Lecture complex

Name of discipline: "Propaedeutics of childhood diseases-1"
Code of discipline: PChD-3205-1
Name of EP: 6B10101 «General Medicine»
Amount of training hours /credits: 120h. (4 credits)
Course and semester of study: 3 course, V-VI semester
Amount of lectures: 10

Shymkent 2023 y.

Lecture complex is designed in accordance with the Modular curriculum «Person and disease» of the EP 6B10101 «General Medicine» and discussed at the meeting of the Department.

Protokol № 11 of 23.06.2023y.

Head of the Department, PhD **K.S. Kemelbekov**

№1

1.Theme: Introduction to propaedeutic of children`s diseases. Periods of childhood. Physical development. Scheme of the medical history. Questioning and General examination of sick children of different age groups.

2.Purpose: to master the periods of childhood, physical development, the scheme of the medical history, the principles of questioning and General examination of children of different age groups

3. Lecture theses:

Propaedeutic of children's diseases is the basic knowledge of Pediatrics, which deals with:

- age features of growth, development, formation of all systems of the child's body.
- features of the method of examination, palpation, percussion, auscultation in children.
- scope of examination of patients with diseases in childhood. semiotics of the main lesions of various systems and the body as a whole.
- clinical interpretation of the obtained data of General and additional examination of patients.
- principles of rational nutrition of children and principles of healthy lifestyle

ESTIMATION OF PHYSICAL DEVELOPMENT

Estimation of physical development has the special value in child's age. For estimation of physical development except measuring of length and mass of body, it is necessary to determine the head and chest circumference, proportions of child’s body and calculate the some indexes that allow giving the objective estimation of physical development of this child.

Observation: Child's facial expression (pain), response to social overtures. Interaction with caretakers and examiner. Body position (leaning forward in sitting position; epiglottitis, pericarditis). Weak cry (serious illness), high- pitched cry (increased intracranial pressure, metabolic disorder); moaning (serious illness, meningitis), grunting (respiratory distress).

Vital Signs: Respiratory rate, blood pressure, pulse, temperature.

Measurements: Height, weight; head circumference in children 2 years; plot on growth charts and determine growth percentiles.

Skin: Cyanosis, jaundice, pallor, rashes, skin turgor, edema, hemangiomas, café au lait spots, nevi, Mongolian spots, hair distribution, capillary refill (in seconds).

Lymph Nodes: Location, size, tenderness, mobility and consistency of cervical, axillary, supraclavicular, and inguinal nodes.

Head: Size, shape, asymmetry, cephalohematoma, bossing, molding, bruits, fontanelles (size, tension), dilated veins, facial asymmetry

Eyes: Pupils equal round and reactive to light and accommodation (PERRLA); extraocular movements intact (EOMI); Brushfield's spots; epicanthic folds, discharge, conjunctiva; red reflex, corneal opacities, cataracts, fundi; strabismus (eye deviation), visual acuity.

Ears: Pinnas (position, size), tympanic membranes (landmarks, mobility, erythema, dull, shiny, bulging), hearing.

Nose: Shape, discharge, bleeding, mucosa, patency.

Mouth: Lips (thinness, downturning, fissures, cleft lip), teeth, mucus membrane color and moisture (enanthem, Epstein's pearls), tongue, cleft palate.

Throat: Tonsils (erythema, exudate), postnasal drip, hoarseness, stridor. Neck: Torticollis, lymphadenopathy, thyroid nodules, position of trachea.

Thorax: Shape, symmetry, intercostal or substemal retractions. Breasts: Turner stage, size, shape, symmetry, masses, nipple discharge, gynecomastia.

Lungs: Breathing rate, depth, expansion, prolongation of expiration, fremitus, dullness to percussion, breath sounds, crackles, wheezing, rhonchi.

Heart: Location of apical impulse. Regular rate and rhythm (RRR), first and second heart sounds (S1, S2); gallops (S3, S4), murmurs (location, position in cycle, intensity grade 1-6, pitch, effect of change of position, transmission). Comparison of brachial and femoral pulses

4. Illustrative material:presentation in 24 slides

5. Literature:

Basic:

1. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p
2. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p.
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Additional:

1.Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015.
2.Joseph J.Zorc Schwartz`s “ Clinical Handbook of Pediatrics” fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. List the periods of childhood.
2. Name the sections of the medical history (IB).
3. What are the rules of anamnesis.
4. What are the two groups are divided patient complaints at admission?
5. Define the main and secondary complaints.
6. List the rules of the General inspection.
7. List the sequence of the General inspection.
8. What is included in the concept of "anthropometric data"? How to calculate Quetelet index (body mass index). What are the normal Quetelet index, as well as obesity of varying degrees.
9. How does the "history of the underlying disease" end?

№ 2.

1. Theme: Questioning, examination, palpation and percussion of sick children of different age groups with respiratory system pathology. Diagnostic value.

2. Purpose: to master the methods of physical examination of respiratory organs in healthy and sick children. Rules and techniques of palpation and percussion of respiratory organs in children

3. Lecture theses:

EXAMINATION OF THE RESPIRATORY SYSTEM

The objective examination of the respiratory tract is carry out by inspection, palpation, percussion and auscultation.

INSPECTION: General inspection begins from the face, and then doctor examines the thorax. Pay attention on child's breathing: whether the child breathes through a mouth or a nose, whether there are discharges from a nose and their character, whether there is an inflating of nose wings. It is important to note the color of skin. At presence of cyanosis specify a degree of its expressiveness, is it constant or periodical (appears at a suction, cry of the child, at physical strain). Cyanotic discoloration often appears only in the zone of nasolabial triangle (especially for little children) – perioral cyanosis.

