance of Shalkov's test in children
4. Methodics functional methods of research of the cardiovascular system

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 11. Anatomical and physiological features of the digestive system, examination methods

Practical lessons 27-28

Practical lessons 27

Anatomical and physiological features of the digestive system, Methodology of clinical examination of digestive organs (examination, palpation, percussion, auscultation). Semiotics of lesions."

Aim: To research anatomo-physiological features of gastroduodenal organs in children, and to learn methods of clinical investigation. To research digestion organs in children, to identify pathological signs, to determine causes of their beginning and to make diagnosis, to teach skills of manipulation with children of this pathology.

Professional motivation : Knowledge of anatomy-physiological peculiarities of gastroduodenal part of digestive system and methods of clinical examination, give as a possibility to recognize basic symptoms of pathological states, to organize a rational food mode and baby-minding.

Basic level

1. To Agglomerate anamnesis (propaedeutic therapy, of child diseases).
2. To examine mouth cavity examination, stomach, organs palpation of abdominal cavity (propaedeutic therapy).
3. To Estimate disposition of evacuation and coprogramme, to research results of gastric contents, duodenal contents (physiology, biochemistry, propaedeutic therapy). To Agglomerate anamnesis (propaedeutic therapy, of child diseases).

Student's practical activity

1. For inspection of gastro-duodenal and hepatobiliary system in children of different age.
2. To Agglomerate complaints, anamnesis data into children with gastro-duodenal and hepatobiliary .
3. To See out an objective child inspection.
4. On complaints base, anamnesis, objective data, got attached to inspection of sick, to pick out the stinging syndromes of gastro-duodenal and hepatobiliary .

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of the children's mouth cavity (the reasons for sucking process, peculiarities of children's salivation).
2. Anatomic peculiarities of esophagus, ventriculus, sphincter of ventriculus, bowels, mucous membrane of digestive apparatus, liver, gallbladder, and abdominal salivary gland.
3. Peculiarities of the secretory function of the digestive system:
 - a) acidity, enzymatic activity of gastric (appetite) juice;
 - b) external and internal secretory functions of the abdominal salivary gland;
 - c) quantitative and qualitative composition of bile;
 - d) secretory function of bowels;

e) the interdependence between the secretory activity, the character of feeding, and the child's age.

4. Peculiarities of alimentary ingredients (proteins, fats, carbohydrates, mineral salts, and water absorption) through different sections of the nutrient canal (canalis nutricius).

5. Peculiarities of the evacuation function of the nutrient canal of children of early age:

- a) evacuation of food from the stomach depending on feeding;
- b) the frequency of defecation (bowel movement) and its dependence on feeding.

6. Variants of defecation most frequently found among children:

- a) newborns and infants during natural and artificial feeding;
- b) gastric indigestional;
- c) during enteritis and colitis.

7. Bowels microflora and its role in the child's organism:

- a) the large intestine (intestinum crassum) microflora character;
- b) the dependence of microflora on feeding;
- c) physiological role of microflora;
- d) pathological role of microflora, the notion of dysbacteriosis.

Having covered the topic, the student must be able to:

1. Collect anamnesis of a child and its parents, paying attention to the way of feeding, composition and regime of feeding, preference given to different dishes, the state of appetite, hereditary inclination for digestive organs diseases; complaints typical of this system affections.

2. Conduct objective investigation of digestion organs of children of different age (examination, percussion, palpation, auscultation).

Tests

1. The suction act is promoted by:

- 1.1. A relatively large mouth cavity.
- 1.2. Well-exposed cheeks adipose body.
- 1.3. A large tongue.
- 1.4. Cylinder-like bulges on gums.
- 1.5. Well-developed muscles of mouth and cheeks.

2. The newly-born's stomach capacity makes:

- 2.1. 30-35 ml.
- 2.2. 50-60 ml.
- 2.3. 100-150 ml.
- 2.4. 200-250 ml.

3. The main active enzyme in the newly-borns' stomach liquid is:

- 3.1. Pepsin.
- 3.2. Chymosin (labenzyme, rennet).
- 3.3. Lipase.
- 3.4. Amylase.
- 3.5. Entrokinase.

4. The liver boundaries of a 1-year-old child are:

- 4.1. Upper - 5th-6th rib, lower - 1-2 cm lower than the costal margin.
- 4.2. Upper - 6th rib, lower - 3-4 cm lower than the costal margin.
- 4.3. Upper - 4th rib, lower - 5 cm lower than the costal margin.
5. The infants' bowels length must be longer in comparison with the body length by:
 - 5.1. 2 times.
 - 5.2. 6 times.
 - 5.3. 4 times.
 - 5.4. 10 times.
 - 5.5. 3 times.
6. Which of the given below is not typical of the normal bowels microflora?
 - 6.1. Creates an immunologic barrier.
 - 6.2. Promotes final gastrointestinal digestion.
 - 6.3. Promotes vitamin and enzymes synthesis.
 - 6.4. Provokes bowels mucous tunics inflammation.
7. What do naturally fed infants' feces look like?
 - 7.1. Semi-liquid, of yellow colour.
 - 7.2. Perfect.
 - 7.3. With white masses.
 - 7.4. Of green colour, liquid.
 - 7.5. With blood and slime.
8. Which bowels microflora is the dominant one among children who are naturally fed?
 - 8.1. Bifidoflora.
 - 8.2. Colon bacillus.
 - 8.3. Staphylococcus.
 - 8.4. Enterococcus.
 - 8.5. Yeast-like fungus.
9. Pain in the left low part of the stomach usually appears during:
 - 9.1. Stomach diseases.
 - 9.2. Appendicitis.
 - 9.3. Gallbladder diseases.
 - 9.4. Dysentery
 - 9.5. Hepatitis.
10. Which symptom is not characteristic of gallbladder and bile-duct affection?
 - 10.1. Ortner's.
 - 10.2. Pasternatsky's.
 - 10.3. Ker's.
 - 10.4. Heorhievsky-Mussi.
 - 10.5. Murphy's.

Correct answers: 1.1; 2.1; 3.2; 4.1; 5.2; 6.4; 7.1; 8.1; 9.4; 10.2.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.
3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468
4. The urgent help and the rules of care of patients with diseases of the gastrointestinal tract: methodological instructions or practical lessons on the discipline “Nursing care” / compilers:O. I. Smiyan, Y. A. Manko. – Sumy : Sumy State University, 2021. –31 p.

Topic 11. Anatomical and physiological features of the digestive system, examination methods

Practical lessons 27-28

Practical lessons 28

Laboratory, instrumental and functional methods of research of children with gastrointestinal pathology

Aim: to study laboratory, instrumental and functional research methods of children with gastrointestinal pathology (sonography, endoscopy, thermography, ultrasound, colonoscopy, rectoromanoscopy, and others).

Professional motivation: Knowledge of anatomy-physiological peculiarities of gastroduodenal part of digestive system and methods of clinical examination, give as a possibility to recognize basic symptoms of pathological states, to organize a rational food mode and baby-minding.

