

**ZAPORIZHZHYA STATE MEDICAL UNIVERSITY
DEPARTMENT OF HOSPITAL PEDIATRICS**

HOSPITAL PEDIATRICS

**(educational and methodical manual
for extra-curricular preparation of 5th-year
English-speaking students of medical faculty)**

ZAPORIZHZHYA – 2015

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EXPLANATORY MESSAGE

During the course considerable attention must be paid to basics of first aid in children's critical conditions.

Pediatrics is one of important clinical disciplines, without deep knowledge of which the forming of modern specialist-physician is impossible.

Pediatrics as an educational discipline is based on student's knowledge of substantive provisions of anatomy, histology, physiology, physiopathology, pathological anatomy, propedeutics and infectious diseases

Acquisition of thorough knowledge and abilities of pediatrics allows utilizing it to solve the clinical problems of diagnostics, prophylaxis and treatment of diseases.

Educational and methodical manual "Diseases of blood and endocrine system in children" for the 5th year students of medical faculty compiled in accordance with "Educational professional program for higher education" after professional direction of „Medicine", ratified by the Ministries of Education and Public Health of Ukraine. Developing this material we used long-term experience of pediatrics department of Zaporizhya State Medical University and the recommendations of other departments of pediatrics (hospital pediatrics department of National Medical University).

The materials given in the Manual are intended to be on the guidance the practical classes of the 5th year medical studying at the specialty on "Pediatrics General Practitioner". Taking into account progressive development of pediatrics, change of requirements to the specialists the given educational methodical manual may incompletely reflect pedagogical and professional necessities that is why it will be perfected and complemented.

PURPOSE AND THE TASK OF SUBJECT

THE GOAL OF THE COURSE:

A doctor preparation by the profession of "General Medicine" from the section of child's diseases in accordance to professional requirements to the graduating students of medical faculty in the higher medical educational establishments of Ukraine.

THE TASK OF SUBJECT:

During the hospital pediatrics course for students who studying on "General Medicine" specialty there are 10 lectures will be delivered (20 educational hours), and 15 four sentinel practical classes (60 educational hours) will be conducted, 40 educational hours will be selected for independent outclass students work.

During the study there are 2 final intermediate class and the case history passing is conducted that is the students have to write by the diseases of new-born children. In completion of studying course the students pass 2 module tests from the subject of "hospital pediatrics".

In 9-10 semesters the students of "General Medicine" specialty study the diseases of new-born children, of endocrine and blood systems Teaching of treatment questions is conducted differently for outpatient and hospital stages, for the stages of rehabilitation and clinical supervision.

The important section for the 5-th year students education is the mastering of practical skills on neonatology, children hematology, children endocrinology which are necessary for solving the problems in diagnostics, differential diagnostics, treatment and prophylaxis of above mentioned pathology in children.

The student master these skills during all types of studying hospital pediatrics course.

The student should see any diagnostic or treatment method in action, to know its principles, to complete it in certain clinical situation, to clarify the obtained results of diagnostic tests or the treatment.

In studying hospital pediatrics course students must know:

- etiology and pathogenesis of the most widespread diseases of newborn period, haematological and endocrine diseases of child's age, methods of diagnostics, differential diagnostics, treatment and prophylaxis.
- Features of clinical course in the most widespread diseases of newborn period, haematological and endocrine diseases of child's age, methods of diagnostics, differential diagnostics, treatment and prophylaxis.

Finishing hospital paediatrics course students must be able:

- to estimate the state of newborn child;
- to care after a newborn child;
- to prescribe nursing regimen for the premature and injured newborns;
- to prescribe the feed for mature and premature newborns;
- to apply the modern methods of diagnostics, treatment, rehabilitation of children in diseases of newborn period , endocrine and haemopoetic systems;
- to be able to render the first aid in critical conditions which occur in newborn and children in diseases of blood and endocrine system.

TABLE OF CONTENTS OF THE PROGRAM

THEMATIC PLAN OF LECTURES ON MODULE

№	Topic	Amount of hours
1	Peculiarities of premature newborns adaptation and feeding of prematures newborns.	2
2	Asphyxia of newborns. Birth traumas of newborns.	2
3	RDS in newborns.	2
4	Hemolytic disease in newborns.	2
5	Bacterial infections in newborns.	2
6	Anemias in children.	2
7	Hemoblastoses in children.	2
8	Hemorrhagic diseases in children.	2
9	Diabetes mellitus in children.	2
10	Thyroid diseases in children.	2
	Total hours	20

**PLAN OF PRACTICAL CLASSES (SEMINARS) FOR STUDENTS
STUDYING Speciality “GENERAL MEDICINE”**

№	Topic	Amount of hours
1	Peculiarities of adaptation in premature newborns. Organization of nursing and feeding in premature children.	4
2	Asphyxia in neonates.	4
3	Birth traumas of newborns.	4
4	Respiratory system diseases in newborns.	4
5	Hemolytic and hemorrhagic diseases in newborns.	4
6	Intrauterine infections of newborns, (TORCH - infections).	4
7	Bacterial infections in newborns.	4
8	Final module control.	4
	<i>Diseases of blood in children.</i>	4
9	Deficient anemias in children	4
10	Hemoblastoses in children	4
11	Hemorrhagic diseases in children	4
	<i>Diseases of endocrine system in children</i>	
12	Diabetes mellitus in children	4
13	Thyroid diseases in children	4
14	Diseases of hypothalamus pituitary system in children	4
15	Implementation of individual work	
16	Final module control	4
	Total:	60

**PLAN OF EXTRA-CURRICULAR WORK IN HOSPITAL PEDATRICS FOR
THE STUDENTS STUDYING Speciality
“GENERAL MEDICINE”**

#	Topic	Amount of hours
1.	Adaptational reaction in newborns	1
2.	Seizures in newborns. Causes. Urgent aid. Treatment.	2
3.	Anomalies of respiratory system development in newborns.	1
4.	Replace blood transfusion operation. Indications. Methods of conducting. Complications.	1
5.	Congenital syphilis.	1
6.	Features of antibacterial therapy in newborns.	1
7.	Patients management and case history.	5
8.	Preparing for the final module control in neonatology.	5
	In total	20

THEMATIC PLAN OF STUDENTS INDIVIDUAL PREPARATION (SIP).

№	Kind of SIP	Hours	Control types
1	Preparation to practical classes	12	Current control on the practical classes.
2	Working at themes which are not included in the plan of auditorium classes.		Final module control
3	SIP:case reports analysis, preparing of referates and the participation in clinical meetings.	4	Final module control. Current control on the practical classes.
4	Preparing for the final module control.	6	Summing-up module control.
	Total	20	Final module control.

THE STRUCTURE OF TEST CREDIT TO MODULE N 2. Neonatology

Topic	Hours of lectures	Hours of classes.	Out-class Extra-curricular	Individual work
<i>Semantic module 7. Premature newborns</i>				Examination of a sick child. Writing and defending of educational case report.
1. Peculiarities of adaptation in premature newborns. Organization of nursing and feeding in premature children.	2	4	1	
<i>Semantic module 8 The most wide-spread non-infectious diseases in newborns.</i>				
2. Asphyxia in neonates.	1	4	1	
3. Birth traumas of newborns.	1	4	1	
4. Respiratory system diseases in newborns.	2	4	1	
5. Hemolytic and hemorrhagic diseases in newborns.	2	4	1	
<i>Semantic module 9. Perinatal infections.</i>				
6. TORCH-infections in children.		4	2	
7. Bacterial infections in newborns.	2	4	1	

Patients management and case report writing.			5
Final module control		4	5
In total: ECTS credits - 2,0; hours - 60; 10 of them are lectures.	10	32	18

TEST CREDIT STRUCTURE OF MODULE 3. Diseases of blood and endocrine system in children.

Topic	Lectures	Pract. classes	Ind. prep.	Individual work
<i>Semantic module 10. Diseases of blood in children.</i>				
1. Deficient anemias in children	2	4	2	
2. Hemoblastoses in children	2	4	2	
3. Hemorrhagic diseases in children	2	4	2	
<i>Semantic module 11. Diseases of endocrine system in children</i>				
4. Diabetes mellitus in children	2	4	2	
5. Thyroid diseases in children	2	4	2	
6. Diseases of hypothalamus pituitary system in children		4	2	
Implementation of individual work			4	
Final module control		4	6	
Total: ECTS credits - 2,0; hours - 60	10	28	22	

POINTS DISTRIBUTION FOR THE ASSESMENT OF STUDENTS' PERFORMANCE. MODULE № 2. Neonatology.

Module # 2 (maintenance for the estimated activity)	Maximal points are possible
<i>Semantic module 7</i>	
Topic 1. Peculiarities of adaptation in premature newborns. Organization of nursing and feeding in premature children.	12
<i>Semantic module 8</i>	
Topic 2. Asphyxia in neonates.	12
Topic 3. Birth traumas of newborns.	12
Topic 4. Respiratory system diseases in newborns.	12
Topic 5. Hemolytic and hemorrhagic diseases in newborns.	12
<i>Semantic module 9</i>	
Topic 6. Intrauterine infections of newborns, (TORCH - infections)	12

Topic 7. Bacterial infections in newborns	12
Individual independent preparation - patients management and writing of case report.	36
Current performance in total:	120
Final module control	80
POINTS IN TOTAL FOR THE MODULE	200

POINTS DISTRIBUTION FOR THE ASSESMENT OF STUDENTS' PERFORMANCE. MODULE 3.

Diseases of blood and endocrine system in children

.Module 3 (volume of the estimated activity)	Maximal points are possible
<i>Semantic module 10.</i>	
Topic 1. Deficiency anemias in children	20
Topic 2. Hemoblastoses in children	20
Topic 3. Hemorrhagic diseases in children	20
<i>Semantic module 11</i>	
Topic 1. Diabetes mellitus in children	20
Topic 2. Thyroid diseases in children	20
Topic 3. Diseases of hypothalamus, pituitary and sexual glands in children.	20
Current performance in total	120
Final module control	80
SUMMARISED MODULE POINTS	200

Note: In mastering the topic after the traditional system the points was given to the student are the following: «5» - 20 points, «4» - 16 points, «3» - 12 points, «2» - 0 points.. Maximal amount of points for current educational performance of student is 120. A student is allowed to pass the final module control in terms of his performance according to the requirements of tutorial and in case of obtaining no less than 72 points for current performance during practical classes. (12 x 6). Final module control of the student if he gets not less than 50 of 80 points.

FEATURES OF ADAPTATIONAL PERIOD IN PREMATURE NEWBORN CHILDREN. STAGES OF NURSING FOR PREMATURE CHILDREN.

Premature infants. Etiological factors of prematurity. Physiological features. Morphologic and functional criteria of maturity in premature newborn children. The features of adaptational period in premature newborn children. Differential diagnosis of hyperbilirubinemias. Intrauterine growth retardation: causes, diagnostics, treatment, prophylaxis. Stages of nursing for newborn children, principles of feeding. Emergency in urgent state: hypoglycemia, respiratory failure, enteroparesis, hyperbilirubinemia.

I. Actuality of the theme.

Period of gestation is one of the most important predictors of an infant's subsequent health and survival. In 2004, more than 500,000 infants, or 12.5 percent of all infants, were born preterm, which is considered birth at less than 37 completed weeks of gestation (CDC, 2005a). On the basis of new estimates provided in this report, the annual societal economic burden associated with preterm birth in the United States was in excess of \$26.2 billion in 2005 (this estimate represents a lower boundary). The percentage of preterm deliveries has risen steadily over the last 2 decades. Most of this increase has been among children born at 32 to 36 weeks gestation. In the past, low birth weight has been used as an indicator for preterm birth; however, the present Institute of Medicine (IOM) committee considers low birth weight to be a poor surrogate and has specifically focused its analysis on preterm birth. Compared with infants born at term (37 to 41 weeks of gestation), preterm infants have a much greater risk of death and disability. Approximately 75 percent of perinatal deaths occur among preterm infants (Slattery and Morrison, 2002). Almost one-fifth of all infants born at less than 32 weeks gestation do not survive the first year of life, whereas about 1 percent of infants born at between 32 and 36 weeks of gestation and 0.3 percent of infants born at 37 to 41 weeks of gestation do not survive the first year of life. The infant mortality rate (IMR) per 1,000 live births for infants born at less than 32 weeks of gestation was 180.9, nearly 70 times the rate for infants born at between 37 and 41 weeks of gestation (Mathews et al., 2002). Advances in medical technologies and therapeutic perinatal and neo including those born when they are as young as a gestational age of 23 weeks. However, surviving infants have a higher risk of morbidity. Neuro-developmental disabilities can range from major disabilities such as cerebral palsy, mental retardation, and sensory impairments to more subtle disorders, including language and learning problems, attention deficit hyperactivity disorder, and behavioral and social-emotional difficulties. Preterm infants are also at increased risk for growth and health problems, such as asthma or reactive airway disease.