PALPATION: the state of skin in the field of thorax (local sweating, hyperesthesia, edema) is determined by palpation. The palpation is made by both hands by stroking: hands are put on symmetric researched sites of a chest. Define a resistance (elasticity) of a chest by squeezing it by both hands in front to back and from sides. Backlog of one half of thorax in the act of respiration may be defined, putting fingers at angles of scapulas. The palpation allows finding out also a place and a degree of painfulness of a chest.

Palpation is used also for determination of the vocal tremor (fremitus). It is necessary to put hands on a chest symmetrically from both sides. Doctor asks the child say words such as «one-two-three», «forty three», for a little child use weeping. The vibrations of chest, stipulated by the voice vibration, are thus detected. In a norm the vocal fremitus is symmetric; however it is more expressed in the top parts of chest, especially in the right side.

PERCUSSION: At percussion of lungs the special attention should be paid on the correct position of the child providing a symmetric position of a chest. The front surface of a chest of the early age children is more convenient to percussion in a lying position on the back; the back is percussed in a sitting position, thus a child needs to be supported. Older children are percussed in a standing position.

TOPOGRAPHICAL PERCUSSION: the finger- plessimeter is put parallel to the sought border, in the intercostal space. It is necessary to percuss down in intercostal spaces. Definition of the lower borders of lungs begins with right lung on medioclavicular, axillary and scapular lines. Then define the lower borders of left lung on axillary and scapular lines. A mark of border make on the side of a finger - plessimeter inverted to a clear sound.

Definition of height of standing of lung apexes begins in front. Doctor puts finger - plessimeter above a clavicle, makes percussion, moving a finger - plessimeter upwards till the sound becomes shorter (to dullness). Normally this site is on distance of 2-4 cm from the middle of clavicle. The border is marked on the side of the finger-plessimeter turned to the clear sound. From behind percussion of apexes is executed from spina scapulae upwards up to dullness. Normally the height of lights tops standing behind is defined on the level of acanthus of VII cervical vertebra. For children of the preschool age (till 7 years) the upper border of lungs is not defined, since the light apexes do not leave for a clavicle.

COMPARATIVE PERCUSSION: anatomically equal located regions of lungs are compared with right and left sides: on medioclavicular, axillary, scapular and paravertebral lines (percussion isn't executed on the left side above the heart region). The finger-plessimeter above the all regions of lungs is situated in parallel the ribs. Only in the interscapular region it is parallel the spine.

At presence of an exudate in pleura the border of dullness is located on the line of Ellis-Damoiseau-Sokolov. It is a parabolic line, which lasts from a backbone upwards up to a back axillary line, then goes to forward. Simultaneously above exudate the triangular space of clear percussion sound is detected. This space is limited by spine, upper dullness border and direct horizontal line, connecting the highest dullness point on a scapular line with spine, and called the Garland's triangle. This is an area of collapsing lung.

On the healthy side the dullness (because of mediastinum displacement) as paravertebral triangle Rauchfus-Grocco is found out. Its top corresponds to the upper border of exudate. The line of the spine forms the other side of this triangle. The base of triangle is a lower border of healthy lung.

Accumulation of liquid in left pleural cavity also gives blunting in the region of Traube's semilunar space, limited from the top by heart dullness, from below – by a costal margin, from sides – by a liver and spleen. In this region a healthy child usually has tympanitic resonance. For determination of the line of Ellis-Damoiseau-Sokolov, Garland's triangle and triangle of Grocco percussion is carry out on the back surface on vertical lines, beginning from the back axillary lines to spine. In connection with significant difference of percussion sound, percussion above the scapulaes is possible.

4. Illustrative material:presentation in 25 slides

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6. Control questions (feedback):

1. Types of breathing in children of different ages.
2. Features of examination of the chest in children of different ages. Pathological changes detected during a General examination of a child with respiratory pathology.
3. The technique of palpation of the chest.
4. Semiotics of changes detected by palpation. Causes of chest rigidity, strengthening and weakening of voice tremor.
5. Chest percussion technique in children of different ages.
6. Features of comparative and topographic lung percussion in children of different ages.
7. Methods for determining lung excursion, mobility of the lower pulmonary edge.

№3.

1.Theme: Auscultation of the lung is normal and pathological in children. Diagnostic value.

2.Purpose: to master methods of auscultation of lungs in norm and pathology in children

3.Lecture theses:

AUSCULTATION: To make auscultation the child, as well as to make percussion, is possible in any position - standing, sitting, lying. It is better to auscultate seriously ill patients in lying position. Symmetric regions are auscultated: apexes, anterior surface of lungs, axillary regions, behind - above scapulas, paravertebral regions, under scapulas. First of all, at auscultation it is necessary to define character of the basic respiratory noise and then to estimate supplementary noises.

In children till 3-6 months the weakened vesicular respiration is listened, from 6 months till 5-7 years the puerile respiration, which essentially is the strengthened vesicular respiration, is listened. It is louder and longer noise in both phases of respiration. Appearance of the puerile respiration for children is explained by the features of the structure of respiratory organs.

For children elder then 7 years respiration gradually assumes the vesicular character: reminds the soft sound «f», the exhalation makes one third of inspiration. For healthy children above a larynx, trachea, large bronchus, in the interscapular region at the level of the III–IV pectoral vertebra the bronchial (tracheal) respiration is auscultated. It also called tracheal or laryngeal respiration and reminds the sound «h». Expiration is louder and longer than inspiration.

Pathological changes of respiration:

1. rough respiration is the rough vesicular respiration with a prolonged expiration (an expiration is longer than one third of inspiration) – testifies to a lesion of small bronchi, observes at bronchitis and pneumonias;
2. bronchial respiration (if it is auscultated in not typical regions) – indicates on consolidation of pulmonary tissue, observes at segmental and lobar pneumonias, abscess of lung;
3. weakened of vesicular respiration – observes at weakening of respiratory act with reduction of air inflow into the lung alveolus, considerable bronchiospasm, obstructive syndrome, compression of the pulmonary tissue by anything, loss of elasticity of pulmonary tissue; insufficiency of respiratory movements;

4. strengthening of vesicular respiration – at narrowing of small bronchi (strengthening takes place due to expiration), at compensatory strengthening on healthy side in a case of pathological processes on other.