Basic level

4. To examine mouth cavity examination, stomach, organs palpation of abdominal cavity (propaedeutic therapy).
5. To Estimate disposition of evacuation and coprogramme, to research results of gastric contents, duodenal contents (physiology, biochemistry, propaedeutic therapy). To Agglomerate anamnesis (propaedeutic therapy, of child diseases).
6. To study methodics of laboratory, instrumental and functional research methods of children with gastrointestinal pathology (sonography, endoscopy, thermography, ultrasound, colonoscopy, rectoromanoscopy, and others).

Student's practical activity

5. For inspection of gastro-duodenal and hepatobiliary system in children of different age.
6. To Agglomerate complaints, anamnesis data into children with gastro-duodenal and hepatobiliary .

7. To See out an objective child inspection.
8. On complaints base, anamnesis, objective data, got attached to inspection of sick, to pick out the stinging syndromes of gastro-duodenal and hepatobiliary .
9. Interpret date of laboratory, instrumental and functional research methods of children with gastrointestinal pathology (sonography, endoscopy, thermography, ultrasound, colonoscopy, rectoromanoscopy, and others).

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of the children's mouth cavity (the reasons for sucking process, peculiarities of children's salivation).
2. Anatomic peculiarities of esophagus, ventriculus, sphincter of ventriculus, bowels, mucous membrane of digestive apparatus, liver, gallbladder, and abdominal salivary gland.
3. Peculiarities of the secretory function of the digestive system:
 - a) acidity, enzymatic activity of gastric (appetite) juice;
 - b) external and internal secretory functions of the abdominal salivary gland;
 - e) quantitative and qualitative composition of bile;
 - f) secretory function of bowels;
- e) the interdependence between the secretory activity, the character of feeding, and the child's age.
6. Peculiarities of alimentary ingredients (proteins, fats, carbohydrates, mineral salts, and water absorption) through different sections of the nutrient canal (canalis nutricius).
7. Peculiarities of the evacuation function of the nutrient canal of children of early age:
 - a) evacuation of food from the stomach depending on feeding;
 - b) the frequency of defecation (bowel movement) and its dependence on feeding.
6. Variants of defecation most frequently found among children:
 - d) newborns and infants during natural and artificial feeding;
 - e) gastric indigestional;
 - f) during enteritis and colitis.
7. Bowels microflora and its role in the child's organism:
 - e) the large intestine (intestinum crassum) microflora character;
 - f) the dependence of microflora on feeding;
 - g) physiological role of microflora;
 - h) pathological role of microflora, the notion of dysbacteriosis.

Having covered the topic, the student must be able to:

3. Collect anamnesis of a child and its parents, paying attention to the way of feeding, composition and regime of feeding, preference given to different dishes, the state of appetite, hereditary inclination for digestive organs diseases; complaints typical of this system affections.
4. Conduct objective investigation of digestion organs of children of different age (examination, percussion, palpation, auscultation).
5. Interpret date of laboratory, instrumental and functional research methods of children with gastrointestinal pathology (sonography, endoscopy, thermography, ultrasound, colonoscopy, rectoromanoscopy, and others).

Literature:

5. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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8. The urgent help and the rules of care of patients with diseases of the gastrointestinal tract: methodological instructions or practical lessons on the discipline “Nursing care” / compilers:O. I. Smiyan, Y. A. Manko. — Sumy : Sumy State University, 2021. —31 p.

Topic 12. Anatomical and physiological features, methods of examination of the excretory system in children

Practical lessons 29-30

The current relevance of the research. The qualitative changes in the work of the urinary system take place after the birth of a child. Even an embryo has functioning kidneys, and its urine is of great importance for keeping the amniotic fluid volume. The excretion of fetus's substances is provided by placenta. Kidneys get the leading role in the provision of organism homeostasis from the moment of birth. Their function lies in keeping the right volume of blood and inner environment liquid, in the provision of constant concentration of the osmotic active substances and separate ions, pH, the final exchange products excretion, foreign substances. The knowledge of the peculiarities of the children's urinary system composition and functioning is the must for exact diagnosis and appropriate treatment.

The aim of the lesson: to study the peculiarities of the children's urinary system composition and functions, to find out the most important features of urine tracts affection, to learn how to investigate and estimate the state of the urinary system of children of different age.

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of children's kidneys, urinary tracts, urinary bladder.
2. Peculiarities of kidneys functional state.
3. Symptoms and syndromes appearing as a result of transitory and residual loss of kidneys homeostatic functions.
4. Quantitative and qualitative indexes of urinary excretion of different age periods.
5. Disease semiotics of urinary organs: edema syndrome, nephrotic syndrome, nephritic syndrome, arterial hypertension syndrome, urinary syndrome.

6. The methods of the children's urinary system investigation.

Having covered the topic, the student must be able to:

1. Define and estimate complaints which are characteristic of the urinary system affection, collect family and individual anamnesis (history).
2. Be able to conduct the kidney palpation by Obratsov-Stražheska's method in horizontal state and by Botkin method.
3. Be able to detect evident and hidden edemas.
4. Be able to estimate the general urine analysis, urine analysis by Nechiporenko, Addis-Kakovsky, Amburge; estimate the results of bacteriological urine investigation.
5. Know how to interpret indexes of biochemical blood investigation used in nephrology: creatinine, urine acid, general protein and its fractions, cholesterol, and electrolytes.
6. Know how to interpret indexes of the main laboratory functional kidneys investigations: Zimnitsky's test, Ruberg's test, loading tests (the test on concentration, the water loading test).
7. Know how to evaluate the roentgenogram: examination X-ray picture of stomach organs, excretory urography, voiding (micturating) cystography.

Materials which might be helpful.

Anatomic and Physiological Peculiarities of the Children's Urinary System

Relatively large kidneys size and shorter back girdle's part determine the kidneys topographical location during the first years of life. The kidneys upper pole is located on the level of XI-XII thoracic (dorsal) vertebrae, while the lower pole is located on the level of the IV lumbar vertebra, in other words lower than the glomerular bone's crest. Kidneys are more movable among children of early age which is explained by the weak development of adipose body of the kidney. Kidneys have a lobular composition during the first years of life. Kidneys jutting out parts are relatively broader; urinary tracts are splinted at a sharp angle. Urinary tracts are wavy, a bit hypotonic and have a relatively large diameter. The infant's urinary bladder is located above the symphysis; later on it goes down to the small pelvis. The girls' urethra is shorter and broader than that of boys' in all age periods.

The children's urinary system anatomic peculiarities mentioned above are the reasons for possible microbial-inflammatory diseases development, and thus, they influence the interpretation of definite instrumental investigations and the methods of diagnostics investigation conducting.

Urine secretion with its pouring to allantoic and amniotic liquids is detected even throughout the prenatal period. Urine is hypotonic to blood plasma and contains little urine acid, urea, and chloride at this stage. After birth kidneys become the main organs responsible for providing the vitally necessary permanency of the organism inner environment. The kidneys concentration function is limited among the children of early age. Urine low density is connected with the glomerule low diameter, antidiuretic hormone lowered production, osmoregulators underdevelopment, functional inferiority of distal convoluted renal tubules' epithelium, etc.