Although significant improvements in treating preterm infants and improving survival have been made, little success in understanding and preventing preterm birth has been attained. The complexity of factors that are involved in preterm birth will

require a multidisciplinary approach to research directed at understanding its etiologies, pathophysiology, diagnosis, and treatments. However, there are barriers to the recruitment and participation of scientists in these investigations. A critical barrier to research is the demand on clinical researchers in academic centers to provide clinical income and other duties that take them away from research. This necessitates the development of new ways to provide support to allow the time to conduct this important research. The challenge for researchers and clinicians remains to identify interventions that prevent preterm birth; reduce the morbidity and mortality of the mother or the infant, or both, once preterm birth occurs; and reduce the incidence of long-term disability in children in the most comprehensive and cost-effective manner possible.

II. Classes (pointing out planned mastering level)

1. A student must know (to familiarize): $\alpha 1$

- About the place of prematurity, small-for-gestational age infants in the structure of intrauterine and perinatal life;
- About statistical information in relation to morbidity, frequencies of complications, lethality, nearest and remote prognosis;
- About the history of scientific study and the contribution of domestic scientists;

2. A student must know (master): $\alpha 2$

- etiology of intrauterine growth retardation and preterm birth;
- anatomic and physiologic features of premature children ;
- features of adaptational period in premature newborn children;
- morphological and functional criteria of maturity in premature newborn children;
- key links of intrauterine growth retardation ;
- clinical classification of intrauterine growth retardation and preterm birth ;
- classic clinical manifestation of intrauterine growth retardation ;
- laboratory and instrumental diagnosis of intrauterine growth retardation;
- features of bilirubin metabolism;
- stages of nursing for newborn children;
- treatment principles of intrauterine growth retardation;
- principles of feeding;
- prophylaxis of intrauterine growth retardation and preterm birth;
- emergency in urgent state: hypoglycemia, respiratory failure, enteroparesis, hyperbilirubinemia.

3. A student must master the skills: $\alpha 3$

- collection of complaints and anamnesis of disease;
- examination of premature newborn children and children with intrauterine growth retardation;
- formulating and substantiating the initial diagnosis;
- determining a laboratory and instrumental examination plan of patient's investigation (in obedience to diagnostics standards);

By the abilities:

- interpreting the result of laboratory and instrumental investigations.
- conducting differential diagnosis among the main syndrome in premature newborn children;
- conducting differential diagnosis among intrauterine growth retardation and intrauterine (fetal) hypotrophy.
- giving recommendations in relation to the patient regimen and diet to the premature newborn children and children with intrauterine growth retardation, taking into account the stage of disease, severity of the state and concomitant pathology;
- completing the treatment plan of premature newborn children and children with intrauterine growth retardation according to the standards taking into account the stage of disease, complications and concomitant pathology.
- rendering first aid in extreme situations and exigent states.

III. Aims of personality development (educative aims):

- A student must learn to adhere to the rules of behaviour and principles of medical etiquette and deontology near patient's bed with premature newborn children and children with intrauterine growth retardation;
- to be able to set a psychological contact with a family of a newborn child;
- to master a sense of professional responsibility for a timely adequate and skilled medicare.

Methodical materials for class basic stage supporting

Questions for the control of primary knowledge level of abilities and skills:

1. What are the main maternal factors of preterm birth?
2. The birth-weight classification of infants.
3. What are the features of respiratory system in preterm infants?
4. What are the features of temperature regulation in preterm infants?
5. What are the features of circulatory systems?
6. What are the main maternal and placental factors of intrauterine growth retardation?
7. What are the main types of intrauterine growth retardation?
8. To explain the Ballard Score.
9. To explain the method of feeding for LBW infant.
10. When should we use total parenteral nutrition for preterm infants?
11. What kind infection prevention for preterm infants do you know?
12. To explain the incubator care for preterm infants.

Primary tests

1. Preterm birth is
 - A. less than 35 weeks
 - B. less than 36 weeks
 - C. less than 37 weeks
 - D. less than 38 weeks

- E. less than 39 weeks
2. Normal birth weight is
- A. 4000 and more
 - B. 2500-3999
 - C. less than 2500
 - D. less than 1500
 - E. 1500-2500
3. The maternal factors of preterm birth
- A. maternal anemia
 - B. maternal infections
 - C. incompetence of cervix
 - D. complications of pregnancy
 - E. all listed above
4. The maternal causes of low birth weight:
- A. short stature of mother
 - B. young mother
 - C. smoking
 - D. prime of grand multipara
 - E. all listed above
5. The environmental causes of low birth weight:
- A. racial
 - B. social status
 - C. nutritaional
 - D. geographic
 - E. all listed above
6. Problems of IUGR infants:
- A. hypoxia
 - B. Meconium aspiration
 - C.hypotermia
 - D. large brain
 - E. all listed above
7. What are the most informative criteria of gestational age estimation after birth of child?
- A. Locating of umbilical ring.
 - B. Interrelation between the child's body weight and height .
 - C. The sum of points after Dubovitz (or Ballard)score.
 - D. Child's weight.
 - E. Presence of nail plates.
8. Treatment principles of intrauterine growth retardation:
- A. insulintherapy
 - B. antibiotic therapy

- C. breast feeding correction
- D. the function of gastrointestinal tract correction
- E. all listed above

9. Physiological loss of body weight in infant with very low birth weight:
- A. less than 2 %
 - B. more than 15 %
 - C. 10-15 %
 - D. 16-20 %
 - E. 30 %
10. Quantity of milk for premature infant with weight 2000 on 4 day of life is:
- A. 200ml
 - B. 280ml
 - C. 360ml
 - D. 380ml
 - E. 400 ml
11. How do you estimate the quantity of milk for premature infant during 10 days
- A. 1/5 body weight
 - B. 120 kcal/kg
 - C. Romel's formula
 - D. Phinkelshtain's formula
 - E. all listed above
12. In the case of the 2nd stage of prematurity the breast feeding starts:
- A. at once
 - B. in 2 h
 - C. in 3 h
 - D. in 9 h
 - E. in 24 h
13. Principles of feeding for 33 weeks age infants
- A. nipple
 - B. stomach pump
 - C. spoon
 - D. breast feeding
 - E. syringe
14. Choose uncharacteristic syndrome for IUGR infants
- A. meconium aspiration
 - B. polycythemia
 - C. development delay
 - D. spastic syndrome
 - E. microcephaly
15. What is the medical treatment in the case of IUGR of the 3 degree
- A. retabolil

- B. fencarol
- C. diazepam
- D. aminocapronic acid
- E. dratoverin

16. The neurologic features for preterm infants:

- A. muscular hypotonia
- B. poor neonatal reflexes
- C. square window wrist 45-90
- D. hypoglycemia
- E. all listed above

17. The medical factors of preterm birth:

- A. severe cardiac disease in the mother
- B. placental dysfunction
- C. isoimmunization
- D. uncontrolled diabetes mellitus
- E. all listed above

18. Choose predisposing factor for IUGR:

- A. history of still birth
- B. history of smoking
- C. bleeding during the pregnancy
- D. kidney disease
- E. all listed above

19. Severe hypothermia leads to:

- A. cold injury
- B. spasms
- C. acidosis
- D. hypoxia
- E. all listed above

20. Placental factors of IUGR:

- A. implantation of placenta
- B. placenta abruption
- C. extensive placenta infarcts
- D. single umbilical artery
- E. all listed above

Typical situational tasks of 2 level

1. The nurse from the level II neonatal intensive care nursery calls you to evaluate a baby. The infant, born at 32 weeks' gestation, is now 1 week old and had been doing well on increasing nasogastric feedings. This afternoon, however, the nurse noted that the infant has vomitted the last two feedings and seems less active. Your examination reveals a tense and distended abdomen with decreased bowel sounds. As you are

evaluating the child, he has a grossly bloody stool. Your management of this infant should include

- a. Surgical consultation for an emergent exploratory laparotomy
- b. Continued feeding of the infant, as gastroenteritis is usually self-limited
- c. Stool culture to identify the etiology of the bloody diarrhea and an infectious diseases consultation
- d. Stopping feeds, beginning intravenous fluids, ordering serial abdominal films, and initiating systemic antibiotics
- e. Upper GI series and barium enema to evaluate for obstruction

2. A recovering premature infant who weighs 950 g (2 lb, 1 oz) is fed breast milk to provide 120 cal/(kg_d). Over ensuing weeks, the baby is most apt to develop

- a. Hyponatremia
- b. Hypocalcemia
- c. Blood in the stool
- d. Hyperphosphatemia
- e. Vitamin D toxicity

3. An infant weighing 1400 g (3 lb) is born at 32 weeks' gestation in a delivery room that has an ambient temperature of 24°C (75°F). When left in an open crib for a few minutes, this child is likely to demonstrate

- a. Ruddy complexion
- b. Shivering
- c. Hypertension
- d. Increased respiratory rate
- e. Metabolic alkalosis

4. Two infants are born at 36 weeks' gestation. Infant A weighs 2600g (5 lb, 12 oz) and infant B weighs 1600g (3 lb, 8 oz). Infant B is more likely to have which of the following problems?

- a. Congenital malformations
- b. Low hematocrit
- c. Hyperglycemia
- d. Surfactant deficiency
- e. Rapid catch-up growth retardation

5. A 3-day-old infant born at 32 weeks' gestation and weighing 1700 g (3 lb, 12 oz) has three episodes of apnea, each lasting 20 to 25 s and occurring after a feeding. During these episodes, the heart rate drops from 140 to 100 beats per min, and the child remains motionless; between episodes, however, the child displays normal activity. Blood sugar is 50 mg/dL and serum calcium is normal. The child's apneic periods most likely are

- a. Due to an immature respiratory center
- b. A part of periodic breathing
- c. Secondary to hypoglycemia
- d. Manifestations of seizures
- e. Evidence of underlying pulmonary disease

Methodical materials for the class basic stage supporting

A professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming .

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct patient examination for preterm infants, small gestational age infants, infants with hyperbilirubinemia.	<p>1. To conduct complaints and disease's anamnesis taking.</p> <p>2. To take thoroughly the patient's life anamnesis.</p> <p>3. To conduct examination of the patient.</p> <p>4. To investigate cardiovascular and nervous system of the patient (palpation, percussion).</p>	<p>To pay attention to the features of disease course, underlying factors, newborn, concomitant diseases etc.</p> <p>To establish the risk factors which facilitate of disease occurrence.</p> <p>To assess patient's general condition, stage of prematurity, position in bed, color and humidity of skin and mucous, presence of neck veins and extremities swelling.</p> <p>To pay regard to pulse rhythm, its tension and size on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR (tachi- or bradycardia, extrasystole), BP.</p>
		<p>5. To conduct heart and main vessels auscultation.</p> <p>6. To investigate the pulmonary system (percussion, bronchophony).</p> <p>7. To conduct lungs auscultation.</p> <p>8. To investigate the system of digestion.</p>	<p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation.</p> <p>To pay attention to features of intoxication</p>
2	To formulate the initial diagnosis.	<p>1. To formulate the initial diagnosis</p> <p>2. To substantiate all the components of initial diagnosis taking as a basis complaints, anamnesis, and examinations.</p>	<p>Basing on modern classification to formulate the initial diagnosis of prematurity and to substantiate each component of it.</p>
3	To evaluate the parameters of additional laboratory investigations.	<p>1. To evaluate the blood count data.</p> <p>2. To evaluate the biochemistry data.</p> <p>3. To evaluate the intrauterine infections data.</p>	<p>To pay attention to the signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to the specific IG levels.</p> <p>To pay attention to the etiology of intrauterine infections and</p>

			their sensitivity to the antibiotics and antiviral agents.
4	To understand the data of additional and laboratory investigation.	To understand the data of X-ray of thorax, ultrasonogram.	To pay special attention to the damage of brain, lungs and liver.
5.	To conduct differential diagnosis.	<p>1. Consistently to find the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient's and in similar states.</p> <p>2. To find the differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of research and in similar nosology.</p> <p>3. On the basis of the differences found to exclude similar diseases from the list of possible diagnoses.</p> <p>4. To conduct differential diagnostics according to the above mentioned algorithm among all the nosologies having the similar signs, among prematurity, immaturity .</p>	Special attention must be paid to differential diagnosis among the types of intrauterine growth retardation, neonatal hypotrophy, birth trauma.
6	To formulate the final clinical diagnosis.	<p>To formulate the final clinical diagnosis</p> <p>Taking the initial diagnosis as a basis, additional investigations data, conducted differential diagnosis, substantiate all the elements of the final clinical diagnosis.</p>	Basing on modern classification of diseases, formulate the diagnosis, complications of disease and the presence of concomitant diseases.
7	To prescribe treatment for patients.	<p>1. To prescribe non medicinal treatment</p> <p>2. To prescribe medicinal treatment.</p>	<p>Expressly specify the regimen and detailed diet according to the disease.</p> <p>Taking into account the age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, prescribe modern medicinal treatment .</p>

Materials of the medical support for the student's independent training: a reference chart for organization of students independent work with educational literature.

Tasks	Instructions
To study the etiology of intrauterine growth retardation and preterm birth. Be able to detect the degrees of preterm birth.	To select the key links of intrauterine growth retardation and preterm birth.
To study anatomic and physiologic features of premature children ; the features of adaptational period in premature newborn children	To establish the symptoms and gather it to clinical syndromes of premature newborn children
To study the additional methods of research (laboratory, instrumental)	To work out a plan of patient's examination.
To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.
To prescribe the individual holiatry to patient with the intrauterine growth retardation and preterm birth. Principles of feeding. Be able to render the first aid in the case of hypoglycemia, respiratory failure, enteroparesis, hyperbilirubinemia.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, stage of disease, presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic literature:

- 1.Nelson Textbook of Pediatrics, ed 16.2000.
- 2.Сміян І.С. Лекції з педіатрії. – Тернопіль, «Підручники і посібники», 2006 – С. 151-177.
- 3.Сміян І.С. Педіатоія (цикл лекцій). - Тернопіль, „Укрмедкнига”, 1999. - С. 179-216.
- 4.Аряев М.Л. Неонатология . Київ, «Адеф-Україна», 2003. – С. 515-550.
- 5.Неонатология: навч.посібник / зп ред. П.С. Мощича, О.Г. Сулими,. – к.: Вища школа, 2004. – С. 130-165.
- 6.Госпітальна педіатрія / за ред. І.С.Сміяна, В.Г. Майданика - Тернопіль-Київ, 1997. - С. 4-75.

Additional literature:

- 1.Шабалов Н.П. Неонатология. Т.П. - Санкт-Петербург, «Специальная Литература», 1997. - U.110-123., 65-81.
2. Неонатология:Руководство / под ред. В.В. Гаврюшова, К.А.Сотниковой. - Л. Медицина, 19а5. -С. 112-124.
3. Неонатология:Пер.с англ./Под ред.Т.Л.Гомелла, М.Д.Каннигам.- М.:Медицина,1995. - С.328-350.

ASPHYXIA IN NEONATES.

Etiology, pathogenesis of asphyxia in newborn period. Classification of asphyxia, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis. Emergency in asphyxia in newborn period. Neonatal Resuscitation. Prognosis.

I. ACTUALITY OF THE THEME

Knowledge of asphyxia manifestations in neonates allows to conduct in due time diagnostics, differential diagnostics, medical treatment and prophylaxis. Recent studies have reported that 2 % of all newborns required assisted ventilation directly after the delivery. Asphyxia: means to be pulseless, but more useful is a definition of impaired or interrupted gas exchange. In the human, the transition from fetus to neonate represents a series of rapid and dramatic physiologic changes. This transition goes smoothly most of the time; however, approximately 10% of the time the active intervention of a skilled individual or team is necessary to assist in that transition to ensure that it occurs with the least possible damage. Although certain episodes of fetal asphyxia cannot be prevented, there are many circumstances in which, in the immediate neonatal period, a prompt and skilled resuscitation may prevent lifelong adverse sequelae. This, along with the fact that the need for intervention cannot always be predicted, has prompted the International Guidelines for Neonatal Resuscitation to state: "At least one person skilled in initiating neonatal resuscitation should be present at every delivery. An additional person capable of performing a complete resuscitation should be immediately available. Although many elements of a resuscitation sequence have been agreed on, debate and discussion regarding the process continue. Research has yet to answer many questions. For the present, guidelines such as those published by the American Academy of Pediatrics and the American Heart Association as well as those of the International Liaison Committee on Resuscitation (ILCOR) represent a middle ground for various contending views. During a period of asphyxia, the resulting hypoxemia, acidosis, and poor perfusion can damage a neonate's brain, heart, kidney, liver, and lungs. The resulting clinical abnormalities include cerebral edema, irritability, seizures, cardiomegaly, heart failure, renal failure, poor liver function, disseminated intravascular coagulopathy, and respiratory distress syndrome. Therefore a prophylaxis, treatment and rehabilitation of this state, is not only medical but also social, problem

Concrete purposes:

1. To determine the etiologic and pathogenetics factors in intrauterine hypoxia and asphyxia in newborn period.
2. To classify and analyse the typical clinical manifestation of asphyxia in newborn period.
3. To determine the features of asphyxia for newborns and make an initial clinical diagnosis.
4. To make the plan of examination and analyse the information about laboratory and instrumental data in the classic course of asphyxia in newborn period.

5. To demonstrate skills of treatment, rehabilitation and prophylaxis of asphyxia in children.
6. To diagnose complications of asphyxia and to diagnose and render an urgent help in asphyxia.
7. To conduct differential diagnostics of asphyxia and other nervous system diseases in newborn period.
8. To determine the nearest and remote prognosis in patients with asphyxia in newborn period.
9. To demonstrate the skills of medical specialist's moral and deontological principles and principles of professional subordination in pediatrics.

II. Classes (pointing out planned mastering level)

1. A student must have a conception (familiarize): $\alpha 1$

- The place of asphyxia in the structure of nervous system diseases in children;
- Statistical information in relation to morbidity, frequency of complications, lethality, the nearest and remote prognosis in patients with asphyxia;
- About the history of scientific studying and the contribution of domestic scientists;

2. A student must know (master): $\alpha 2$

- causes of asphyxia in newborn period;
- key links of asphyxia in newborn period;
- key links of the nervous system diseases pathogenesis in newborn period;
- classification of asphyxia;
- classical clinical manifestation of asphyxia in newborn period;
- clinical syndromes depending on asphyxia period;
- laboratory and instrumental diagnosis of asphyxia;
- complications of asphyxia;
- treatment principles of asphyxia in newborn period.

3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;
- Examination of newborn with asphyxia and revealing the main symptoms and syndromes;
- To formulate and substantiate the initial diagnosis;
- Determination of laboratory and instrumental plan of patient's examination (according to diagnostic standards);

Abilities:

- To interpret the results of laboratory and instrumental tests.
- To conduct differential diagnosis among asphyxia and other nervous system diseases in newborn period.
- To give recommendations in relation to the patient's with the asphyxia regimen and diet, taking into account the stage of the disease, severity of the state and concomitant pathology;
- To complete the treatment plan in asphyxia according to the standards taking into account the stage of the disease, complications and concomitant pathology.
- To administer the treatment for newborn child depending on asphyxia severity

-To render the first aid in extreme situations in newborn child depending on asphyxia severity

-To render primary resuscitation of newborn.

III. Aims of personality development (educative aims):

- A student must learn to adhere to the rules of behaviour and principles of medical etiquette and deontology, to develop bedside manner;
- Be able to set a psychological contact with a patient and his family;
- To master the sense of professional responsibility for a timely and adequate medicare.

Questions for self-control

1. Name the main causes of asphyxia.
2. Point out the classification of asphyxia.
3. What are the main clinical manifestations of asphyxia and ultrasound findings?
4. Define diagnostics and differential diagnostic measures in asphyxia.
5. What is the common treatment tactics in asphyxia?
6. What are the main consequences of asphyxiain later periods of childhood and their prophylaxis?

The primary control tests

1. A mother delivers a neonate with meconium staining and Apgar scores of 3 at 1 and 5 min of life. She had no prenatal care and the delivery was by emergency cesarean section for severe fetal bradycardia. Which of the following sequelae could be expected to develop in this intubated neonate with respiratory distress?
 - a. Sustained rise in pulmonary arterial pressure
 - b. Hyperactive bowel sounds
 - c. Microcephaly with micrognathia
 - d. Cataracts
 - e. Thrombocytosis
2. A child was born after the third pregnancy and the second labors, 42 w. of gestational age, body weight 4200 g, length 58 cm. In the labors there is meconium in amniotic fluid. Aspiration of amniotic fluid suspected. Independent respiration is absent. What tactics is indicated in this case?
 - A. Tactile stimulation
 - B. Closed cardiac massage
 - C. Suction of respiratory ways
 - D. Oxygen therapy.
 - E. Treatment of oligemia
3. At 43 weeks' gestation, a long, thin infant is delivered. The infant is apneic, limp, pale, and covered with "pea soup" amniotic fluid. The first step in the resuscitation of this infant at delivery should be
 - a. Suction of the trachea under direct vision
 - b. Artificial ventilation with bag and mask
 - c. Artificial ventilation with endotracheal tube
 - d. Administration of 100% oxygen by mask

e. Catheterization of the umbilical vein

4. An infant who appears to be of normal size is noted to be lethargic and somewhat limp after birth. The mother is 28 years old, and this is her fourth delivery. The pregnancy was uncomplicated, with normal fetal monitoring prior to delivery. Labor was rapid, with local anesthesia and intravenous meperidine administered for maternal pain control. Which of the following therapeutic maneuvers is likely to improve this infant's condition most rapidly?

- a. Intravenous infusion of 10% dextrose in water
- b. Administration of naloxone
- c. Administration of vitamin K
- d. Measurement of electrolytes and magnesium levels
- e. Neurologic consultation

5. You are called to the delivery room. A newborn infant seems lethargic and has poor tone with only marginal respiratory effort, but his heart rate is above 100 beats per min. The mother had an uncomplicated pregnancy, and delivery was uncomplicated and vaginal 10 min after spontaneous rupture of membranes. The mother received only pain medications while in labor. The most important aspect of the management is (SELECT 1 TREATMENT)

- a. Atropine
- b. *N*-acetylcysteine
- c. Meso-2,3-dimercaptosuccinic acid (DMSA succimer)
- d. Naloxone
- e. Sodium bicarbonate

6. What cause of asphyxia is wrong

- A. Knotting of cord
- B. maternal staphylococcus
- C. maternal acute bleeding
- D. Diabetes in mother
- E. preterm gestation

7. A 3-day-old infant born at 32 weeks' gestation and weighing 1700 g (3 lb, 12 oz) has three episodes of apnea, each lasting 20 to 25 s and occurring after a feeding. During these episodes, the heart rate drops from 140 to 100 beats per min, and the child remains motionless; between episodes, however, the child displays normal activity. Blood sugar is 50 mg/dL and serum calcium is normal. The child's apneic periods most likely are

- a. Due to an immature respiratory center
- b. A part of periodic breathing
- c. Secondary to hypoglycemia
- d. Manifestations of seizures
- e. Evidence of underlying pulmonary disease

8. A newborn infant develops respiratory distress immediately after birth. His abdomen is scaphoid. No breath sounds are heard on the left side of his chest, but they

are audible on the right. Immediate intubation is successful with little or no improvement in clinical status. The most likely explanation for this infant's condition is.