At auscultation it is possible to hear the rales. There are distinguished the dry (whistling, buzzing etc.), moist (coarse, medium and fine). Large bubbling rales are observed only for elder children. It is necessary to distinguish the rales, appearing in pulmonary tissue and conducted from upper air passages. For differentiation it is necessary to use the followings properties of the conducting rales: they are well audible above a nose and mouth, well conducted above the scapulas and transverse processes of thoracic vertebra, disappear or decrease after coughing. At auscultation of the rales it is necessary to define their localization, quantity and character, a phase of an auscultation (on an inspiration or expiration).

At auscultation it is also possible to define of crepitation and pleural friction rub.

Crepitation - a supplementary noise, appearing at sonorous unstick of alveolus at inspiration. Crepitation reminds the crack of cellophane or rustling sound, arising up at grinding of bunch of hairs by fingers near the ear. In contrast to rales, crepitation is the stable sound phenomenon (does not change after expectoration).

Pleural friction rub is a supplementary noise, arising up at the dry pleurisy. It is auscultated in both phases of breathing, can be quiet, tender, or, vice versa, rough, loud, as scraping. It is often auscultated locally in the places of maximal respiratory excursions (inferior lateral parts of the chest). Pleural friction rub is auscultated as a sound, arising at the surface of chest, increasing at pressing by stethoscope. Pleural friction rub does not change after a cough, continues to be heard at minimum breathing. For determination of the pleural friction rub doctor asks a child to take a deep breath, close a mouth and nose by hand, after that to make motion of diaphragm and ribs, as at breathing. Thus rales and crepitation disappear and pleural friction rub remains.

Bronchophony – vocal resonance (increased conducting of sound, connected with the consolidation of lung tissue) also can be determined by auscultation.

Symptom of d'Espin: auscultation is carry out above the spinous process of vertebra, beginning from 7-8th thoracic vertebra from top to down during the child's whisper (words «kiss-kiss», «ninety-nine»). Normally there is the strengthening of the sound conducting in the region of the second spinous process of vertebra for little children, for elders children - on the level of 3-4th spinous process of vertebra (symptom is negative). In the case of the lymph nodes increasing in the region of tracheal bifurcation the voice conducting is improved below the specified vertebrae (symptom is positive).

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6. Control questions (feedback):

1. Name the founder of auscultation.
2. Rules of auscultation.
3. Mechanism of formation of laryngotracheal respiration. The place of listening to the breathing normal. Sound characteristic, the ratio of inhalation and exhalation.
4. The mechanism of formation of normal (vesicular) respiration. Sound characteristic, the ratio of inhalation and exhalation.
5. Research methodology bronchophony. Normal performance in children.

№4.

1.Theme: Questioning, examination, palpation and percussion of sick children of different age groups with pathology of the cardiovascular system. Diagnostic value.

2.Purpose: to master the technique of questioning and examination, palpation and percussion of sick children of different age groups with pathology of the cardiovascular system.

3.Lecture theses:

INSPECTION: usually begin from the face and neck of patient, pay attention on the color of skin - presence of cyanosis, pallor.

Examine an apex beat - the periodic rhythmical pulsation of a thorax in the field of heart apex in the moment of the heart systole. Often, especially in obese children, an apex beat can be not visible. It is well seen in children - astenics with badly advanced subcutaneous fat layer. In healthy children depending on age the apex beat may be posed in 4-th (in breast children) or in 5-th intercostals, 1-2 cm lateral to the medioclavicular line (till the age of 7 years), or on it (7-12 years), or little middle from the left mediclavicular line (after 12 years). The area of an apex beat should not exceed 1-2 cm ^{2}. A negative apex beat, which is characterized by retraction of intercostal space during a systole in the field of an apex beat, can be observed in pathology. The cardiac thrust - concussion of a thorax, which is observed in the field of the heart and spreaded on a breastbone and epigastria. It is caused by pulsation of hypertrophic heart and, mainly, adjoining to the thorax right ventricle. In healthy children the cardiac thrust is not observed.

PERCUSSION: is carried out in the vertical or horizontal position of the patient. There are distinguished immediate and mediate percussion of heart. At mediate percussion the finger-plessimeter is closely put to the chest, parallel to the determined border, on direction from a clear sound to dull one, percussion can be mean force and the most silent. An important point is drawing percussion strictly in a direction in front to back (concerning a body of the child). Marking of the heart border is carried out on the external border of the finger-plessimeter, turned to the clear pulmonary sound. Order of percussion: right, upper, left borders of heart. In absence of pathology it is difficult to determine the borders of absolute dullness of heart for children, therefore they practically are not percussed.

Determination of the right border of relative heart dullness: the finger-plessimeter puts in the second intercostals on the right medioclavicular lines. Moving the plessimeter-finger from top to bottom on ribs and intercostals, by silent percussion one defines the lower border of lung. Then a doctor transfers the finger-plessimeter on one intercostal space above, terns it on 90 degrees, placing it parallel to right border of cardiac dullness. While making of the percussion impact of average force, one moves the finger-plessimeter on intercostals in the direction of heart before occurrence of dullness. At estimation of the right border the distance from the right border of breastbone must be specified.

Determination of upper border of relative heart dullness: the finger-plessimeter is put in the left parasternal line, starting from the first intercostal space. The doctor moves a finger consistently on ribs and intercostal spaces downward, a percussion step is equal to the width of finger. A mark of the top border make on the top edge of a finger.