The infants' general diuresis is 2-3 times higher than that of the children of older age. It makes 80-90 ml per kg of body weight during the first months of life and about 50 ml per kg of body weight among children of 8-10. Taking these peculiarities into account, it is recommended to prescribe about 200 ml of liquid per 1 kg of body weight to infants. At the same time, besides the increased diuresis, the child's organism is not able to compensate the superfluous liquid injection quickly, which may lead to anxiety, retching, diarrhea, polyuria, and convulsions. The high tubular (canalicular) absorption (99.4-100%) determines the low tempo of chloride release which leads to sodium chloride deposition in tissues, lowering of filtration, diuresis. That is why the superfluous sodium chloride injection may be accompanied by significant diuresis dysfunction, even anuria, hypostases, the so-called salt fever.

The imperfection of water and sodium reabsorption mechanisms in distal straight renal tubules is enforced by functional unripeness of processes connected with hydrogen ions and ammonia synthesis in this particular district of tubule apparatus; as a result of it conditions for serious metabolic acidosis may appear. Urine approaches adults' indexes by its functional indexes during the final differentiation and ripening of kidneys morphological structures (5-7 years).

Methods of Children's Urinary System

Organs Examination

While examining the children's urinary system organs one must pay attention to the presence of pain in the waist district, above pubis, character of urine secretion (painfulness, frequency, urinary incontinence, enuresis, and other urine secretion act violations), "unreasonable" jumps of body temperature.

While collecting anamnesis it is necessary to specify the risk factors of inborn and hereditary pathology, possible reasons for acquired diseases (mother's nephropathy during the pregnancy period, serious infections the children had experienced, chronic niduses of infection, overcooling, previous vaccinations, etc.).

During examination the presence of paste, hypostases, pale skin, skin dampness, and the state of genitals are registered.

Kidney palpation must be done if hidden hypostases are suspected by the McKlur-Oldridge test, the quantity of drunk and secreted liquid per day, the colour and clarity of urine are evaluated.

Methods of Clinical Investigation Used for the Examination of Children with Urinary System Organs Diseases

- Questions put to a child or parents.
- General clinical investigation: examination, urinary system organs palpation.
- Laboratory investigation of urine, blood; the main biochemical indexes important for nephrology.

- Kidneys and urinary bladder echography.
- X-ray-radiological methods of investigation: excretory (intravenous) urography, voiding (micturating) cystourethrography, retrograde pyelography, renal angiography etc.
- Kidneys thermography.
- Kidneys biopsy.

Urinary System Affections Semiotics

Toxic syndrome - weakness, decrease of appetite, possible rise of body temperature.

Pain syndrome - pain in stomach, waist, and suprapubic zones.

Nephrotic syndrome - a complex of symptoms among which the following can be found: proteinuria is more than 3 gr. per day, hy-poproteinemia, hypercholesterolemia, edemata. These are characteristic features of nephrosis and nephritis.

Nephritic syndrome - a complex of symptoms among which the following can be found: moderate oedemata, hematuria, hypertension. Is characteristic feature of nephritis.

Dysuric syndrome - complex of symptoms which testify the pathological character of urination act.

- **Incontinence** — urination without preliminary vesical tenesmus.
- **Enuresis** - urination without preliminary vesical tenesmus at night time.
- **Incontinence** - urination after imperative preliminary vesical tenesmus.
- **Strangulation** - pain during urination.
- **Ischuria (delay in urination)** - absence of urine after vesical tenesmus while urine is present in urinary bladder.
- **Polakiuria** - increase of urination frequency.
- **Oliguria** - lowering of the daily urine quantity to 20—30% .
- **Anuria** - lowering of the daily urine quantity to 6—7% .
- **Polyuria** - increase of the daily urine quantity by 1.5 times compared to the normal range.
- **Nocturia** - prevailing of night time urination over that of the daytime.

Urine syndrome - any changes of quantitative and qualitative urine composition detected during the laboratory examination of urine. Is represented by **macrohematuria, microhematuria, le'ukocyturia, bacteriuria, proteinuria, cylinderuria, crystaluria, glucosoria, cetoneria, changes in urine pH, and other symptoms.**

Additional methods of inspection. Functional tests. Semiotics of microscopic changers of urine (protein-, erythrocyte-, leucocyt, cylinderuria) .

The current relevance of the research. The qualitative changes in the work of the urinary system take place after the birth of a child. Even an embryo has functioning kidneys, and its urine is of great importance for keeping the amniotic fluid volume. The excretion of fetus's substances is provided by placenta. Kidneys get the leading role in the provision of organism homeostasis from the moment of birth. Their function lies in keeping the right volume of blood and inner environment liquid, in the provision of constant concentration of the osmotic active substances and separate ions, pH, the final exchange products excretion, foreign substances. The knowledge of the peculiarities of the children's urinary system composition and functioning is the must for exact diagnosis and appropriate treatment.

The aim of the lesson: to study the peculiarities of the children's urinary system composition and functions, to find out the most important features of urine tracts affection, to learn how to investigate and estimate the state of the urinary system of children of different age.

After self-training the student must know the following:

1. Anatomic and physiological peculiarities of children's kidneys, urinary tracts, urinary bladder.
2. Peculiarities of kidneys functional state.
6. Symptoms and syndromes appearing as a result of transitory and residual loss of kidneys homeostatic functions.
7. Quantitative and qualitative indexes of urinary excretion of different age periods.
8. Disease semiotics of urinary organs: edema syndrome, nephrotic syndrome, nephritic syndrome, arterial hypertension syndrome, urinary syndrome.
6. The methods of the children's urinary system investigation.

Having covered the topic, the student must be able to:

3. Define and estimate complaints which are characteristic of the urinary system affection, collect family and individual anamnesis (history).
4. Be able to conduct the kidney palpation by Obratsov-Strazheska's method in horizontal state and by Botkin method.
3. Be able to detect evident and hidden edemas.
8. Be able to estimate the general urine analysis, urine analysis by Nechiporenko, Addis-Kakovsky, Amburge; estimate the results of bacteriological urine investigation.
9. Know how to interpret indexes of biochemical blood investigation used in nephrology: creatinine, urine acid, general protein and its fractions, cholesterol, and electrolytes.
10. Know how to interpret indexes of the main laboratory functional kidneys investigations: Zimnitsky's test, Ruberg's test, loading tests (the test on concentration, the water loading test).
11. Know how to evaluate the roentgenogram: examination X-ray picture of stomach organs, excretory urography, voiding (micturating) cystography.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Geme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468

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5. 5144 Methodical instructions for practical lessons on the topic "Anatomical and physiological features, methods of examination and semiotics of urinary tract in children" on the discipline "Propaedeutics of pediatrics" [Електронний ресурс] : (in accordance with the conditions of the Bologna process) for stud. of spec. 222 "Medicine" of the full-time course of study / O. I. Smiyan, O. G. Vasilyeva, V. A. Horbas. — Sumy : Sumy State University, 2022. — 68 p.

Topic 13. Features of the endocrine system

Practical lessons 31-32

Practical lessons 31

Anatomy-physiological peculiarities, methodic of investigation. semiotics of hypo-and hyper function syndromes of epiphysis, hypophysis, thyroid and parathyroid glands

The knowledge of morphofunctional peculiarities of the endocrine system in children, symptoms and syndromes of hyper-and hypofunctions of some endocrine organs is necessary for understanding endocrine pathology.

Concrete aims:

- to fulfil subjective and objective examination of organs of the endocrine system with taking into consideration peculiarities of methods in children; to prescribe complex diagnostic methods for a patient with pathology of the endocrine system in order to reveal pathological changes;

- to interpret received data taking into consideration the morphofunctional peculiarities;
- to make an integrated syndromic diagnosis.