- a. Pneumonia
- b. Cyanotic heart disease
- c. Diaphragmatic hernia
- d. Choanal atresia
- e. Pneumothorax

9. Asphyxia is severe if Apgar scores are during the first minute

- A. 0-3
- B. 0-6
- C. 6-8
- D. 3-7
- E. 4-6

10. Assessment of newborn by Apgar should be performed at the

- A. 1 and 5 minutes of life
- B. 1 and 10 minutes of life
- C. 5 and 10 minutes of life
- D. 10 and 15 minutes of life
- E. 1 and 20 minutes of life

11. A newborn infant is having poor neonatal reflexes, uncoordinated sucking, swallowing, difficulties in feeding. The most important next step to quickly establish the diagnosis is

- a. Echocardiogram
- b. Ultrasonography
- c. Passage of catheter into nose
- d. Hemoglobin electrophoresis
- e. Bronchoscopic evaluation of palate and larynx

12. Child was born after the third pregnancy and the second labors, 40 w. of gestational age, body weight 4200g, length 55cm. Aspiration of amniotic fluid suspected. Independent respiration is absent, heart rate is 50 beats/min. What tactics is indicated in this case?

- A. Tactile stimulation
- B. Closed cardiac massage
- C. Suction of respiratory ways
- D. Oxygen therapy.
- E. Treatment of oligemia

13. A child was born after the second labors, 38 w. of gestational age, body weight 3200g, length 52cm. Independent respiration is absent, heart rate is 110 beats/min. What tactics is indicated in this case?

- A. Tactile stimulation
- B. Closed cardiac massage
- C. Suction of respiratory ways

- D. Oxygen therapy.
 - E. Passage of catheter into nose
14. In newborn child cramps and tetany have developed in the first day of life . Ca concentration is 6,2 g/l (N - 8,5-10,5). Which from the following diagnoses are the least probable?
- A. Acute hypoxia of fetus.
 - B. Big amount of intaken phosphorus
 - C. Diabetes in mother
 - D. Hyperparathyroidism in mother
 - E. Prematurity
15. Step A resuscitation includes
- A. Tactile stimulation
 - B. Closed cardiac massage
 - C. Suction of respiratory ways
 - D. Oxygen therapy.
 - E. Passage of catheter into nose
16. Step B resuscitation includes
- A. Mechanical ventilation with mask and bag
 - B. Closed cardiac massage
 - C. Suction of respiratory ways
 - D. Oxygen therapy.
 - E. Passage of catheter into nose
17. Step C resuscitation includes
- A. Mechanical ventilation with mask and bag
 - B. Closed cardiac massage and ventilation
 - C. Suction of respiratory ways
 - D. Oxygen therapy.
 - E. Passage of catheter into nose
18. Diagnosis of neonatal hypoglycemia if blood glucose level is less than
- A. 1,7 mmol/L
 - B. 5,5 mmol/L
 - C. 2,2 mmol/L
 - D. 3,3 mmol/L
 - E. 0,7 mmol/L
19. A newborn infant has no respiration and neonatal reflexes. What is necessary in the first step
- A. Mechanical ventilation with mask and bag
 - B. Closed cardiac massage and ventilation
 - C. Suction of respiratory ways
 - D. Oxygen therapy.
 - E. Apgar assessment

20. For assessment of asphyxia severity the following scale should be used
- Silverman
 - Downess
 - Ballard
 - Apgar
 - Glasgo

SITUATIONAL TASKS

Situational Task 1

A mother delivers a neonate with meconium staining and Apgar scores of 3 at 1 and 5 min of life. She had no prenatal care and the delivery was by emergency cesarean section for severe fetal bradycardia.

1. Which pulmonary sequele could be expected to develop in this intubated neonate with respiratory distress?
2. Which other sequelae could be expected to develop in this intubated neonate with respiratory distress?

Situational Task 2

A 2-day-old infant with meconium aspiration syndrome is worsening. The delivered FiO₂ is 100%, and yet his arterial PaO₂ is 40 mmHg on the most recent arterial blood-gas analysis. You have increased his ventilator pressures without success.

1. What is the next step in this patient's management?

Situational Task 3

A 19-year-old primiparous woman develops toxemia in her last trimester of pregnancy and during the course of her labor is treated with magnesium sulfate. At 38 weeks' gestation, she delivers a 2100-g infant with Apgar scores of 1 at 1 min and at 5 at 5 min. Laboratory studies at 18 h of age reveal a hematocrit of 79%, platelet count of 100,000/L, glucose 38 mg/dL, magnesium 2.5 meq/L, and calcium 8.7 mg/dL. Soon after, this the infant has a generalized convulsion.

1. What is the most likely cause of the infant's seizure?
2. Conduct differential diagnostics.
3. What therapy is necessary?

Situational Task 4

An infant who appears to be of normal size is noted to be lethargic and somewhat limp after birth. The mother is 28 years old, and this is her fourth delivery. The pregnancy was uncomplicated, with normal fetal monitoring prior to delivery. Labor was rapid, with local anesthesia and intravenous meperidine was administered for maternal pain control.

1. What are the first steps in the management of this infant?
2. Which of the following therapeutic maneuvers is likely to improve this infant's condition most rapidly?

Situational Task 5

At 43 weeks' gestation, a long, thin infant is delivered. The infant is apneic, limp, pale, and covered with "pea soup" amniotic fluid.

1. What should be the first step in the resuscitation of this infant at delivery?
2. What are the steps in the management of this infant?

Methodical materials for the class basic stage supporting.

A professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming .

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of the patient with intrauterine hypoxia and asphyxia in newborn period.	<ol style="list-style-type: none"> 1. To conduct the complaints and disease anamnesis. 2. To gather thoroughly the patient's life anamnesis. 3. To conduct examination of the patient. 4. To investigate cardiovascular system of the patient (palpation, percussion). 5. To conduct auscultation of the heart and of the main vessels. 6. To investigate the pulmonary system (percussion, bronchophony). 7. To conduct lungs auscultation. 8. To investigate the system of digestion. 	<p>To pay attention to features of disease course, underlying factors, concomitant diseases etc.</p> <p>To establish the risk factors which can cause the development of disease.</p> <p>To assess patient general condition, position's in bed, color and humidity of skin and mucose, presence of neck veins and extremities' swelling.</p> <p>To pay regard to rhythm of pulse, it tension and size on both hands, apex shove, it properties, margins of absolute and relative cardiac dullness, it's changes, HR (tachi-or bradycardia, extrasystole), BP.</p> <p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation in neonates with asphyxia</p> <p>To pay attention to changes in neonates</p>
2	To formulate the initial diagnosis.	<ol style="list-style-type: none"> 1. To formulate the initial diagnosis 2. To substantiate all components of preliminary diag- 	To formulate the based on modern classification initial diagnosis of asphyxia and to substantiate each component of

		nosis based on complaints, anamnesis, and examinations.	it.
3	To evaluate the parameters of additional laboratory investigations.	<ol style="list-style-type: none"> 1. To evaluate the blood count data. 2. To evaluate the biochemistry data. 3. To evaluate the screening of sera for all components of the TORCH-complex 	<p>To pay attention to the signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to cholesterol, lipids, bilirubin, calcium and glucose levels, detection of pathogen-specific IgM and IgG.</p>
4	To understand the data of additional and laboratory investigation.	To understand the data of ultrasound, X-ray and MRI diagnostics.	To pay special attention to the normal parameters of ultrasound, X-ray and MRI diagnostics in diseases in newborn period.
5	To conduct differential diagnosis.	<ol style="list-style-type: none"> 1. Consistently to find the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient and in similar states. 2. To find differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of examination and in similar nosology. 3. On the basis of the differences found to exclude similar diseases from the list of credible diagnoses. 4. To conduct differential diagnostics according to the above mentioned algorithm among all nosologies having the similar signs, among other nervous system diseases in newborn period. 	Special attention must be paid to differential diagnosis among the intrauterine hypoxia and asphyxia in newborn period, intrauterine infections and neonatal infections, congenital thyroid deficiency.

		5. Taking into account the impossibility to exclude the diagnosis of natal injuries from the list of credible diagnoses to draw a conclusion about the most probability of such diagnosis.	
6	To formulate the final clinical diagnosis.	1. To formulate the final clinical diagnosis. 2. Basing on initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.	On the basis of modern classification of natal injuries formulate a diagnosis, complications of disease and presence of concomitant diseases
7	To prescribe treatment for patients.	1. To prescribe non medicinal treatment 2. To prescribe the medicinal treatment.	To specify the regimen and detailed diet according to the disease. Taking into account age, severity of patient state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance to the standards of intra-uterine hypoxia and asphyxia in newborn period therapy.

**Materials of the medical support for the students' self training:
a reference chart for organization of students independent work with
educational literature.**

Tasks	Instructions
To study the etiology and pathogenesis of intrauterine hypoxia and asphyxia in newborn period	To enumerate the basic etiologic factors, to select the key links of hypoxia and asphyxia in newborn period pathogenesis.
To study clinical manifestations of hypoxia and asphyxia in newborn period.	To establish the symptoms and to gather it in the clinical syndromes to make the probable diagnosis of asphyxia
To study diagnostic criteria of hypoxia and asphyxia in newborn period	To make the flow diagram of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.

To study the changes in additional investigational methods which are pathognomonic for hypoxia and asphyxia in newborn period.	To enumerate the basic diagnostic criteria of asphyxia according to the data of additional methods of examination.
To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual holiatry to patient with hypoxia and asphyxia in newborn period. To be able to render the first aid in emergency in asphyxia.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient state, the stage of disease, the presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic:

1. Nelson Essentials of Pediatrics, fifth edition, Copyright © 2007 / edited by Richard E. Behrman, Robert M. Kliegman, Ann M. Arvin; senior editor, Waldo E. - Section XII.
2. Rudolph's Pediatrics, 21st Edition.
3. Key Topics in Neonatology. Richard H. Mupanemunda, Michael Watkinson, BIOS Scientific Publishers Limited, 1999, p.16 -19.

Additional:

1. Martin: Fanaroff and Martin's Neonatal-Perinatal Medicine, 8th ed., Copyright © 2006.
2. Аряєв М.Л. Неонатологія. - Київ: «АДЕФ-Україна.», 2006. - 754 с
3. Шабалов Н.П. Неонатологія. Том I - Санкт-Петербург, 2006г.
4. Неонатологія. Навчальний посібник для практичних занять зі студентами медичних факультетів вищих навчальних медичних закладів / Волосовець О.П., Безруков Л.О. та інш. - Чернівці, 2000. - С. 203 - 214.

BIRTH TRAUMAS.

Classification of birth traumas. Etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis. Emergency in birth traumas. Prognosis.

I. ACTUALITY OF THE THEME

Knowledge of birth traumas manifestations (CNS and spinal) in neonates allows to conduct diagnostics, differential diagnostics, medical treatment and prophylaxis in due time.

The continuing advances in antenatal and perinatal care have led to progressive fall in fetal deaths due to traumas during delivery. However, birth injuries still cause a significant neonatal morbidity of which neonatal staff should be aware. Difficult delivery by any methods is a prime risk factor but so is a very rapid delivery. An increased risk is also attached to preterm delivery, Caesarean delivery and multiple pregnancy. Birth traumas (CNS and spinal) may lead to the mental and physical development retardation and psychological inability of children, that is why the early diagnosis, treatment, rehabilitation and prophylaxis are very important.