Determination of the left border of relative heart dullness: find an apex beat and percuss on according intercostal, starting from a media-axillary line, the plessimeter-finger it is necessary to place parallel to determined border, and impact should make strictly in front to back direction, i.e. in sagittal planes.

4. Illustrative material: presentation in 24 slides

5. Literature:

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6. Control questions (feedback):

1. List the complaints of patients with diseases of the cardiovascular system.
2. What changes can be detected when examining the heart area?
3. Method of palpation of the apical impulse. Detailed characteristic of the apical push. What part of the heart is formed by the apical impulse? It changes with different pathologies.
4. Palpation technique of cardiac impulse. What are the reasons that led to the possibility of detecting a heart attack.
5. Palpation of the great vessels.

№5.

1.Theme: Research methods of large and peripheral vessels in children. Diagnostic value. Auscultation of the heart is normal and pathological in children. Diagnostic value.

2.Purpose: to master to students methods of research of large and peripheral vessels and their diagnostic value, to master the rules and techniques of auscultation of the cardiovascular system in children.

3.Lecture theses:

Pulse can be researched in children in several places: for little children - on carotid, temporal, femoral carotids; for elder children - on radial arteries. Pulse on radial arteries should be felt simultaneously on both arms. At absence of a difference of pulse (pulse is synchronous) the further research is carried out on one arm. The child’s arm is placed at the level of his heart in the relaxed state. Doctor takes the hand of child by the right hand in the field of a radiocarpal joint, from the backside, the 1st finger is on the ulnar side of the child’s arm, the 2-nd and 3-rd fingers palpate an artery.

Distinguish the following characteristics of pulse: rate, rhythm, tension, filling, size and the form.

Pulse rate (PR) is determined by palpating not less than during one minute, simultaneously heart rate (HR) is established by palpating apex beat or by auscultation of heart. The phenomenon, at which there is a difference between HR and PR, has the name deficiency of pulse.

Rhythm of pulse is estimated on uniformity of intervals between the beat of the pulse. There are distinguished a rhythmic (regular) and arrhythmic (irregular) pulse. Sometimes arrhythmia of pulse can be connected with respiration (PR increases on inspiration and decreases on expiration). The phenomenon is physiological for children from 2 to 10 years, named a respiratory arrhythmia. The breath holding excludes this kind of an arrhythmia.

Tension of pulse is determined by force, which is necessary for squeezing a pulse till its disappearance. There are distinguished the normal tension pulse, hard pulse and soft pulse.

Research of pulse filling is executed by two fingers: after squeezing an artery the distal located finger is got the feeling of filling of an artery by a blood. On filling there are distinguished the pulse of the satisfactory filling, full pulse (filling more than ordinary) and empty (filling less than ordinary).

Size of pulse – conclusion about this parameter is made by the doctor on the basis of tension and filling of pulse. There are distinguished: pulse of a normal size, a large pulse (pulsus magnus) and small pulse (pulsus parvus).

The form of pulse is determined by spreed of rise and descent of pulse wave (by moderate squeezing an artery by both fingers). Pulse may be the usual form, swift (fast rise and recession of pulse wave) and slack (slow rise and recession of pulse wave).

The properties of an apex beat are specified by palpation. For this purpose the doctor put a palm of right hand to the left edge of a breastbone that fingers covered area of an apex beat. Then doctor continues palpation by slightly bent 4 fingers of right hand. Properties of an apex beat: localization, the area (extension), height (magnitude), force (resistance). In healthy child the area of an apex beat is 1-2cm ². The height is characterized by amplitude of vibrations in the field of apex beat. There are distinguished a high and low apex beat. The force of apex beat is measured by pressure, which it renders on fingers. There are distinguished the moderate, strong and weak force.

The symptom of «cat's purring» (systolic or diastolic tremor) is determined by palpation. For this purpose, it is necessary to put a palm on all region of heart. In the same way sometimes it is possible to palpate of the pericardial friction rub.

AUSCULTATION:

Points and order of auscultation:

1. Area of an apex beat (an auscultation of the sound phenomena from the mitral valve).
2. The second intercostal space on the right edge of a breastbone (auscultation of the sound phenomena from the aortal valve).
3. The second intercostal space on the left edge of a breastbone (an auscultation of the sound phenomena from valves of a pulmonary artery).
4. The lower third of breastbone in a place of attachment of xiphoid process, a little right from middle line (a projection of the tricuspid valve).
5. Botkin-Erb's point – at the level of 3-4-th intercostals space at the left edge of a breastbone (an additional point of an auscultation of the sound phenomena of aortal valves).

Whole heart region should be auscultated for children, as well as the vessels of necks, axillary, subclavicular, epigastric regions and the back.

Physiological (innocent) heart murmurs

The mechanical activity of a healthy heart-its contractions and relaxation are accompanied by the formation of sound phenomena – tones and noises.

The tones of healthy children are characterized by good audibility and sonority over the entire surface of the heart. This is facilitated by a relatively thin-walled chest and a greater intensity of tones compared to adults. They are somewhat muted in newborns, especially in the first days of life. For healthy newborns, embryocardia is also characteristic in the first two weeks of life, characterized by a rapid rhythm with equal intervals between I and II, II and I tones, when the tones resemble the beats of a pendulum

The first tone is heard more clearly at the top of the heart.

On the pulmonary artery in most children, the accent of the II tone and its cleavage is noted. This is a normal phenomenon and it is due to the fact that children have a relative predominance of the right parts of the heart, the rotation of the heart axis to the right, the mouth of the pulmonary artery is closer to the chest. In addition, the lumen of the pulmonary artery in children, unlike adults, significantly prevails over the lumen of the aorta. Alignment of the aortic and pulmonary artery lumen occurs at the age of 10, after which the aortic lumen begins to prevail.