Objectives student independent studies.

1. To see out objective inspection of organs of endocrine system with methods peculiarities in children.

2. To appoint necessary complex for diagnostic arrangements for specification of pathogenetic changes.

3. To interpret the expressed changes in child inspection results on knowledge base of anatomy-physiological peculiarities.

4. To form a complex syndromal diagnosis.

5. To compose a baby-minding plan sick with pathology of endocrine system.
6. To Learn the anatomy-physiological peculiarities of basic organs of endocrine system in children:
 - a) peculiarities embriogenetic;
 - b) structural peculiarities into different century periods;
 - c) functional peculiarities into different century periods.
7. To Learn an organs research methods of endocrine system:
 - a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;
 - b) growth estimation, thickness hypodermic-fatty to layer, development musculus, body proportion;
 - c) examination of external sexual organs, exposure of secondary sexual signs, formula of sexual development;
 - d) palpation and determination of augmentation degree of thyroid, consistence, determination of optic symptoms and symptoms of cramps readiness.
8. To Learn additional inspection methods:
 - a) laboratory;
 - b) instrumental;
 - c) peculiarities of their interpretation in child endocrinology.
9. Complex choice Peculiarities of additional inspection methods attached to stinging of glands of incretion:
 - a) taking account of gland function;
 - b) influence on other glands.
10. To Learn the symptoms and syndromes attached to pathologies of endocrine glands:
 - a) gland hyperfunction;
 - b) hypofunction glands.
11. To Learn the departure peculiarities for children with pathology of endocrine system, children preparations to taking of additional inspections, assignment order of pressing prehospital help attached to diseases of endocrine system.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.

2. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

3. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468

Topic 13. Features of the endocrine system

Practical lessons 31-32

Practical lessons 32

Anatomy-physiological peculiarities, methodic of investigation. semiotics of hypo-and hyper function syndromes of adrenal, sexual and pancreas glands

The knowledge of morphofunctional peculiarities of the endocrine system in children, symptoms and syndromes of hyper-and hypofunctions of some endocrine organs is necessary for understanding endocrine pathology.

Concrete aims:

- to fulfil subjective and objective examination of organs of the endocrine system with taking into consideration peculiarities of methods in children; to prescribe complex diagnostic methods for a patient with pathology of the endocrine system in order to reveal pathological changes;

- to interpret received data taking into consideration the morphofunctional peculiarities;
- to make an integrated syndromic diagnosis.

Objectives student independent studies.

1. To see out objective inspection of organs of endocrine system with methods peculiarities in children.

2. To appoint necessary complex for diagnostic arrangements for specification of pathogenetic changes.

3. To interpret the expressed changes in child inspection results on knowledge base of anatomy-physiological peculiarities.

4. To form a complex syndromal diagnosis.

5. To compose a baby-minding plan sick with pathology of endocrine system.

6. To Learn the anatomy-physiological peculiarities of basic organs of endocrine system in children:

a) peculiarities embryogenetic;

b) structural peculiarities into different century periods;

c) functional peculiarities into different century periods.

7. To Learn an organs research methods of endocrine system:

a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;

b) growth estimation, thickness hypodermic-fatty to layer, development musculus, body proportion;

c) examination of external sexual organs, exposure of secondary sexual signs, formula of sexual development;

d) palpation and determination of augmentation degree of thyroid, consistence, determination of optic symptoms and symptoms of cramps readiness.

8. To Learn additional inspection methods:

a) laboratory;

b) instrumental;

c) peculiarities of their interpretation in child endocrinology.

9. Complex choice Peculiarities of additional inspection methods attached to stinging of glands of incretion:

a) taking account of gland function;

b) influence on other glands.

10. To Learn the symptoms and syndromes attached to pathologies of endocrine glands:

a) gland hyperfunction;

b) hypofunction glands.

11. To Learn the departure peculiarities for children with pathology of endocrine system, children preparations to taking of additional inspections, assignment order of pressing prehospital help attached to diseases of endocrine system.

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Topic 14. Blood system in children

Practical lessons 33-34

Practical lessons 33

Blood system in children

APF of the blood system in children of different ages. Methods of clinical examination of children with blood diseases. Semiotics of lesions. Clinical and haematological semiotics of the main syndromes (anaemic, haemolytic, haemorrhagic, etc.) in blood system diseases in children.

The knowledge about peculiarities of the immune and blood systems in children is necessary for estimating their condition and diagnosing pathology.

Concrete aims:

1. to study a case history and find data, which show changes of the immune and blood systems of a child;
2. to fulfil an objective examination of the immune and blood systems with taking into consideration age-specific peculiarities;
3. -to know clinical signs of immunodeficiency states and anaemia, to recognize the main syndromes;
4. -to interpret laboratory-instrumental methods of examination of the immune and blood systems in children.

Objectives student independent studies.

1. To Learn the anatomy-physiological peculiarities of basic organs of blood system in children:

- a) peculiarities embriogenetic;
- b) structural peculiarities into different age periods;
- c) functional peculiarities into different age periods.

2. To Learn an organs research methods of blood system:

a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;

3. To Learn additional inspection methods:

- a) laboratory;
- b) instrumental;
- c) peculiarities of their interpretation in child endocrinology.

Laboratory and instrumental methods of examination in children with blood diseases. Their assessment and semiotics deviations.

The knowledge of peculiarities of the blood system in children of different age groups, methods of clinical-laboratory examination of children with their blood system affection and semiotics of the main haematological syndromes (anaemic, haemolytic, haemorrhage and others) is necessary for diagnosing diseases of the blood system in children.

Contents

Peculiarities of the blood system in children of different ages. Methods of clinical and laboratory examination of children with affection of the blood system. Clinical-haematological semiotics of the main syndromes (anaemic, haemolytic, haemorrhage and others) and diseases of the blood system in children.

The aim:

1. to teach to examine the patients,
2. to take care about them,
3. know how to use medical technical apparatus and instruments,
4. to analyze this information ;
5. to organize daily regime and correct feeding;
6. to know basic deontology principals during communication with children and their parents.

Technique of realization of practical Work:

1. To examine the patient with blood system disorders
2. To collect the anamnesis in child with the blood system disorder..
3. To prescribe laboratory examination for the child.
4. Examine a patient with blood pathology, to establish the main symptoms and syndromal diagnosis of the urinary pathology .
5. Make a syndromal diagnosis .
6. Administer the medical care for children of the pathology of blood .

Objectives student independent studies.

1. To see out objectiv inspection of organs of blood system with methods peculiarities in children.
2. To appoint necessary complex for diagnostic arrangements for specification of pathogenetic changes.
3. To interpret the expressed changes in child inspection results on knowledge base of anatomy-physiological peculiarities.
4. To form a complex syndromal diagnosis.
5. To compose a baby-minding plan sick with pathology of blood system.
6. To Learn the anatomy-physiological peculiarities of basic organs of blood system in children:
 - a) peculiarities embriogenetic;

b) structural peculiarities into different age periods;

c) functional peculiarities into different age periods.