Concrete purposes:

1. To determine the etiologic and pathogenesis factors in natal injuries in newborn period.
2. To classify and analyse the typical clinical manifestation of natal injuries in newborn period.
3. To determine the features of natal injuries for newborns and put a initial clinical diagnosis.
4. To make the plan of examination and the information about laboratory and instrumental data in the classic course of natal injuries in newborn period.
5. To demonstrate skills of treatment, rehabilitation and prophylaxis in natal traumas in children.
6. To diagnose complications of natal trauma and to diagnose and render an urgent help in emergency in birth traumas.
7. To conduct differential diagnostics of natal injuries and other nervous system diseases in newborn period.
8. To determine the nearest and remote prognosis in patients with birth traumas in children.
9. To demonstrate the skills of medical specialist's moral and deontological principles and the principles of professional subordination in pediatrics.

II. Classes (pointing out planned mastering level)

1. A student must have a conception (familiarize): $\alpha 1$

- The place of birth traumas in the structure of nervous system diseases in children;
- Statistical information in relation to morbidity, frequency of complications, lethality, the nearest and remote prognosis in patients with birth traumas;
- The history of scientific studying and the contribution of domestic scientists;

2. A student must know (master): $\alpha 2$

- causes of natal injuries in newborn period;
- key links of natal injuries in newborn period;

- key links of the nervous system diseases pathogenesis in newborn period;
- classification of birth traumas;
- classical clinical manifestation of natal injuries in newborn period;
- clinical syndromes depending on natal trauma period;
- laboratory and instrumental diagnosis of natal traumas;
- complications of natal traumas;
- treatment principles of natal injuries in children.

3. A student must master: α3

Skills:

- Collection of complaints and anamnesis of disease;
- Examination of patient with natal injuries and revealing the main symptoms and syndromes;.
 - To formulate and substantiate the initial diagnosis;
 - Determination of laboratory and instrumental plan of patient's examination (according to diagnostic standards);

Abilities:

- To interpret the results of laboratory and instrumental tests.
- To conduct differential diagnosis among natal injuries and other nervous system diseases in newborn period.
- To give recommendations in relation to the patient's regimen and diet, taking into account the stage of the disease, severity of the state and concomitant pathology;
 - To complete the treatment plan in natal injuries according to standards taking into account the stage of the disease, complications and concomitant pathology.
 - To give the first aid in extreme situations in newborn with natal injuries.
 - To realize the life prognosis of patients with natal injuries.

III. Aims of personality development (educative aims):

- A student must learn to adhere to rules of behaviour and principles of medical etiquette and deontology, to develop bedside manner;
- Be able to set a psychological contact with a patient and his family;
- To master the sense of professional responsibility for a timely and adequate medicare.

Questions for elementary level of knowledge control

1. What are the main causes of birth injuries?
2. Point out the classification of birth traumas.
3. What are the main clinical manifestations of natal traumas in intracranial and spinal injuries?
4. Define diagnostic and differential diagnostic measures in natal injuries.
5. What is the common treatment tactics in CNS and spinal injuries?
6. What are the main consequences of natal traumas in later periods of childhood and their prophylaxis ?

Primary control tests

1. In a child there is a soft formation on his head which consistently, spreads outside the cranial bone. On examination after 2 days this formation was not detected.

What is the diagnosis?

- A. Subdural hematoma
- B. Cephalohematoma
- C. Cerebral hernia
- D. Epidural hematoma
- E. Caput succedaneum

2. A child delivered with a severe natal trauma of CNS at the age of 5 days developed anxiety, periodically there are short-term clonic and tonic cramps. What is the period of natal trauma in the child?

- A. Subacute
- B. Acute
- C. The period of the residual phenomena
- D. The early regenerative period
- E. The late regenerative period

3. In a prematurely born child delivered with a severe natal trauma of CNS, at the age of 25 days anxiety occurred, periodically there are short-term clonic and tonic cramps. What is the period of natal trauma in the child?

- A. Subacute
- B. Acute
- C. The period of the residual phenomena
- D. The early regenerative period
- E. The late regenerative period

4. In a child delivered with a severe natal trauma of CNS, at the age of 1,5 year there is a psychomotor retardation, pallor of the skin, rapid fatigueability.

What is the period of natal trauma in this case?

- A. Subacute
- B. Acute
- C. The period of the residual phenomena
- D. The early regenerative period
- E. The late regenerative period

5. In a baby to the day of excoriation a cephalohematoma of considerable dimensions remains. What is the tactics?

- A. Injection of sclerosing solutions.
- B. Not to treat
- C. To direct after the excoriation to neuro-surgeon.
- D. CT of cerebrum
- E. LP in a maternity hospital.

6. In a child delivered with a severe natal trauma of CNS at the age of 5th months anxiety occurred, moderate developmental retardation, periodically there is infringement of microcirculation, marble skin, motional disturbances. What is the period of natal trauma in the child?

- A. Subacute
- B. The period of the residual phenomena

- C. Acute
- D. The early regenerative period
- E. The late regenerative period

7. In a child delivered with natal trauma of CNS at the age of 4th months the head dimensions are correspond to the age, mild hyperesthesia, anxiety took place. Lumbar puncture: the liquor follows a jet What kind of syndrome of natal trauma takes place in this case?

- A. Convulsive
- B. Hydrocephalic
- C. Asthenoneurotic
- D. Hypertensive
- E. Depression of CNS.

8. In the child on the 3^d day after delivery there was a severe vomiting, anxiety, strain of the big fontanel, divergence of cranial seams, Grefe symptom, positive Lessage symptom. On lumbar puncture blood was revealed in liquor. What type of intracranial hemorrhage can be diagnosed in this case?

- A. In brain parenchyma
- B. Intraventricular
- C. Subdural
- D. Subarachnoidal
- E. Epidural

9. In the premature child on the 2nd day after birth there were tonic cramps with the subsequent development of opisthotonus, he stopped sucking independently. There were anisocoria, oppression of reflexes. An intraventricular hemorrhage is suspected. What test will allow to confirm the diagnosis?

- A. X-ray of skull.
- B. Diafanoscopy.
- C. Neurosonography.
- D. Reovasography of cerebral vessels
- E. All listed above.

10. In newborn child at the end of 1st day of life on the basis of clinical survey and according to the data of neurosonography an intraventricular hemorrhage was suspected. What preparations listed below are pathogenically indicated in this case?

- A. Magnesium sulfas
- B. Cephasolinum
- C. Dicinonum
- D. Calcium gluconat
- E. ATP
- F. All listed above

11. A 1-month-old comatose infant with multiple broken bones in various stages of healing, bulging anterior fontanelle, and retinal hemorrhages. (SELECT 1 ABNORMALITY)

- A. Intraventricular hemorrhage
- B. Caput succedaneum
- C. Subdural hemorrhage
- D. Subarachnoid hemorrhage
- E. Cephalohematoma

12. A 13-day-old female infant delivered by midforceps after occiput-posterior presentation has massive, persistently enlarging cephalhematoma. Indicate therapy

- A. Therapy is not indicated
- B. Surgical drainage
- C. Introduction to the hematoma of sclerosing solutions
- D. Bronchoalveolar lavage
- E. Phototherapy

13. A newborn in term has rhythmic, multifocal, clonic seizures lasting 3 minutes on the second day after birth. The intrapartum history is significant for a difficult vertex vaginal delivery assisted with forceps. Apgar scores were 8 and 9 at 1 and 5 minutes, respectively. The infant had appeared well until the onset of seizures. The serum glucose, calcium, and electrolyte concentrations are normal.

The MOST useful test for confirmation of the diagnosis is

- A. cerebrospinal fluid examination
- B. computed tomography
- C. cranial ultrasonography
- D. electroencephalography
- E. fiberoptic transillumination

14. A newborn has multifocal, rhythmic, migratory clonic seizures 6 hours after birth. The infant in term is lethargic, hypotonic, and hyperreflexic. She has a weak sucking and constricted but reactive pupils.

The MOST likely cause of seizures in this infant is

- A. bacterial meningitis
- B. benign familial seizures
- C. hypocalcemia
- D. perinatal asphyxia
- E. subarachnoid hemorrhage

15. A near-term newborn was delivered by emergency cesarean section following placental abruption. She required resuscitation because of respiratory depression. The Apgar scores were 1, 4, and 7 at 1, 5, and 10 minutes, respectively. The cord blood pH was 6.9, and the base deficit 18 mEq/L. At 6 hours of age, the infant had clonic seizures, which were controlled with phenobarbital. She is arousable and shows proximal muscle hypotonia. Her mother asks about the long-term prognosis for the child.

The MOST likely long-term prognosis for this infant is

- A. cerebral palsy
- B. loss of hearing

- C. normal development
- D. seizure disorder
- E. visual impairment

16. A newborn in term, one of twins, is plethoric and has a central venous hematocrit of 72% (0.72). The MOST likely complication in this infant is

- A. disseminated coagulopathy
- B. hypoglycemia
- C. necrotizing enterocolitis
- D. renal failure
- E. seizures

17. In 1-day-old term newborn face asymmetry is marked during crying – the left angle of the mouth is lowered. What natal trauma takes place in this case?

- a. Intraventricular hemorrhage
- b. Caput succedaneum
- c. Natal injury of facial nerve
- d. Subarachnoid hemorrhage
- e. Cephalohematoma

18. A child delivered with a severe natal trauma of CNS at the age of 5 days developed an anxiety, periodically there are short-term clonic and tonic cramps. What syndrome of natal trauma has the child?

- A. Convulsive
- B. Hydrocephalic
- C. Asthenoneurotic
- D. Hypertensive
- E. Depression of CNS.

19. A 1-day-old healthy infant has a superficial swelling over the right parietotemporal region that does not cross the suture lines. What is the diagnosis?

- A. Subdural hematoma
- B. Cephalohematoma
- C. Cerebral hernia
- D. Epidural hematoma
- E. Caput succedaneum

20. The examination of a newborn's back reveals a quarter-size "lump" of soft tissue overlying the lower spine. Evaluation of this lesion may demonstrate with ultrasound.

- A. Ebstein pearl
- B. Mongolian spot
- C. Cephalohematoma
- D. Omphalocele
- E. Occult spina bifida

SITUATIONAL TASKS

Situational Task 1

A 1-day-old infant who was born by a difficult forceps delivery is alert and active. She does not move her left arm, however, which she keeps internally rotated by her side with the forearm extended and pronated; she also does not move it during a Moro reflex. The rest of her physical examination is normal.

1. What diagnosis is the most likely?
2. Why is this diagnosis the most likely?
3. Conduct differential diagnostics.
4. What tests confirm the suspected diagnosis injury of the phrenic nerve?

Situational Task 2

1-day-old infant who was born by a difficult forceps delivery is alert and better active and immediately develops tachypnea with cyanosis. She is somewhat on oxygen but has predominantly thoracic breathing movements, and the chest x-ray, which appears to have been taken inadvertently at expiration, seems normal.

1. What procedure is most likely to provide a specific etiologic diagnosis?
2. What tests confirm the suspected diagnosis injury of the phrenic nerve?
3. What tests confirm the suspected diagnosis injury of the fifth and sixth cervical nerves?

Situational Task 3

A 19-year-old primiparous woman develops toxemia in her last trimester of pregnancy and during the course of her labor is treated with magnesium sulfate. At 38 weeks' gestation, she delivers a 2100-g infant with Apgar scores of 1 at 1 min and at 5 at 5 min. Laboratory studies at 18 h of age reveal a hematocrit of 79%, platelet count of 100,000/L, glucose 38 mg/dL, magnesium 2.5 meq/L, and calcium 8.7 mg/dL. Soon after, this the infant has a generalized convulsion.

1. What is the most likely cause of the infant's seizure?
2. Conduct differential diagnostics.

Situational Task 4

The signs and symptoms of meningitis in an infant can be different than those in an adult.

1. What signs and symptoms of meningitis in an infant do you know?
2. Which of the signs and symptoms of meningitis is more helpful in an adult patient than in a 1-month-old?

Situational Task 5

A 1-day-old healthy infant with a superficial swelling over the right parietotemporal region that does not cross the suture lines.

1. What diagnosis is the most likely? Why is this diagnosis most likely?
2. Conduct differential diagnostics.

Methodical materials for the class basic stage supporting.

A professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming .

No	Task	Sequence of implementation	Remarks and warnings
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			related to self-control
1	To conduct examination of the patients with natal injuries	<p>1.To conduct the complaints and disease anamnesis.</p> <p>2.To gather thoroughly the patient's life anamnesis.</p> <p>3.To conduct examination of the patient.</p> <p>4.To investigate cardiovascular system of the patient (palpation, percussion).</p>	<p>To pay attention to features of disease course, underlying factors, concomitant diseases etc.</p> <p>To establish the risk factors which can cause the development of disease.</p> <p>To assess patient's general condition, position in bed, color and humidity of skin and mucose, presence of neck veins and extremities' swelling.</p> <p>To pay regard to rhythm of pulse, it tension and size on both hands, apex shove, it properties, margins of absolute and relative cardiac dullness, it changes, HR (tachy- or bradycardia, extra systole), BP.</p>
		<p>5.To conduct heart and the main vessels auscultation.</p> <p>6.To examine the pulmonary system (percussion, bronchophony).</p> <p>7.To conduct lungs auscultation.</p> <p>8.To examine the system of digestion.</p>	<p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation in neonates</p> <p>To pay attention to changes in digestion system in neonates.</p>
2	To formulate the initial diagnosis.	<p>1.To formulate the initial diagnosis</p> <p>2.To substantiate all components of initial diagnosis based on complaints,anamnesis, and examinations.</p>	To formulate the based on modern classification initial diagnosis of natal injuries and to substantiate each component of it.
3	To evaluate the parameters of additional laboratory investigations.	<p>1.To evaluate the blood count data.</p> <p>2. To evaluate the biochemistry data.</p> <p>3.To evaluate the screening of sera for all components of the</p>	<p>To pay attention to signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to cholesterol, lipids, bilirubin,</p>

		TORCH-complex	calcium and glucose levels, detection of pathogen-specific IgM and IgG.
4	To understand the data of additional and laboratory investigation	To understand the data of ultrasound, X-ray and MRI diagnostics.	To pay special attention to the normal parameters of ultrasound, X-ray and MRI diagnostics in diseases in newborn period.
5.	To conduct differential diagnosis.	<p>1. Consistently to find the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient and in similar states.</p> <p>2. To find differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of research and in similar nosology.</p> <p>3. To found out differences to exclude similar diseases from the list of credible diagnoses.</p> <p>4. To conduct differential diagnostics according to the above mentioned algorithm among all nosologies which have the similar signs, among other nervous system diseases in newborn period.</p> <p>5. Taking into account the impossibility to exclude the diagnosis of natal injuries from the list of credible diagnoses to draw a conclusion about most probability of such diagnosis.</p>	Special attention must be paid to differential diagnosis among the intrauterine hypoxia and asphyxia in newborn period, intrauterine infections and neonatal infections, congenital hypothyroidism.
6	To formulate the final clinical diagnosis.	<p>1. To formulate the concluding clinical diagnosis.</p> <p>2. Based on preliminary diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.</p>	On the basis of modern classification of natal injuries formulate a diagnosis, complications of disease and the presence of concomitant diseases.

7	To prescribe treatment for the patients.	<p>1.To prescribe non medicinal treatment</p> <p>2.To prescribe medicinal treatment.</p>	<p>To specify the regimen and detailed diet according to the disease.</p> <p>Taking into account age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with the standards of natal injuries therapy.</p>
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**Materials of the medical support for the students' self training:
a reference chart for organization of students' independent work with
educational literature.**

Tasks	Instructions
To study the etiology and pathogenesis of natal injuries in children.Be able to detect syndromes depending on natal trauma period.	To enumerate basic etiologic factors, select the key links of natal injuries pathogenesis.
To study clinical manifestations of natal injuries in children.	To establish the symptoms and gather it to clinical syndromes which enable to make the credible diagnosis of natal injuries
To study diagnostic criteria of natal injuries	To make the flow diagram of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.
To study the changes in additional investigational methods which are pathognomonic for natal injuries.	To enumerate the basic diagnostic criteria of natal injuries according to the data of additional investigational methods.
To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual toiletry to patient with the natal injuries. To be able to render the first aid in emergency in birth traumas.	To make the prescribing chart specifying the regimen, diet, medicinal treatment taking into account the age, severity of patient's state, the stage of disease, the presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic:

1. Nelson Essentials of Pediatrics, fifth edition, Copyright © 2007 / edited by Richard E. Behrman, Robert M. Kliegman, Ann M. Arvin; senior editor, Waldo E. - Section XII.
2. Rudolph's Pediatrics, 21st Edition. Chapter 2, Chapter 25.9.
3. Key Topics in Neonatology. Richard H. Mupanemunda, Michael Watkinson, BIOS Scientific Publishers Limited, 1999, p.21-25.

Additional:

1. Martin: Fanaroff and Martin's Neonatal-Perinatal Medicine, 8th ed., Copyright © 2006 Chapters 25, 26, 27, 28, 38.
2. Аряев М.Л. Неонатологія. - Київ: «АДЕФ-Україна», 2006. - 754 с.
3. Шабалов Н.П. Неонатологія. Том I - Санкт-Петербург, 2006г.
4. Неонатологія. Навчальний посібник для практичних занять зі студентами медичних факультетів вищих навчальних медичних закладів / Волосовець О.П., Безруков Л.О. та інш. - Чернівці, 2000. - С. 203 - 214.

RESPIRATORY DISTRESS SYNDROME, PNEUMOPATHIES AND PNEUMONIAS IN NEONATES.

Classification of respiratory distress syndrome, pneumopathies and pneumonias in neonates. Etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis of respiratory distress syndrome, pneumopathies and pneumonias in neonates. Prophylaxis. Prognosis.

I. Actuality of the theme.

Knowledge of respiratory distress syndrome, pneumopathies and pneumonias manifestations in neonates allows conducting in due time diagnostics, differential diagnostics, medical treatment and prophylaxis. Enormous strides have been made in understanding the pathophysiology of respiratory distress syndrome (RDS) and more particularly the role of surfactant in its cause. Nevertheless, RDS, formerly referred to as hyaline membrane disease, remains a dominant clinical problem encountered among preterm infants. The greatly improved outcome in RDS can be attributed primarily to the introduction of pharmacologic acceleration of pulmonary maturity and the development of surfactant replacement therapy. Because more of the sickest, most immature infants are surviving, the incidence of complications in the survivors of RDS remains significant. These include intracranial hemorrhage, patent ductus arteriosus (PDA), pulmonary hemorrhage, sepsis, and bronchopulmonary dysplasia (BPD), as discussed in Part 4 and elsewhere. It is often impossible to determine whether these disorders are the sequelae of RDS, of its treatment, or of the underlying prematurity. In this section the clinical features and evaluation of infants with RDS are discussed, and therapeutic approaches other than assisted ventilation are outlined

Concrete purposes:

1. To determine the etiologic and pathogenetic factors in RDS, pneumopathies and pneumonias in neonates.
2. To classify and analyse the typical clinical manifestation of RDS, pneumopathies and pneumonias in neonates.
3. To determine the features of RDS, pneumopathies and pneumonias for newborns and put a preliminary clinical diagnosis. To conduct differential diagnostics.
4. To make the plan of examination and analyse the information about laboratory and instrumental data in the classic course of RDS, pneumopathies and pneumonias in neonates.
5. To demonstrate skills of treatment, rehabilitation and prophylaxis in of RDS, pneumopathies and pneumonias in neonates.
6. To diagnose and render an urgent help in RDS, pneumopathies and pneumonias in neonates.
7. To determine the prognosis for life in RDS, pneumopathies and pneumonias in neonates.
8. To demonstrate the skills of medical specialist's moral and deontological principles and principles of professional subordination in pediatrics.

II. Classes (pointing out planned mastering level)

1. A student must have a conception (familiarize): $\alpha 1$

- The place of RDS, pneumopathies and pneumonias in neonates in the structure of diseases in newborn period.
- Statistical information in relation to morbidity, frequency of complications, lethality, the nearest and remote prognosis in patients with RDS, pneumopathies and pneumonias ;
- The history of scientific studying and the contribution of domestic scientists;

2. A student must know (master): $\alpha 2$

- causes of RDS, pneumopathies and pneumonias in newborn period;
- key links of RDS, pneumopathies and pneumonias in newborn period;
 - key links of the nervous system, respiratory system and cardiovascular system diseases pathogenesis in newborn period ;
- classification of RDS, pneumopathies and pneumonias in neonates ;
- classical clinical manifestation of RDS, pneumopathies and pneumonias in neonates;
- clinical syndromes depending on RDS, pneumopathies and pneumonias in neonates period ;
- classification of respiratory system and cardiovascular system development anomalies ;
- laboratory and instrumental diagnosis of RDS, pneumopathies and pneumonias in neonates ;
- complications of RDS, pneumopathies and pneumonias in neonates;
- treatment principles of RDS, pneumopathies and pneumonias in neonates.

3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;
- Examination of patient with natal injuries and revealing the main symptoms and syndromes;.
 - To formulate and substantiate the initial diagnosis;
 - Determination of laboratory and instrumental plan of patient's examination (according to diagnostics' standards);

Abilities:

- To interpret the results of laboratory and instrumental tests.
- To conduct differential diagnosis among RDS, pneumopathies and pneumonias and other nervous system, respiratory system and cardiovascular system diseases in newborn period.
- To give recommendations in relation to the patient's regimen and diet with the RDS, pneumopathies and pneumonias, taking into account the stage of the disease, severity of the state and concomitant pathology;
- To complete the treatment plan in RDS, pneumopathies and pneumonias according to standards taking into account the stage of the disease, complications and concomitant pathology.
- To give the first aid in extreme situations in newborn with the RDS, pneumopathies and pneumonias.
- To realize the life prognosis of patients with the RDS, pneumopathies and pneumonias.

III. Aims of personality development (educative aims):

- A student must learn to adhere rules of behaviour and principles of medical etiquette and deontology, to develop bedside manner;
- Be able to set a psychological contact with a patient and his family;
- To master the sense of professional responsibility for a timely and adequate medicare.

Questions for self-control

1. What are the main causes of RDS and features of surfactant?
2. Point out the classification of RDS and pneumonias in neonates.
3. What are the main clinical manifestations of RDS?
4. Silverman's score?
5. Define diagnostic and differential diagnostic measures in RDS and pneumonias in neonates.
6. What is the tactics of respiratory therapy in RDS?
7. What are the main consequences of RDS in later periods of childhood and their prophylaxis?
8. Peculiarities of antibacterial therapy of pneumonias in neonates depending on mature level and causal agent.

The primary control tests

1. For the newborns RDS of any parentage is typically everything except for:
 - A. Hypothermia
 - B. Unemotional cry or its absence
 - C. Hyperreflexia
 - D. Essential losses of initial body weight
 - E. Regurgitation
2. For hyaline membranes it is characteristic:
 - A. State is more frequent in newborns with weight of 1000 – 1500g
 - B. It is observed in mortinatuses
 - C. Insufficientcy of surfactant synthesis
 - D. Occurs more frequent, if a mother had bleeding a day before to premature births
 - E. Everything is correct except for it is observed in mortinatuses
3. Intensive therapy of hyaline membranes includes:
 - A. CPAP-therapy
 - B. Additional ventilation of lungs by indications
 - C. Prescribing of surfactant by indication
 - D. All except for CPAP therapy
 - E. All listed above
4. Sourfactant is damaged with:
 - A. Hyperventilation
 - B. The washed erythrocytes

- C. Artificial ventilation of lights
- D. Viruses
- E. Everything is correct except for the washed erythrocytes

5. Newborn child with a gestational term of 32 weeks and with weight at birth of 1700 g, Apgar score is 5-7-8 points, at the age of 2 hours the dyspnea of breath and expiration grants, appeared. On auscultation there are wheezes in lungs. What is the most probable reason of these symptoms?

- A. Persistent pulmonary hipertension
- B. Transient tachipnoe of newborns
- C. Congenital anomaly of liungs
- D. RDS
- E. Syndrome of meconium aspiration

6. A respiratory distress-syndrome is clinically diagnosed. What from listed below is the principal reason of this syndrome development in a premature newborn child 6 hours of age?