Normal should be considered splitting accentuated II-tone on the pulmonary artery in children up to 10-12 years of age. And this is explained by the fact that the aortic and pulmonal component of the II-th tone are perceived by the ear of the doctor separately.

In healthy children, the III-th tone is often heard immediately after the II-th tone. He is listened to mainly in children of preschool and younger school age, punctum maximum (best listening) on top of a few inside from the apical impulse, especially in children with low nutrition, General hypotonia of the muscles, with symptoms of vagotonia after suffering a febrile illness.

Changing the tones of the heart. Heart tones can vary in sonority: - weakening; - strengthening, both tones (I and II), and separately taken, i.e I or II.

Weakening of I and II tone. Causes (extracardial): - in persons with an excessively developed subcutaneous fat layer (obesity); - in persons with a well - developed muscle layer; - in lung pathology (left-sided hydrothorax, emphysema of the lungs). Causes (cardiac): - myocarditis; - myocardial infarction; - exudative pericarditis; - myocardiodystrophy

Gain I and II tone. Normally: - in persons asthenic Constitution type; - in persons with underdeveloped muscle and subcutaneous fat layer; - in children. Extracardial causes: - pneumosclerosis; - large cavity in the lower lobe of the left lung; - large gas bubble of the stomach; - decrease in blood viscosity (anemia); - thyrotoxicosis; - physical activity.

Increase the number of listened tones. Splitting and bifurcation of heart tones. Heart tones are composed of several components, perceived by us as a single sound due to their simultaneity. Under certain conditions (both physiological and pathological), this synchronicity can be broken, and then instead of one tone, two separate sounds can be heard. If the pause between them is barely perceptible, they talk about splitting the tone, if it is distinct - about bifurcation.

Heart murmurs in children, as well as tones, are heard more sonorously and clearly. Noises are distinguished by intensity (loudness), timbre, duration, point or zone of maximum audibility, connection with systole or diastole, area of primary conduction. On the basis of a complex of these characteristics and other data of direct and instrumental research make a conclusion about the mechanisms of noise, its organic or functional nature.

4. Illustrative material:presentation in 28 slides

5. Literature:

Basic:

1. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p

2. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p. Mazurin, A. V. Propaedeuutics of childhood diseases. 3 volume [: textbook / - Almaty: "Evero" , 2017. - 140 p.

3. Mazurin, A. V. Propaedeutics of childhood diseases. 4 volume: textbook / - Almaty: "Evero" , 2017. - 120 p.
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7. Issayeva, L. A. Childhood diseases. IV part [: textbook / - Almaty : "Evero" , 2017. - 185 p.

Additional:

1.Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015.
2.Joseph J.Zorc Schwartz`s “ Clinical Handbook of Pediatrics” fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1.Palpation of the great vessels.
2. Features of the pulse in children, depending on age and sex, changes in the properties of the pulse in various pathological conditions.
3. The ratio of heart rate and respiration.
4. Methods of measuring blood PRESSURE on the hands and feet, the normal values of blood PRESSURE in children of different ages.
5. Formula for calculating blood pressure in infants.
6. In what period of the cardiac cycle occurs the first heart tone?
7. List the phases of systole. In which phase there is the first heart tone?
8. What are the components of the first heart tone? What does each component mean?
9.At what point of auscultation is the first heart tone characterized?
10. In what period of the cardiac cycle there is a second heart tone?
11. List the phases of diastole. In which phase there is the second heart tone?
12. What are the components of the second heart tone? What does each component mean?
13. At what points of auscultation is the second heart tone characterized?
14. In what phase of the diastole occurs the third tone of the heart? Give the frequency and time characteristic of the third heart tone.
15. In what phase of diastole does the fourth tone of the heart occur? Give the frequency and time characteristic of the fourth heart tone

№6.

1.Theme: Research methods of sick children of different age groups with pathology of digestive system. Diagnostic value.

2.Purpose: to master the methodology of research of sick children of different age groups with pathology of the digestive system

3.Lecture theses:

INSPECTION: begins from abdomen and finish (in little children) by inspection of oral cavity. Inspection of abdomen is executed in horizontal and vertical positions. Pay attention on the form of the abdomen, its size, symmetry, presence of visible gastric and intestinal peristalsis, participating

in breathing. Condition of skin on abdomen, tension of skin, its luster, vasculature, state of umbilicus (inverted, smoothed, protruding) are important. Inspection of anus is obligatory for identification presence of fissures, prolapsed rectum and incompletely closed anus.

PALPATION: for correct palpation doctor sits on the right from patient. Child must lay on the back with the legs slightly bended in hip and knee joints, hands must be extended along the body, head must be on the same level with body. It is desirable to divert child's attention.

Palpation of the large intestine:

Palpation of the sigmoid colon: the doctor's right hand is put palm down with slightly bend fingers on the left iliac region, perpendicular to the length of the sigmoid colon. By the surface motion of fingers skin is moved medially, on expiration the fingers gradually penetrate into abdomen. Then execute the gliding hand motion in toward perpendicular to the longitudinal axis of colon.

Palpation of the caecum: palpation technique is the same, as for palpation of the sigmoid colon, but it is executed in the right iliac region. Direction of the caecum is from top to down and from right to left. Simultaneously with the blind gun appendix is palpated.

Palpation of liver:

There are distinguished two basic methods of liver palpation: superficial sliding palpation by Strazhesko and deep palpation by Obraztsov.

Method of the superficial sliding palpation of liver: patient's position is on the back with legs slightly bended in knee joints, hands are along of a body or lie on a chest. The fingers of palpating hand are on one line, parallel the low border of liver, and make light sliding motion from top to down. It is necessary to touch by sliding motions of all surface of liver accessible for palpation. More often the sliding method of liver palpation is used for the breast children.