7. To Learn an organs research methods of blood system:

a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;

8. To Learn additional inspection methods:

a) laboratory;

b) instrumental;

c) peculiarities of their interpretation in child endocrinology.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 14. Blood system in children

Practical lessons 33-34

Practical lessons 34

Blood system in children

Laboratory and instrumental methods of examination in children with blood diseases. Their assessment and semiotics deviations.

The knowledge of peculiarities of the blood system in children of different age groups, methods of clinical-laboratory examination of children with their blood system affection and semiotics of the main haematological syndromes (anaemic, haemolytic, haemorrhage and others) is necessary for diagnosing diseases of the blood system in children.

Contents

Peculiarities of the blood system in children of different ages. Methods of clinical and laboratory examination of children with affection of the blood system. Clinical-haematological

semiotics of the main syndromes (anaemic, haemolytic, haemorrhage and others) and diseases of the blood system in children.

The aim:

7. to teach to examine the patients,
8. to take care about them,
9. know how to use medical technical apparatus and instruments,
10. to analyze this information ;
11. to organize daily regime and correct feeding;
12. to know basic deontology principals during communication with children and their parents.

Technique of realization of practical Work:

7. To examine the patient with blood system disorders
8. To collect the anamnesis in child with the blood system disorder..
9. To prescribe laboratory examination for the child.
10. Examine a patient with blood pathology, to establish the main symptoms and syndromal diagnosis of the urinary pathology .
11. Make a syndromal diagnosis .
12. Administer the medical care for children of the pathology of blood .

Objectives student independent studies.

1. To see out objectiv inspection of organs of blood system with methods peculiarities in children.

2. To appoint necessary complex for diagnostic arrangements for specification of pathogenetic changes.

3. To interpret the expressed changes in child inspection results on knowledge base of anatomy-physiological peculiarities.

4. To form a complex syndromal diagnosis.

5. To compose a baby-minding plan sick with pathology of blood system.

6. To Learn the anatomy-physiological peculiarities of basic organs of blood system in children:

a) peculiarities embriogenetic;

b) structural peculiarities into different age periods;

c) functional peculiarities into different age periods.

7. To Learn an organs research methods of blood system:

a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;

8. To Learn additional inspection methods:

- a) laboratory;
- b) instrumental;
- c) peculiarities of their interpretation in child endocrinology.

Literature:

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Topic 15. Immune system in children. Practical lessons 35

The knowledge about the immune system and peculiarities of its function in children. The notion about immunodeficiency, classification and semiotics of immunodeficiency conditions is necessary for diagnosis of immunologic pathology in children. The opinion about immunodeficiency of a child must be confirmed by results of laboratory-instrumental methods of examination.

Contents

The immune system defends the individual from infections such as bacteria, viruses, fungi, protozoa and their virulence factors. The immune system also impedes the development of malignant diseases. The cost of this protection is allergy, autoimmune diseases and rejection of organ transplantations.

The aim:

13. to teach to examine the patients,
14. to take care about them,
15. know how to use medical technical apparatus and instruments,
16. to analyze this information ;
17. to organize daily regime and correct feeding;
18. to know basic deontology principals during communication with children and their parents.

Technique of realization of practical Work:

13. To examine the patient with immune system disorders
14. To collect the anamnesis in child with the immune system disorder..
15. To prescribe laboratory examination for the child.
16. Examine a patient with immune pathology, to establish the main symptoms and syndromal diagnosis of immune pathology .
17. Make a syndromal diagnosis .
18. Administer the medical care for children of the pathology of immune .

Objectives student independent studies.

1. To see out objectiv inspection of organs of immune system with methods peculiarities in children.

2. To appoint necessary complex for diagnostic arrangements for specification of pathogenetic changes.

3. To interpret the expressed changes in child inspection results on knowledge base of anatomy-physiological peculiarities.

4. To form a complex syndromal diagnosis.

5. To compose a baby-minding plan sick with pathology of immune system.

6. To Learn the anatomy-physiological peculiarities of basic organs of immune system in children:

a) peculiarities embriogenetic;

b) structural peculiarities into different age periods;

c) functional peculiarities into different age periods.

7. To Learn an organs research methods of immune system:

a) general child examination is exposure of roagh peculiarities of physical development, body frame, evident deformations to skeleton, to conduct peculiarity, to facial expression, voice, motions, body regulation;

8. To Learn additional inspection methods:

a) laboratory;

b) instrumental;

c) peculiarities of their interpretation in child endocrinology.

Literature:

4. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.

5. Pediatric Physical Examination [Текст] : textbook / O. V. Katilov, D. V. Dmytriiev, K. Yu. Dmytriieva, S. Yu. Makarov. — 3-nd ed. — Vinnytsia : Nova Knyha, 2021. — 504 p.

6. Manual of Propaedeutic Pediatrics [Текст] : textbook / S. O. Nykytyuk, N. I. Balatska, N. B. Galiyash etc. — 2-nd ed., unchanged. — Ternopil : Ukrmedkniha, 2016. — 468

Practical lessons 36 Curation. Preparing to write a medical history

Investigation of the children for writing the case history.

Amount of hours: 2 hours

Aim: To know how to write case history on the basis of knowledge of anatomy-physiological features, to show syndromes of a lesion of different system and organs.

Professional motivation:

The system of different organs from the moment of birth of the child has the features of operation, which one predetermine nature of a symptomatology of lesions. With growth (increase) of the child the morphological constitution of the breathing system will be improved not only, but also the functional capabilities increase. A pathology of different organs one with widespread, that is why demands legible knowledge of microsymptoms of the lesion to begin treatments in time.

The knowledge about the writing of a case history is necessary for the future professional activity of students. Concrete aims:

- to fulfil subjective and objective examinations of children;
- to diagnose clinical syndromes;
- to make syndromic diagnoses;
- to interpret results of laboratory-instrumental examinations.

Method of implementation of practical work.

1 practical employment

Work 1

To collect anamnesis at a child with the defeat of different system. To draw conclusion in relation to probability of reasons of origin of this state, character of motion of disease.

Work 2

To learn to conduct the inspection of organs of the different system at the children of different age (review, palpation, percussion, auscultation)

Theme 2 practical employment

Work 3

To select main syndromes at children with the defeat of the different system.

Work 4

To discover and estimate the displays of different system and the diseases at the children of different age-dependent groups.

Theme 3 practical employment

A student must know:

1. Anatomic features of the system at the children of different age.

Functional features of the system at the children of different age.

Features of the system and anomaly them of development .

2. Method 'of objective 'inspection of the different system at the children of different age (review, palpation, percussion , auscultation).

Additional methods of research of the different system and their interpretation (laboratory and instrumental: sciagraphy, bronchoscopy and bronchography, tomography, spirometry, functional tests, analyses of bronchial maintenance).

3. Semiotics of defeat of the different system at children.

Syndrome of different insufficiency, its degrees. Syndrome of different disorders.

A student must be able: due to models of communication

Complaints and anamnesis taking

1. friendly facial expression and smile.

2. gentle tone of speech

3. greeting and introducing.

3 .by means of game playing find a contact with a child.

5 .tactful and calm conversation with the parents of sick child.

6 .explanation of future steps concerning the child (hospitalization ,some methods of examination ,etc)

7. conversation accomplishment.

Physical methods of examination

1.friendly facial expression and smile.

2. gentle tone of speech

3. greeting and introducing.