- A. Natal trauma
- B. Deficit of sourfactant
- C. Delay of fetal pulmonary liquid
- D. Intranatal infection
- E. Syndrome of meconium aspiration.

7. A child of 3 days was born with weight 2200 g. 3 hours after his birth there occured respiratory disorders as dyspnea, retractions of a xiphoid process and of intercostal spaces, pits under breast, attacks of apnoe. On auscultation the loosened breathing. What is the most probable reason of respiratory disorders?

- A. Syndrome of aspiration
- B. Intrauterine pneumonia
- C..Intracranial trauma
- D. Pneumonia
- E. Hyaline membranes

8. Child from the 4th pregnancy that proceeded with underlying hestosis of 1 and 2 halves. His mother has diabetes mellitus and hyperplasia of thyroid gland of 2-3 degree. The child was born in a term of 32 weeks gestation. Apgar score is 5-6 points, Silverman score-is 5 points. A few hours after his birth the subsequent worsening of the state due to decrease of respiratory insufficiency was admitted. On the next day the Silverman score was 8 - 10 points. What is the diagnosis?

- A Hyaline membranes
- B. Postnatal pneumonia
- C. Congenital pneumonia
- D. Syndrome of meconium aspitation
- E. Neonatal hypotireosis.

9. A woman with the term of pregnancy of 34 weeks was hospitalized in a maternity hospital with the threat of pregnancy interrupting caused by hestosis and anemia.

What preparation must be prescribed for the pregnant 3 days prior to delivery with the purpose of SDR prophylaxis?

- A. Noradrenalin
- B. Adrenalin
- C. Tyroxin
- D. Estrogens
- E. Dexametasone

10. Intranatal pneumonias develop as a rule:

- A. In an antenatal period
- B. On the background of urogenital infection of pregnant
- C. As a result of viral hematogenous infection of fetus
- D. All answers are correct
- E. All are correct except for as a result of viral hematogenous infection of fetus.

11. For determination of lungs maturity can be used:

- A. Test of Clemens
- B. phenolic test
- C. foamy test using an aspirate of gastric content
- D. lecithin / sfingomielin quotient in investigation of amniotic fluid
- E. All answers are correct

12. Hypoxia in hyaline membranes is caused by:

- A. Shunting of a blood through an oval window and ductus arteriosus from the right to the left
- B. Infringement of bronchuses permeability
- C. All answers are correct
- D. All are correct except for alveolar hypoventilation
- E. Alveolar hypoventilation

13. A mother delivers a neonate with meconium staining and Apgar scores of 3 at 1 and 5 min of life. She had no prenatal care and the delivery was by emergency cesarean section for severe fetal bradycardia. Which of the following sequelae could be expected to develop in this intubated neonate with respiratory distress?

- A. Sustained rise in pulmonary arterial pressure
- B. Hyperactive bowel sounds
- C. Microcephaly with micrognathia
- D. Cataracts
- E. Thrombocytosis

14. A 3-day-old infant born at 32 weeks' gestation and weighing 1700g (3 lb, 12 oz) has three episodes of apnea, each lasting 20 to 25 s and occurring after feeding. During these episodes, the heart rate drops from 140 to 100 beats per min, and the child remains motionless; between episodes, however, the child displays normal activity. Blood sugar is 50 mg/dL and serum calcium is normal. The child's apneic periods most likely are

- A. Due to an immature respiratory center

- B. A part of periodic breathing
- C. Secondary to hypoglycemia
- D. Manifestations of seizures
- E. Evidence of underlying pulmonary disease

15. An infant of uncertain dates is born via emergent cesarean section. Birth weight was 1075g. The infant has poor respiratory effort and immediate intubation and ventilation were successful. She has been extubated for 2 weeks and still requires oxygen to maintain her saturation above 93%. Her chest radiograph now reveals patchy, fluffy infiltrates with areas of lucency. She requires daily diuretic treatment. What is the diagnosis?

- A. Bronchopulmonary dysplasia
- B. Respiratory distress syndrome (hyaline membrane disease)
- C. Pulmonary interstitial emphysema
- D. Bronchiolitis
- E. Transient tachypnea of the newborn

16. A newborn infant develops respiratory distress immediately after birth. His abdomen is scaphoid. No breath sounds are heard on the left side of his chest, but they are audible on the right. Immediate intubation is successful with little or no improvement in clinical status. The most likely explanation for this infant's condition is

- a. Pneumonia
- b. Cyanotic heart disease
- c. Diaphragmatic hernia
- d. Choanal atresia
- e. Pneumothorax

17. Full term, 4200-g female infant is delivered via cesarean section because of cephalopelvic disproportion. The amniotic fluid was clear, and the infant cried almost immediately after birth. Within the first 15 min of life, however, the infant's respiratory rate increased to 80 breaths per min, and she began to have intermittent grunting respirations. The infant was transferred to the level 2 nursery and was noted to have an oxygen saturation of 94%. The chest radiograph showed fluid in the fissure, overaeration, and prominent pulmonary vascular markings. The most likely diagnosis in this infant is

- a. Diaphragmatic hernia
- b. Meconium aspiration
- c. Pneumonia
- d. Idiopathic respiratory distress syndrome
- e. Transient tachypnea of the newborn

18. Previously healthy full-term infant has several episodes of duskeness and apnea during the second day of life. Diagnostic considerations should include which of the following?

- a. Hemolytic anemia

- b. Congenital heart disease
- c. Idiopathic apnea
- d. Harlequin syndrome
- e. Hyperglycemia

19. An infant of uncertain dates is born via emergent cesarean section after the mother was critically injured in a motor vehicle accident. Birth weight was 1075g. The infant has poor respiratory effort and you begin bag-mask ventilation but find it extremely difficult to cause chest wall movement. Chest radiograph reveals diffuse whiteout of both lungs, with an occasional air bronchogram. What is the diagnosis?

- A. Bronchopulmonary dysplasia
- B. Respiratory distress syndrome (hyaline membrane disease)
- C. Pulmonary interstitial emphysema
- D. Bronchiolitis
- E. Transient tachypnea of the newborn

20. Full term infant delivered via scheduled cesarean section develops, at 15 min of age, tachypnea, grunting, flaring, and retractions. Chest radiograph reveals well-aerated lungs with fluid in the fissure on the right, prominent pulmonary vascular markings, and flat diaphragms. The child is mildly hypoxic on room air with 89% oxygen saturation. Over the next 6 h she improves and no longer requires oxygen. What is the diagnosis?

- A. Bronchopulmonary dysplasia
- B. Respiratory distress syndrome (hyaline membrane disease)
- C. Meconium aspiration
- D. Transient tachypnea of the newborn
- E. Bacterial pneumonia

SITUATIONAL TASKS

Situational Task 1

1-day-old infant who was born by a difficult forceps delivery is alert and active and immediately develops tachypnea with cyanosis. She improves somewhat on oxygen but has predominantly thoracic breathing movements, and the chest x-ray, which appears to have been taken inadvertently at expiration, seems normal.

1. What procedure is the most likely to provide a specific etiologic diagnosis?
2. What tests confirm the suspected diagnosis injury to the phrenic nerve?

Situational Task 2

A 3-day-old infant born at 32 weeks' gestation and weighing 1700 g (3 lb, 12 oz) has three episodes of apnea, each lasting 20 to 25 s and occurring after a feeding. During these episodes, the heart rate drops from 140 to 100 beats per min, and the child remains motionless; between episodes, however, the child displays normal activity. Blood sugar is 50 mg/dL and serum calcium is normal.

1. What diagnosis do the child's apneic periods most likely indicate?
2. Why is this diagnosis the most likely?
3. Conduct differential diagnostics.

Situational Task 3

After an uneventful labor and delivery, an infant is born at 32 weeks' gestation weighing 1500 g (3 lb, 5 oz). Respiratory difficulty develops immediately after birth and increases in intensity thereafter. The child's mother (now gravida 3, para 2102) previously lost an infant because of hyaline membrane disease. At 6 h of age, the child's respiratory rate is 60 breaths per min. Examination reveals grunting, intercostal retraction, nasal flaring, and marked cyanosis in room air.

1. What diagnosis is the most likely?
2. Why is this diagnosis the most likely?
3. What do physiologic abnormalities compatible with these data include?

Situational Task 4

A newborn infant develops respiratory distress immediately after birth. His abdomen is scaphoid. No breath sounds are heard on the left side of his chest, but they are audible on the right and bowel sounds are heard in the chest. Immediate intubation is successful with little or no improvement in the clinical status.

1. What is the most likely explanation for this infant's condition?
2. What procedure can provide a specific etiologic diagnosis?
3. Conduct differential diagnostics.

Situational Task 5

Full term, 4200-g female infant is delivered via cesarean section because of cephalopelvic disproportion. The amniotic fluid was clear, and the infant cried almost immediately after birth. Within the first 15 min of life, however, the infant's respiratory rate increased to 80 breaths per min, and she began to have intermittent grunting respirations. The infant was transferred to the level 2 nursery and was noted to have an oxygen saturation of 94%. The chest radiograph showed fluid in the fissure, overaeration, and prominent pulmonary vascular markings.

1. What is the most likely diagnosis in this infant?
2. Conduct differential diagnostics.
3. Prescribe treatment for the patient.

Methodical materials for the class basic stage supporting.

A professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming .

No	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of the patient with RDS, pneumopathies and pneumonias.	1.To conduct the complaints and disease anamnesis. 2.To gather thoroughly the patient's life anamnesis. 3.To conduct examination of	To pay attention to features of disease course, underlying factors, concomitant diseases etc. To establish the risk factors which can cause the development of disease. To assess patient's general

		the patient.	condition, position in bed, color and humidity of skin and mucose, presence of neck veins and extremities' swelling.
		4.To examine cardiovascular system of the patient (palpation, percussion).	To pay regard to rhythm of pulse, it's tension and size on both hands, apex shove, it properties, margins of absolute and relative cardiac dullness, it changes, HR(tachi-or bradycardia, extrasystole), BP.
		5.To conduct of the heart and of the main vessels auscultation.	To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.
		6.To examine the pulmonary system (percussion, bronchophony).	To pay attention to features of percussion and auscultation in neonates
		7.To conduct lungs auscultation.	Pay attention to changes in neonates
		8.To examine the system of digestion.	To formulate based on modern classification diagnosis of RDS, pneumopathies and pneumonias and to substantiate each component of it.
2	To formulate the initial diagnosis.	1.To formulate the initial diagnosis 2.To substantiate all components of initial diagnosis based on complaints,anamnesis, and examinations.	To pay attention to signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.
3	To evaluate the parameters of additional laboratory examine.	1.To evaluate the blood count data. 2. To evaluate the biochemistry data. 3.To evaluate the screening of sera for all components of the TORCH-complex	Pay attention to cholesterol, lipids, bilirubin, calcium and glucose levels, detection of pathogen-specific IgM and IgG.
4	To understand the data of additional and laboratory investigations.	To understand the data of ultrasound, X-ray and MRI diagnostics.	To pay special attention to the normal parameters of ultrasound, X-ray and MRI diagnostics of diseases in newborn period.
5.	To conduct	1.Consistently to find the com-	Special attention must be

differential diagnosis.

mon signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient and in similar states.

2. To find differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of research and in similar nosology.

3. On the basis of found out differences to exclude similar diseases from the list of credible diagnoses.

4. To conduct differential diagnostics according to the above mentioned algorithm among all of nosologies having the similar signs, among nervous system, respiratory system and cardiovascular system diseases in newborn period.

5. Taking into account the impossibility to exclude the diagnosis of RDS, pneumopathies and pneumonias from the list of credible diagnoses to draw a conclusion about most probability of such diagnosis.

paid to differential diagnosis among the natal injuries, intrauterine hypoxia and asphyxia in newborn period, intrauterine infections and neonatal infections, among nervous system, respiratory system and cardiovascular system diseases in newborn period.