Bimanual palpation of liver by Obraztsov: right palpating hand lies on the right half of the abdominal wall palm down; left hand covers the right half of chest in a lower region. Leaving a right hand, deeply entered in the abdominal region at expiration, ask child to take a deep breath. At inhalation the palpating hand is taken out from the abdominal region in direction forward and upwards. Thus the lower border of liver, sliding downward, seeks to go round the palpating fingers, and at this moment the form and outlines of the lower border of liver, its consistency and painfulness are determined.

Kerr's point or point of the gall-bladder projection is located on crossing of the outward border of rectus muscle of abdomen with the right costal margin. At liver and cholecyst affection is a positive Kerr's symptom: tenderness at deep palpation in the region of gall-bladder.

PERCUSSION. Percussion of abdomen is executed in horizontal position toward from umbilicus to the right and to the left (finger-plessimeter is located parallel the white line of abdomen) and in vertical position toward from the top to down in the region of rectus muscle of abdomen or on its external border (finger-plessimeter is located parallel the lower line of abdomen). There are following tones of percussion sound: moderate tympanitis (normal), dullness (ascites, pseudoascites, tumor) and high tympanitis (meteorism).

AUSCULTATION OF ABDOMEN: at auscultation of abdomen in healthy child you can hear the intestinal peristalsis; intensity of these sound phenomena is moderate. At pathology the sound phenomena can increase, become weaken or disappear.

4. Illustrative material:presentation in 25 slides

5. Literature:

Basic:

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7. Issayeva, L. A. Childhood diseases. III part [: textbook / - Almaty : "Evero" , 2017. - 140 p.
8. Issayeva, L. A. Childhood diseases. IV part [: textbook / - Almaty : "Evero" , 2017. - 185 p.

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2.Joseph J.Zorc Schwartz`s “ Clinical Handbook of Pediatrics” fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. The method of questioning a patient with a disease of the digestive system.
2. Topographic lines of the abdomen. Projections of internal organs on these areas.
3. Examination of the tongue and mouth.
4. Method of determination of free fluid in the abdominal cavity (ascites): method of fluctuation, percussion.
5. Technique for determining the lower border of the stomach (percussion, "splash noise"method). The location of the lower border of the stomach is normal.
6. Methods of surface indicative palpation of the abdomen. Rules palpation. The objectives of the superficial indicative palpation of the abdomen.

№7.

1.Theme: Research methods of sick children of different age groups with pathology of the genitourinary system. Diagnostic value.

2.Purpose: to master the technique of examination of sick children with pathology of external genitals

3.Lecture theses:

INSPECTION: Pay attention on the color of skin, pallor, edema (especially on eyelids), face puffiness, form and size of abdomen (particularly in lumbar region). It is necessary to examine also a scrotum and externals. For detecting of the invisible edema patient is systematically weighed. Edema dui to tissue hydrophilicity is also detected the by the method of the "blister test" by

McClure- Aldrich. For this purpose 0.2 ml of isotonic solution of sodium chloride is intracutaneously injected in the forearm whereupon a blister appears on skin. For healthy children of the first year of life the blister dissolves during 15-20 min., for children from 1 to 5 years - during 20-25 min., for elder children - after 40 min.

4. Illustrative material:presentation in 26 slides

5. Literature:

Basic:

1. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p
2. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p.
3. Mazurin, A. V. Propaedeuutics of childhood diseases. 3 volume [: textbook / - Almaty: "Evero" 2017. - 140 p.
4. Mazurin, A. V. Propaedeutics of childhood diseases. 4 volume: textbook / - Almaty: "Evero" , 2017. - 120 p.
5. Issayeva, L. A. Childhood diseases. I part [: textbook / - Almaty : "Evero" , 2017. - 144 p
6. Issayeva, L. A. Childhood diseases. II part] : textbook / - Almaty : "Evero" , 2017. - 170 p.
7. Issayeva, L. A. Childhood diseases. III part [: textbook / - Almaty : "Evero" , 2017. - 140 p.
8. Issayeva, L. A. Childhood diseases. IV part [: textbook / - Almaty : "Evero" , 2017. - 185 p.

Additional:

1.Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015.
2.Joseph J.Zorc Schwartz`s “ Clinical Handbook of Pediatrics” fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. Complaints made by patients with diseases of the genitourinary system.
2. The nature of pain in diseases of the genitourinary system
3.General examination of patients with genitourinary system in children is carried out as follows.
4. Additional methods of examination in diseases of the genitourinary system in children.

№8.

1.Theme: Research methods of sick children of different age groups with pathology of the urinary system. Diagnostic value.

2.Purpose: to master the technique of examination of sick children with pathology of urinary system

3.Lecture theses:

PALPATION OF KIDNEYS is executed by bimanual deep palpation by Obraztsov in horizontal and vertical (mainly for elder children) position. Child lies on the back with mildly bent legs. The doctor’s left hand with put together fingers is under the patient’s lumbar region on the level of XII rib. The right hand is acted from the rectus muscle of abdomen on the level of costal

margin. The gradual approaching of the hands is executed till the front and back abdominal walls will touch. At achievement of touch child is asked to make a deep inspiration – the lower pole of the kidney is palpated. Herewith define its relief, surface and tenderness. Palpation in standing position (Botkin's method) is executed at forward bending of body, arms are descent. The doctor's left hand is on the child's lumbar region, right hand is acted from the rectus muscle of abdomen on the level of costal margin. Procedure of palpation is the same, like in lying position. For breast children other procedure of palpation of kidneys can be used, when palm of hand is situated thereby that the doctor's first finger lies frontal, in the region of hypochondrium, and 4 other fingers are behind, on the lumbar region. Approaching fingers and moving hand from below upwards, it is possible to palpate a kidney.