4.explain to the parents what examination should be performed and obtain there informed consent.

5.find a contact with a child, try to gain his/her confidence.

6.prepare for examination(clean and warm hands, warm phonendoscope, etc)

7.examination

8.explaining the results of examination to child s parents.

9.conversation accomplishment

Informing about the results of examination

1. friendly facial expression and smile.

2. gentle tone of speech
3. greeting and introducing
4. explain to a child and his/her parents what examinations should be performed and obtain their informed consent
5. involve adolescent and his/her relatives in to the conversation (compare present examination results with previous ones, clarify whether your expectations are clear for them or not)
6. conversation accomplishment.

Planning and prediction of conservative treatment results

1. friendly facial expression and smile.
2. gentle tone of speech
3. greeting and introducing
4. explain to child's parents the necessity of further treatment directions correctly and accessibly.
5. discuss with parents and their child the peculiarities of drug intake, duration of usage, side effects and find out whether they understand your explanations
6. conversation accomplishment

Informing about treatment prognosis

1. friendly facial expression and smile.
2. gentle tone of speech
3. greeting and introducing
4. correct and clear explanation of expected results of treatment.
5. discuss with the parents and their child the importance of continuous treatment, following the treatment scheme, make sure that your explanations are properly understood.
6. conversation accomplishment

1. To collect anamnesis and to select information which testify to the defeat of the different system of child?

2. To conduct 'the objective inspection of the different system at the children of different age.

To estimate the results 'of objective inspection of the different system taking into account age-old features.

To select the main syndromes of defeat of the different system.

To conduct the estimation of results of functional tests laboratory and instrumental researches of the different system at children.

3. To give urgent help to the child with the displays of different insufficiency at the different pathos's.

To organize the proper care of children with the defeat of breathing organs.

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Topic 16. Breastfeeding

Practical lessons 37-41

Practical lessons 37. Theme: Natural feeding. Lactation

Aim: To learn and understand the necessity and techniques of breast-feeding, quantitative and qualitative composition of the human milk. To know methods of daily volume food calculation and regime of feeding. To gain knowledge of introduction of additional foods to infants (weaning) and physiological correction of diet.

Professional necessity of the theme: Some women don't feel comfortable with the idea of nursing. They don't want to handle their breasts, or they want to think of them as sexual, not functional. They may be concerned about modesty and the possibility of having to nurse in public. They may want a break from child care to let someone else feed the baby, especially in the wee hours of the morning. So, it is very important that medical health care providers should be knowledgeable persons, which can help the nursing mother to initiate and keep breast-feeding.

Technique of realization of practical work

1. To know peculiarities of digestive tract of infants (anatomy, propaedeutics of child's diseases).
2. To know transitional conditions of neonate period (propaedeutics of child's diseases).
3. To know peculiarities of physical and neurological examination of a newborn child (propaedeutics of child's diseases).
4. To know main rules and techniques of breast and formula feeding of infants (propaedeutics of child's diseases).

1. Breast milk characterized by:

- a) great concentration of casein
- b) low concentration of lipas
- c) presence of immunologic protective factors
- d) presence of alfa-lactose

2. Preferences of breast-feeding in comparing with cow-milk feeding are:

- a) include great quantity of casein
- b) include beta-lactose
- c) great concentration of albumin
- d) high concentration of lipase
- e) presence of immunologic protective factors

3. Main difference between mothers milk and cow-milk:

- a) more high concentration of protein
- b) more lower concentration of protein
- c) more lower concentration of fat
- d) more higher concentration of fat
- e) more lower concentration of carbohydrates

4. What form (fraction) has protein in the breast-milk?
- a) albumin
 - b) globulin
 - c) casein
 - d) caseinogen
5. Main component of fats in the breast-milk is:
- a) glycerin
 - b) fat acids
 - c) cholesterol
 - d) triglycerides
 - e) stearine
6. What is the difference in Lactose concentration in breast milk and cow milk:
- a) higher
 - b) lower
 - c) equal
7. Concentration of P and Ca in the breast milk:
- a) 1:1
 - b) 1:2
 - c) 2:1
 - d) 1:3
 - e) 2:3
8. How long breast milk is staying in the newborn's stomach?
- a) 2-2,5 hours
 - b) 3-3,5 hours
 - c) 3,5 – 4 hours
 - d) 1,5 hour
9. How many times per day must be fed 6-month old child:
- a) 5 times
 - b) 7 times
 - c) 3 times
 - d) 4 times
 - e) 6 times
10. Daily requirement in protein for child in breast feeding before giving additional food in g/kg ?
- a) 1-2,0
 - b) 2,0-2,5
 - c) 3,0-3,5

- d) 4,0-4,5
- e) 4,5-5,0

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 16. Breastfeeding

Practical lessons 37-41

Practical lessons 38. Theme: Natural feeding. Additional food (complementary foods) and feeding correction.

Aim: To learn and understand the necessity and techniques of breast-feeding, quantitative and qualitative composition of the human milk. To know methods of daily volume food calculation and regime of feeding. To gain knowledge of introduction of additional foods to infants (weaning) and physiological correction of diet.

Professional necessity of the theme: Some women don't feel comfortable with the idea of nursing. They don't want to handle their breasts, or they want to think of them as sexual, not functional. They may be concerned about modesty and the possibility of having to nurse in public. They may want a break from child care to let someone else feed the baby, especially in the wee hours of the morning. So, it is very important that medical health care providers should be knowledgeable persons, which can help the nursing mother to initiate and keep breast-feeding.

Technique of realization of practical work

5. To know peculiarities of digestive tract of infants (anatomy, propaedeutics of child's diseases).
6. To know transitional conditions of neonate period (propaedeutics of child's diseases).
7. To know peculiarities of physical and neurological examination of a newborn child (propaedeutics of child's diseases).
8. To know main rules and techniques of breast and formula feeding of infants (propaedeutics of child's diseases).

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.
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Topic 16. Breastfeeding

Practical lessons 37-41

Practical lessons 39. Theme: Technique of formula feeding, criteria of its effectiveness. Child's daily need in energy, proteins, fats and carbohydrates in formula feeding.

Additional food and feeding correction in formula feeding

Aim: To learn medical and social aspects of formula feeding, to know safety techniques and used formulas, to be able to assess formula feeding adequacy and to make necessary correction.

Professional necessity of the theme: although there is an agreement among healthcare professionals, infant food manufacturers and mothers that breastfeeding is the best choice for feeding infants during their first four to six months of life, but there are several reasons why a mother cannot breastfeed her baby. In such cases pediatrician or family doctor must give recommendations how to feed a baby to guarantee his proper physical and psychomotor development. Dietary treatment is the adequate nutrition of a sick child that answers main caloric and energetic requirements up to peculiarities of metabolism and functional stage of digestive organs and the organism in whole. Using different restrictions, we can regulate the patient's metabolism and thus improve his condition. That is why it is very important to know how to organize a sick child's feeding.

Technique of realization of practical work

- 1 To know peculiarities of digestive tract of infants and children (anatomy, propaedeutics of child's diseases).
- 2 To know nutritional requirements of children of different age (course of nutrition, propaedeutics of child's diseases).
- 3 To know peculiarities of physical examination and assessment of nourishment of children (propaedeutics of child's diseases).
- 4 To know main types of inborn errors of metabolism (pathological physiology).
- 5 To know main types of metabolism (biochemistry).