The kidneys can be palpated only for early age children (before 2 years old) and with malnutrition. For healthy elder children the normal size kidneys are not palpated. Therefore palpating of kidneys indicates their increase or displacement (hydronephrosis, tumor of kidney, nephroptosis and floating kidney).

For children under 5-7 years it is possible to palpate the urinary bladder in the filled state, as it goes out from the small pelvis cavity.

PERCUSSION: by percussion the symptom of Pasternatsky, presence of free liquid in abdominal cavity and upper border of urinary bladder are determined.

Symptom of Pasternatsky – in yang children percussion executed by bended fingers in the symmetric regions of the lumbar area both sides from a spine. For elder children – percussion by edge of palm of the right hand on the back surface of the left hand fixed on the lumbar region.

Determination of the apper border of urinary bladder by percussion. Put the figer-plessimeter on abdominal wall parallel to pubis at the level of umbilicus and percuss from up to down on the midline of abdomen. At the filled urinary bladder percussion sound becomes dull above the pubis

4. Illustrative material:presentation in 26 slides

5. Literature:

Basic:

9. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p

10. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p.

11. Mazurin, A. V. Propaedeuutics of childhood diseases. 3 volume [: textbook / - Almaty: "Evero" , 2017. - 140 p.

12. Mazurin, A. V. Propaedeutics of childhood diseases. 4 volume: textbook / - Almaty: "Evero" , 2017. - 120 p.

13. Issayeva, L. A. Childhood diseases. I part [: textbook / - Almaty : "Evero" , 2017. - 144 p

14. Issayeva, L. A. Childhood diseases. II part] : textbook / - Almaty : "Evero" , 2017. - 170 p.

15. Issayeva, L. A. Childhood diseases. III part [: textbook / - Almaty : "Evero" , 2017. - 140 p.

16. Issayeva, L. A. Childhood diseases. IV part [: textbook / - Almaty : "Evero" , 2017. - 185 p.

Additional:

1.Karen J. marcdante. Robert M. Kligeman. Nelson "Essential of Pediatrics" 7th edition 2015.

2.Joseph J.Zorc Schwartz`s " Clinical Handbook of Pediatrics" fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. Complaints made by patients with diseases of the urinary system.
2. The nature of pain in diseases of the urinary system
3. General examination of patients with urinary system in children is carried out as follows.
4. Additional methods of examination in diseases of the urinary system in children.

№9.

1.Theme: Research methods of sick children of different age groups with endocrine system pathology. Diagnostic value.

2.Purpose: give students the concept of diseases of the endocrine system and metabolism in children and explain the methods of examination in diseases of the endocrine system

3.Lecture theses:

Examination of the endocrine system includes estimation of physical and sexual development of child, and also detection of the symptoms of hypo- and hyperfunction of endocrine glands in child. The thyroid gland is accessible to direct examination.

INSPECTION: First of all general inspection of child must detected constitution, physical development (high, middle, low; harmonious, disharmonious). The special attention is spared the growth estimation, detecting such abnormality as nanism and gigantism. It is necessary to estimate the level and evenness of adipose tissue, type of the subcutaneous fat distributing (male, female); presence or absence of the dysplastic stigmas, state of skin and skin appendages (color, humidity, presence of stria, hair distribution). Determine the type of structure of externalia (male, female).

Estimation of the sexual development of child. Determination of the sexual development of child includes estimation of the secondary sexual characters.

Formulas of sexual development:

Sexual formula for girls: Ax, P, Ma, Me.

Sexual formula for boys: Ax, P, F, L, V.

where: Ax – level of hair development in axillary area (Ah0 - Ah4);

P – level of hair development on pubis (R0 - R5);

Ma – level of the mammary glands development (Ma0 - Ma3);

Me – characteristics of the menstrual cycle: beginning, cyclicity, painfulness (Me0-Me3);

L – development of the thyroid cartilage of larynx (L0 - L2);

V – timbre of voice (V0 - V2);

F – hair distribution on the face (F0 - F5).

For detecting the thyroid increased for children inspection and palpation are used.

Palpation of thyroid: the first fingers are situated on the front surface of thyroid, and other fingers are on the posteriolateral surface the sternocleidomastoid muscle. Fingers motion is sliding.

In palpation the most sensitive are index, long and ring fingers, but in spite this, in practice palpation of thyroid by the first finger is widely spread. Herewith right lobe is palpated by the first finger of right hand, left – by the first finger of the left hand. Essence of the method: for reception of the necessary features move aside of the sternocleidomastoid muscle and tissue of the thyroid is pressed to trachea.

The isthmus of thyroid is palpated from the front by the index (long) finger of one hand with sliding motions parallel the centerline of necks toward from top to bottom at the level of the thyroid localization. Patient is asked to make several swallows. At these motions thyroid begins to move between the doctor's fingers. If at swallowing moving thyroid is observed visual, the swallow symptom will be positive. At palpation it is necessary to note the level of increase, elasticity, homogeneity of gland, painfulness.

Levels of thyroid increase:

According recommendations by WHO (1994) there are distinguished:

- Level 0 – size of thyroid (isthmus of thyroid) does not exceed the size of terminal phalanx of the patient's first finger.
- Level I – thyroid is palpated, its lobes sizes are more than the patient's first finger. Visual increase of thyroid is not present.
- Level II – at large size, determined by palpation, thyroid is clear visualized.

There are followings eye symptoms at thyroid pathology:

1. exophthalmus
2. Delrimple's symptom: widely exposed eyes – expression of anger;
3. Graefe's sign – «setting sun»: at looking down white strip appears between eyelid and iris;
4. Mebius's symptom – abnormality of eyeballs convergation;
5. Stellwag's symptom – rare blinking ;
6. Rosenbach's symptom – trembling of the closed eyelids.