6. To prescribe different menu for the children

Student must know

1. To know peculiarities of digestive tract of infants
2. To know transitional conditions of neonate period
3. To know peculiarities of physical and neurological examination of a newborn child .
4. To know main rules and techniques of formula feeding of infants .

Student should be able to

1.prescribe menu in formula feeding for the child of different age group

Complaints and anamnesis taking

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
- 4 .By means of game playing find a contact with a child.
5. Tactful and calm conversation with the parents of sick child.
6. Explanation of future steps concerning the child (hospitalization ,some methods of examination ,etc)
7. Conversation accomplishment.

Physical methods of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
4. Explain to the parents what examination should be performed and obtain there informed consent.
5. Find a contact with a child; try to gain his/her confidence.
6. Prepare for examination (clean and warm hands, warm stethoscope, etc)
7. Examination
8. Explaining the results of examination to child s parents.
9. Conversation accomplishment

Informing about the results of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech

3. Greeting and introducing
4. Explain to a child and his/her parents what examinations should be performed and obtain their informed consent
5. Involve adolescent and his/her relatives in to the conversation (compare present examination results with previous ones, clarify weather your expectations are clear for them or not)
6. Conversation accomplishment.

Literature:

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Topic 16. Breastfeeding

Practical lessons 37-41

Practical lessons 40. Theme: Technique of formula feeding, criteria of its effectiveness. Child's daily need in energy, proteins, fats and carbohydrates in formula feeding.

Additional food and feeding correction in formula feeding

Aim: To learn medical and social aspects of formula feeding, to know safety techniques and used formulas, to be able to assess formula feeding adequacy and to make necessary correction.

Professional necessity of the theme: although there is an agreement among healthcare professionals, infant food manufacturers and mothers that breastfeeding is the best choice for feeding infants during their first four to six months of life, but there are several reasons why a mother cannot breastfeed her baby. In such cases pediatrician or family doctor must give recommendations how to feed a baby to guarantee his proper physical and psychomotor development. Dietary treatment is the adequate nutrition of a sick child that answers main caloric and energetic requirements up to peculiarities of metabolism and functional stage of digestive organs and the organism in whole. Using different restrictions, we can regulate the patient's metabolism and thus improve his condition. That is why it is very important to know how to organize a sick child's feeding.

Technique of realization of practical work

- 1 To know peculiarities of digestive tract of infants and children (anatomy, propaedeutics of child's diseases).
- 2 To know nutritional requirements of children of different age (course of nutrition, propaedeutics of child's diseases).
- 3 To know peculiarities of physical examination and assessment of nourishment of children (propaedeutics of child's diseases).
- 4 To know main types of inborn errors of metabolism (pathological physiology).
- 5 To know main types of metabolism (biochemistry).
6. To prescribe different menu for the children

Student must know

5. To know peculiarities of digestive tract of infants
6. To know transitional conditions of neonate period
7. To know peculiarities of physical and neurological examination of a newborn child .
8. To know main rules and techniques of formula feeding of infants .

Student should be able to

- 1.prescribe menu in formula feeding for the child of different age group

Complaints and anamnesis taking

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
- 4 .By means of game playing find a contact with a child.
5. Tactful and calm conversation with the parents of sick child.
6. Explanation of future steps concerning the child (hospitalization ,some methods of examination ,etc)
7. Conversation accomplishment.

Physical methods of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
4. Explain to the parents what examination should be performed and obtain there informed consent.
5. Find a contact with a child; try to gain his/her confidence.
6. Prepare for examination (clean and warm hands, warm stethoscope, etc)

7. Examination
8. Explaining the results of examination to child s parents.
9. Conversation accomplishment

Informing about the results of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing
4. Explain to a child and his/her parents what examinations should be performed and obtain their informed consent
5. Involve adolescent and his/her relatives in to the conversation (compare present examination results with previous ones, clarify weather your expectations are clear for them or not)
6. Conversation accomplishment.

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Topic 16. Breastfeeding

Practical lessons 37-41

Practical lessons 41. Schemes of mixed feeding children of the first year of life. The milk formulas which are used for additional feeding. Additional food and feeding correction in mixed feeding. Child needs in proteins , fats, carbohydrates and calories in mixed feeding

Aim: To know the principles of dietary treatment on mix-feeding

Professional motivation: Mix-feeding – the feeding of the babies of first 5-6 mo with human milk and formula in which the volume of formula is more than 1/5 of daily volume (or the daily volume of the human milk is less than 4/5).

Technique of realization of practical work

9. To know peculiarities of digestive tract of infants (anatomy, propaedeutics of child's diseases).
10. To know transitional conditions of neonate period (propaedeutics of child's diseases).
11. To know peculiarities of physical and neurological examination of a newborn child (propaedeutics of child's diseases).
12. To know main rules and techniques of breast and formula feeding of infants (propaedeutics of child's diseases).
13. To know main rules and techniques of formula feeding of infants (propaedeutics of child's diseases).
14. To know main rules and techniques of mixed feeding of infants (propaedeutics of child's diseases).
15. To know principals and methods of evaluation of children's physical development. To know methods of neurologic and psychological development of children evaluation.

Programme of student's self-preparation.

There are two kinds of mix feeding:

Mix-feeding closed to breast-feeding

Mix-feeding close to formula feeding

Mix-feeding closed to breast-feeding – the feeding of the babies with human milk and formula in which the ratio between them in daily volume are 2:1 (or 2/3:1/3).

Mix-feeding close to formula feeding - the feeding of the babies with human milk and formula in which the ratio between them in daily volume are 1:2 (or 1/3:2/3).

Mix-feeding indication:

In causes of mother's diseases:

1. hypogalactia (oligogalactia);
2. Some diseases in that mother must decreased the quantity of feeding:
 - a. mastitis;
 - b. anemia of severe degree;
 - c. using of medicine (medicament);
 - d. erythroderma.
3. Human milk inferiority (fat's, protein's or carbohydrate's inferiority).

In social and living conditions

1. Mother is working and can't nurse a baby for all feeding.
2. Closed children institution in which the amount of donor human milk is not in enough quantity.

In causes of baby's diseases:

Congenital malabsorption syndrome: hypolactasia.