4. Illustrative material:presentation in 24 slides

5. Literature:

Basic:

1. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p
2. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p.
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8. Issayeva, L. A. Childhood diseases. IV part [: textbook / - Almaty : "Evero" , 2017. - 185 p.

Additional:

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2.Joseph J.Zorc Schwartz`s " Clinical Handbook of Pediatrics" fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson "Essential of Pediatrics" 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. Give the definition of "endocrine gland".
2. What is the hypothalamic-pituitary tract?
3. Features collect history of the endocrinology patients.
4. Anthropometry in the diagnosis of endocrine diseases.
5. What are the methods of research of endocrine organs.
6. Tell us about the methods of palpation of the thyroid gland

№10.

1.Theme: Research methods of sick children of different age groups with pathology of the musculoskeletal system. Diagnostic value

2.Purpose: to master the methods of examination of the musculoskeletal system, including the specifics of collecting complaints, anamnesis, laboratory and instrumental methods of research

3.Lecture theses:

In examining the musculoskeletal system it is important to keep the concept of function in mind. Note any gross abnormalities of mechanical function beginning with the initial introduction to the patient. Continue to observe for such problems throughout the interview and the examination.

On a screening examination of a patient who has no musculoskeletal complaints and in whom no gross abnormalities have been noted in the interview and general physical examination, it is adequate to inspect the extremities and trunk for observable abnormalities and to ask the patient to perform a complete active range of motion with each joint or set of joints.

If the patient presents complaints in the musculoskeletal system or if any abnormality has been observed, it is important to do a thorough musculoskeletal examination, not only to delineate the extent of gross abnormalities but also to look closely for subtle anomalies.

To perform an examination of the muscles, bones, and joints, use the classic techniques of inspection, palpation, and manipulation. Start by dividing the musculoskeletal system into functional parts. With practice the examiner will establish an order of approach, but for the beginner it is perhaps better to begin distally with the upper extremity, working proximally through the shoulder. Then, beginning with the temporomandibular joint, pass on to the cervical spine, the thoracic spine, the lumbar and sacral spine, and the sacroiliac joints. Finally, in the lower extremity, again begin distally with the foot and proceed proximally through the hip.

Use the opposite side for comparisons: it is easier to spot subtle differences as well as identify symmetrical problems. If there is any question, use your own anatomy as a control.

Glean the maximum information from observation. Concentrating on one area at a time, inspect the area for discoloration (e.g., ecchymoses, redness), soft tissue swelling, bony enlargement, wasting, and deformity (abnormal angulation, subluxation). While noting these changes, attempt to

determine whether they are limited to the joint or whether they involve the surrounding structures (e.g., tendons, muscles, bursae).

Observe the patient's eyes while palpating the joints and the surrounding structures. A patient's expression of pain depends on many factors. For this reason the verbalization of pain often does not correlate directly with the magnitude of the pain. The most objective indicator of the magnitude of tenderness produced by presence on palpation is involuntary muscle movements about the eyes. Therefore, the examiner should observe the patient's eyes while palpating the joints and surrounding structures. With practice the examiner will become skilled in evaluating the magnitude of pain produced by the examination and will be able to do a skillful evaluation without producing excessive discomfort to the patient. Note areas of tenderness to pressure, and if possible identify the anatomic structures over which the tenderness is localized.

One should also note areas of enlargement while palpating the joints and surrounding structures. By noting carefully the consistency of the enlargement and its boundaries, one can decide whether this is due to bony widening, thickening of the synovial lining of the joint, soft tissue swelling of the structure surrounding the joint, an effusion into the joint capsule, or nodule formation, which might be located in a tendon sheath, subcutaneous tissue, or other structures about the joint.

While palpating the joints, note areas of increased warmth (heat). A method for doing this that will help even the most inexperienced to perceive subtle increases in heat is to choose the most heat-sensitive portion of the hand (usually the dorsum of the fingers) and, beginning proximally, lightly pass this part of your hand over all portions of the patient's extremity several times. As you proceed from proximal to distal, the skin temperature gradually cools. If you find an area becoming slightly warmer, this represents increased heat.

Have the patient perform active movements through an entire range of motion for each joint. Defects in function can be most rapidly perceived by having the patient perform active functions with each region of the musculoskeletal system. This reduces examination time and helps the examiner to identify areas in which there is poor function for more careful evaluation.

Manipulate the joint through a passive range of motion only if the patient is unable actively to perform a full range of motion, or if there is obvious pain on active motion. In passively manipulating a joint, note whether there is a reduction in the range of motion, whether there is a pain on motion, and whether crepitus is produced when the joint is moved. Note also whether the joint is stable or whether abnormal movements may be produced.

4. Illustrative material:presentation in 28 slides

5. Literature:

Basic:

1. Mazurin, A. V. Propaedeutics of childhood diseases. 1 volume [: textbook / - Almaty: "Evero" , 2017. - 144 p
2. Mazurin, A. V. Propaedeutics of childhood diseases. 2 volume] : textbook / - Almaty: "Evero" , 2017. - 172 p.
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4. Mazurin, A. V. Propaedeutics of childhood diseases. 4 volume: textbook / - Almaty: "Evero" , 2017. - 120 p.
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2.Joseph J.Zorc Schwartz`s “ Clinical Handbook of Pediatrics” fifth edition 2013.

Electronic resources:

1. Karen J. marcdante. Robert M. Kligeman. Nelson “Essential of Pediatrics” 7th edition 2015. el disc (CD-ROM).

6. Control questions (feedback):

1. What are the features of the musculoskeletal system in children.
2. What are the pathological changes detected during the General examination of the child with the pathology of musculoskeletal?
3. The technique of palpation and percussion of the musculoskeletal in children.
4. The instrumental and laboratory methods of research in the pathology of the musculoskeletal system