Test

Mixed feeding

1. Choose the term of giving fruit juices for the child on mixed feeding:
 - a) 2 weeks
 - b) 1 month
 - c) 3 month
 - d) 4 month
 - e) elder than 6 month
2. Advisable term of giving egg yolk for the child on mixed feeding:
 - a) from 3 month
 - b) 4 month
 - c) 5 month
 - d) 6 month
 - e) 7 month
3. What does it mean accessory feeding :
 - a) milk formula
 - b) vegetable puree
 - c) fruit juices
 - d) porridge
4. Advisable term of giving fruit puree for the child on mixed feeding:
 - a) 1month
 - b) 2 month
 - c) 3 month
 - d) 4 month
 - e) 5 month
5. Most better formula for mixed feeding 2-month baby:
 - a) "NAN"
 - b) "Detolact"
 - c) Acidofile milk
 - d) "Krepish"
 - e) easy formule N3
6. Clinical symptoms of fasting for child:
 - a) regurgitation
 - b) flat form of "weight curve"
 - c) rare urination
 - d) restlessness
 - e) frequent stools
7. "Control weighting" must be prescribed in situation:
 - a) hypogalactia in mother
 - b) restlessness

- c) fasting stools
- d) flat form of “weight curve”

8. “Control weighting” – it means measurement the weight of the child:

- a) in the evening before sleeping
- b) before feeding in the morning
- c) 3 times during a day
- d) every time after feeding
- e) before and after feeding

9. What are the components of easy formula:

- a) milk+ rice-water
- b) sour- milk
- c) milk+ water
- d) sour- milk + water
- e) milk+ sour- milk

10. What quantity of breast milk in daily ration need the child on mixed feeding near breast-feeding?

- a) 2/3 of daily ration
- b) 1/2
- c) 1/3
- d) 1/4

Right answer 1a-2a3a4a5b6-C7a,8C,9a.10a

Student must know

1 To know peculiarities of digestive tract of infants and children (anatomy, propaedeutics of child's diseases).

2 To know nutritional requirements of children of different age (course of nutrition, propaedeutics of child's diseases).

3 To know peculiarities of physical examination and assessment of nourishment of children (propaedeutics of child's diseases).

4 To know main types of inborn errors of metabolism (pathological physiology).

5 To know main types of metabolism (biochemistry).

6. To prescribe different menu for the children

Student should be able to

Due to communicative skills

Complaints and anamnesis taking

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
3. By means of game playing find a contact with a child.
5. Tactful and calm conversation with the parents of sick child.
6. Explanation of future steps concerning the child (hospitalization ,some methods of examination ,etc)
7. Conversation accomplishment.

Physical methods of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing.
4. Explain to the parents what examination should be performed and obtain there informed consent.
5. Find a contact with a child; try to gain his/her confidence.
6. Prepare for examination (clean and warm hands, warm stethoscope, etc)
7. Examination
8. Explaining the results of examination to child s parents.
9. Conversation accomplishment

Informing about the results of examination

1. Friendly facial expression and smile.
2. Gentle tone of speech
3. Greeting and introducing
4. Explain to a child and his/her parents what examinations should be performed and obtain their informed consent
5. Involve adolescent and his/her relatives in to the conversation (compare present examination results with previous ones, clarify weather your expectations are clear for them or not)
6. Conversation accomplishment.

Literature:

1. Nelson Textbook of Pediatrics [Text] / R. M. Kliegman, Joseph W. St. Jeme III [et al.] . - 22th ed. - Edinburgh [etc.] : Elsevier, 2024.- 4896 p.

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Topic 17. Metabolism in children

Practical lesson 42

The knowledge of age-specific peculiarities of energy, protein, carbohydrate, lipid, water-electrolyte and acid-base metabolism in children and their clinical manifestations by laboratory data is necessary for diagnosing metabolic disturbances. The knowledge about vitamins and their significance for development of the child is necessary for diagnosing hypo- and hypervitaminosis in children.

Concrete aims:

- to know peculiarities in energy, protein, carbohydrate, lipid, water, mineral and acid-base metabolism in children;
- to fulfil subjective and objective examinations of children with affection of metabolism;
- to recognize clinical signs of metabolic disturbances and diagnose their main syndromes;
- to interpret results of laboratory-instrumental methods of examination.

Tests

1. A 4-month-old boy is admitted to hospital with complaints about vomiting and frequent watery stool. The boy has been ill for 3 days. On admission, his general condition is severe. His body weight loss is 12%. Results of biochemical investigation of blood are as follows: haematocrit 63 %, protein 65 g/l.

The initial diagnosis is:

- a) gastroenteritis, hypotrophy;
- b) gastroenteritis, dehydration syndrome;
- c) gastroenteritis, polycythaemia;
- d) galactosaemia;
- e) hypotrophy, hypoproteinaemia.

2. A 7-year-old-girl is admitted to hospital with complaints about thirst, vomiting, abdominal pain, restlessness. On admission, her general condition is very severe. The girl is unconscious. Loss of her

body weight is 8 kg. The skin is pale. Decrease of turgor and elasticity is marked. Blood glucose is 12mmol/l, urine glucose is

2 %. Acetone ++++.

The initial diagnosis is:

- a) acute gastritis, hyperglycaemia;
- b) acute gastroenteritis, hyperglycaemia;
- c) diabetes mellitus, hypoglycaemic coma;
- d) gastritis, syndrome of acetonemic vomiting;
- e) myocarditis, hyperglycaemia.

3. A 14-year-old boy has been ill with diabetes mellitus for

3 years. After an injection of 15 units of insulin the child did not take any food. Ten minutes later the child becomes very pale and convulsions are noticed. At the moment of admission to **the hospital** the child was unconscious, with paleness of his skin, a decreased muscle tone and marked convulsions. Blood glucose is 1.2 mmol/L The initial diagnosis is:

- a) diabetes mellitus, hyperglycaemic coma;
- b) diabetes mellitus, hypoglycaemic coma;
- c) epilepsy, hyperglycaemia;
- d) autonomic dysfunction, hyperglycaemia;
- e) meningoencephalitis, hypoglycaemia.

4. A 3-month-old infant has the natural feeding. The child cannot keep up the head, does not smile. Periodical convulsions appeared 2 weeks ago. On admission to the hospital, a high level of phenylalanine was found in the child's blood.

The initial diagnosis is:

- a) meningitis, hyperphenylalaninaemia;
- b) meningitis, hypophenylalaninaemia;
- c) phenylketonuria;
- d) retardation of psychomotor development, hypophenylalaninaemia;
- e) epilepsy, hypophenylalaninaemia.

5. A 7-day-old newborn has vomiting, distention of the abdomen, watery stool 12 times a day after taking breast milk. On admission to the hospital, jaundice and enlargement of the liver were found (the liver border was palpated by 5 cm below the costal arch). It is known from the case history that the infant's father does not drink milk due to dysfunction of stool after taking milk.

The initial diagnosis is:

- a) gastroenteritis, conjugation jaundice;
- b) gastroenteritis, dehydration syndrome;
- c) galactosaemia;

- d) hepatatis;
- e) hypotrophia, dehydration syndrome.

6. A 4-month-old infant has artificial feeding with diluted cow's milk in proportion 1:1. Its body weight deficit is 25 %. On admission to the hospital, the blood protein was 48 g/l.

The initial diagnosis is:

- a) hypotrophy degree II, hyperproteinaemia;
- b) hypotrophy degree II, hypoproteinaemia;
- c) hypotrophy degree I, hyperproteinaemia;
- d) hypotrophy degree III, hypoproteinaemia;
- e) hypotrophy degree III, hyperproteinaemia.

7. A 7-month-old infant starts to have a dysfunction of its intestines, distention of the abdomen, watery stool after introduction of semolina and bread. The infant lost 800 g of weight. On admission to the hospital the infant was examined, Ht was 62 %, protein = 42

The initial diagnosis is:

- a) hypotrophy degree II, gastroenteritis;
- b) hypotrophy degree II, dehydration syndrome;
- c) celiac disease;
- d) gastroenteritis, hypovolemia;
- e) hypotrophy degree II, hypoproteinaemia. Answer: 1 - b, 2 - c, 3 - d, 4 - c, 5 - c, 6 - b, 7 -c.

Literature:

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