6 To formulate the final clinical diagnosis.

1. To formulate the final clinical diagnosis.
2. Basing on initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.

Being based on modern classification of RDS, pneumopathies and pneumonias to formulate diagnosis, complications of disease and presence of concomitant diseases.

7 To prescribe treatment for patients.

1. To prescribe non medicinal treatment
2. To prescribe the medicinal treatment.

To specify the regimen and detailed diet according to the disease.
Taking into account age, severity of patient state, the

stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance to the standards of RDS, pneumopathies and pneumonias therapy.

**Materials of the medical support for the students' self training:
a reference chart for organization of students' independent work with
educational literature.**

Tasks	Instructions
To study the etiology and pathogenesis of RDS, pneumopathies and pneumonias in children.	To enumerate basic etiologic factors, select the key links of RDS, pneumopathies and pneumonias pathogenesis.
To study clinical manifestations RDS, pneumopathies and pneumonias in children.	To establish the symptoms and gather it to clinical syndromes which enable to make the credible diagnosis of RDS.
To study diagnostic criteria of RDS, pneumopathies and pneumonias	To make the flow diagram of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient investigation.
To study the changes in additional investigational methods which are pathognomonic for RDS, pneumopathies and pneumonias .	To enumerate the basic diagnostic criteria of RDS, pneumopathies and pneumonias according to the data of additional investigational methods.
To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual holiatry to patient with the RDS, pneumopathies and pneumonias. To be able to render the first aid in emergency in RDS, pneumopathies and pneumonias.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, stage of disease, presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic:

1. Nelson Essentials of Pediatrics, fifth edition, Copyright © 2007 / edited by Richard E. Behrman, Robert M. Kliegman, Ann M. Arvin; senior editor, Waldo E. - Section XII.
2. Rudolph's Pediatrics, 21st Edition.

3. Key Topics in Neonatology. Richard H. Mupanemunda, Michael Watkinson, BIOS Scientific Publishers Limited, 1999, p.38 - 46.

Additional:

1. Martin: Fanaroff and Martin's Neonatal-Perinatal Medicine, 8th ed., Copyright © 2006

2. Аряєв М.Л. Неонатологія. - Київ: «АДЕФ-Україна.», 2006. - 754 с

3. Шабалов Н.П. Неонатологія. Том I - Санкт-Петербург, 2006г.

4. Неонатологія. Навчальний посібник для практичних занять зі студентами медичних факультетів вищих навчальних медичних закладів / Волосовець О.П., Безруков Л.О. та інш. - Чернівці, 2000.

HEMOLYTIC AND HEMORRHAGIC DISEASES OF NEWBORNS.

Etiology. Pathogenesis. Classification. Clinical presentation. Diagnostics. Differential diagnostics. Treatment. Prophylaxis. Prognosis.

I. Actuality of the topic.

Jaundice is one of symptoms observed in most of the children of newborn period. According to the literature almost in 65% of children jaundice was observed in the first week of life. In 90-95% it is a manifestation of physiological hyperbilirubinemia. The necessity to be able to differentiate jaundices in dependence of their etiopathogenesis is caused by possibilities for physical inability or even death, having different levels of hyperbilirubinaemia. More often among jaundices (up to 2,8 % of cases) there is hemolytic disease of newborns with lethality of 0,1 %-1 % till this time, despite the modern treatment methods. Hemolytic diseases of newborn are characterized by intensive increase of indirect bilirubin, that can lead to damage central nervous system, organic damages, lethal outcome or durable disability. In case of depression of homeostasis bleeding can be the manifestation of hypocoagulation (hemorrhagic disease) or hypercoagulation, that is DIC-syndrome. Community of clinical signs of both these per se contrary diseases complicates ascertainment of clinical diagnosis and treatment tactics, which determines the result of medication.

II. Classes (pointing out planned mastering level)

1. A student must know (to familiarize): $\alpha 1$

- the place of hemolytic and hemorrhagic diseases in structure of newborn infants diseases;
- statistical information in relation to morbidity, frequencies of complications, lethality, the nearest and remote prognosis in newborns with hemolytic and hemorrhagic diseases;
- history of scientific study and the contribution of domestic scientists;

2. A student must know: $\alpha 2$

- Anatomic and physiological features of hematopoiesis in fetus and newborn infant, blood system in infants;
- Main etiologic factors of hemolytic and hemorrhagic diseases;
- Clinical and diagnostic criteria of hemolytic and hemorrhagic diseases in newborns;
- Principles of complex treatment of hemolytic and hemorrhagic diseases in newborns;
- Complications of phototherapy;
- Prophylactic methods of hemolytic and hemorrhagic diseases in newborns and rehabilitation measures after the diseases.

3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;

- Examination of newborn infant with hemolytic and hemorrhagic diseases and revealing the main symptoms and syndromes;
- To formulate and substantiate the initial diagnosis;
- Determination of laboratory and instrumental plan of patient's investigation (in obedience to diagnostics standards);
- Giving the first aid in case of serious course of disease with further evaluation its efficiency.

4. Abilities:

- to evaluate condition of newborn;
- to interpret the result of laboratory and instrumental tests;
- to conduct differential diagnosis among diseases with the same clinic;
- to formulate and substantiate the clinical diagnosis according to the classification;
- to determine the increase of bilirubin per hour;
- to be able to order blood for blood transfusion operation;
- to conduct determination of blood group and Rh-factor;
- to conduct diagnostic compatibility blood tests;
- to conduct phototherapy;
- to complete the treatment plan in hemolytic and hemorrhagic disease according to standards taking into account the stage of disease;
- to render the first aid in extreme situation and exigent state;
- to prescribe recipes according to the treatment.

Questions for elementary level of knowledge control

1. To determine conception of jaundices in newborn.
2. To point out main features of bilirubins metabolism in newborns, risk factors, which help progress of jaundices in newborn.
3. What are etiology and pathogenesis of hemolytic disease of newborn?
4. Classification of hemolytic disease of newborn.
5. What are the clinical manifestations of different types of hemolytic diseases of newborn?
6. What are the diagnostic principles of hemolytic disease? Conduct differential diagnostics of jaundices in newborn.
7. What is the first aid in case of hemolytic disease of newborn?
8. To prescribe treatment, prophylactic and rehabilitation measures to patient.
9. Determine conception of hemorrhagic syndrome in newborn.
10. Point out the main features of homeostasis in newborn, which can contribute the development of hemorrhagic disease.
11. What are etiology and pathogenesis of hemorrhagic disease of newborn?
12. What is the clinic of hemorrhagic disease?
13. What are the diagnostic principles of hemorrhagic disease? Conduct differential diagnostics of hemorrhagic syndrome in newborn.
14. What is the first aid in case of bleeding of newborn?
15. Prescribe treatment, prophylactic and rehabilitation measures to patient

Examples of tests and tasks:

1. A new-born child from a mother with the complicated obstetric anamnesis, from third pregnancy, first delivery. At birth the skin is rosy, Hb of blood is 160 g/l, RBC - 4,6 g/l. Bilirubin of blood from the umbilical vein is 60 mcmol/l. Blood type of mother is (I) Rh (-), of the child is (I) Rh (+). The icterus of skin appeared after 6 hours; bilirubin of blood is 116 mcmol/l, unconjugated. Diagnosis: Icteric - anemic form of Rh-conflict. Define the tactics of medical treatment.

- A. Enterosorbents
- B. Light-therapy
- C. Exchange blood transfusion
- D. Light-therapy + liquid infusion
- E. Membrane stabilizing preparation.

2. In mature child of one week of age, that was born with weight of 3400g, length 51cm, an icterus has appeared in the first days and increased due to indirect fraction of bilirubin. Hepatic enzymes are normal. Blood type of mother is II Rh -positive, of the child is 0(I) Rh- positive. What pathology is the most probable in this case?

- A. Biliary atresia
- B. Fetal hepatitis
- C. Hemolytic disease of newborns
- D. Conjugated icterus.
- E. Crigler-Najjar syndrome

3. A new-born child, gestational age 36 weeks, at birth the weight is 2400g, length 51cm. The child is excited, tremor of extremities, it does not suck, dispnoe, gepatosplenomegalia. At the end of the first day the icterus of skin and mucosas appeared, on the second day rash on the skin and vesicles in the region of the chest. What is your initial diagnosis?

- A. Hemolytic disease of newborns
- B. Physiological jaundice of newborns
- C. Hypoxic- ischemic CNS injury
- D. Intrauterine infection
- E. Biliary atresia.

4. In a newborn girl that was born in term, second delivery, weight 3500g, Apgar score 8-8 points, the icterus appeared on the first day of life. Indirect bilirubin in blood is 57mcmol/l, after 6 hours it is 100 mcmol/l. Choose the correct method of medical treatment.

- A. Exchange blood transfusion
- B. Prescribing of Phenobarbital
- C. Light-therapy
- D. Liquid infusion
- E. Enterosorbent

5. In a newborn child with hemolytic disease induced by Rh – conflict the blood type is 0 (I) Rh (+), in mother it is (II) Rh(-). What kind of blood must be poured during the operation of exchange blood transfusion?

- A. (II) Rh (-)
- B. O (I) Rh (+)
- C. A (II) Rh (+)
- D. A (I) Rh (-)
- E. B (III) Rh (-)

6. In a newborn child one day of age there was an icterus. Common bilirubin in blood serum is 144mcmol/l, indirect bilirubin is 130 mcmol/l. Coumbs test is positive. The child from the first pregnancy. A mother has blood type 0(I) Rh(-). What was the likely cause of jaundice?

- A. Biliary atresia
- B. The rhesus conflict
- C. ABO-incompatibility
- D. Physiological jaundice
- E. Fetal hepatitis

7. Mature newborn child from the first pregnancy and the first delivery. Mother's blood type is (I) Rh (+), child's is (II) Rh (+). An icterus increases progressively after 2 day of life. Liver +3cm, spleen +1cm. Bilirubin of blood to 3 day of life consists 250 mcmol/l, unconjugated is 240 mcmol/l. Direct test of Coumbs is low positive, Hb 160-160 g/l, RBC. - $4,5 \times 10^{12}/l$, Ht 0,55. What is the probable diagnosis?

- A. ABO-conflict
- B. Physiologic jaundice
- C. Jaundice of mother's milk
- D. Conjugated icterus
- E. Fetal hepatitis

8. A child at the age of 10 days was born in full term with weight 3000g. Apgar score is 8-9 points. From the first day an icterus of skin visible, liver +3,5cm. spleen is on the edge of costal arc. Color of urine and feces are not changed. At this time Combs test is positive, hemoglobin 130 g/l, reticulocytes is 4, 6%, common bilirubin is 300 mcmol/l, and indirect fraction is - 288 mcmol/l, transaminases: ALT - 0, 28, AST - 0, 26. During medical treatment the state of the child became better, intensity of icterus was diminished. Up to 9 day of life icterus acquired greenish color, urine became dark, feces white. In ultrasound cholic channels and gall-bladder scanned clear. Establish the diagnosis:

- A. Biliary atresia
- B. Fetal hepatitis
- C. Jaundice of Crigler-Najjar
- D. Intrahepatic cholestasis
- E. Physiologic jaundice

9. A child was born in term, with gestational age of 40 weeks and weight of 3000g. Apgar score 7-8 points. Mother's blood is AB (II) Rh (-). Child's is (III) Rh(+). An icterus appeared on the first day. Common bilirubin is 200 mcmol/l, indirect fraction is 190 mcmol/l, direct is 10 mcmol/l, Hb-160 g/l, reticulocytes 4,4%. Liver +4cm,

spleen + 1,5cm. Urine is light, feces are painted. Coumbs test is positive. Establish the diagnosis:

- A. Physiologic jaundice
- B. Hemorrhagic illness of newborns
- C. Fetal hepatitis
- D. Crigler-Nayyar syndrome
- E. Hemolytic disease of newborns

10. A child was born healthy with weight 3500g, length 51cm, Apgar score 8 points. A woman has the first non complicated pregnancy, delivery in term. Mother's blood is (I) Rh (-), father's is (II) Rh (+), child's is (I) Rh (+). What method of prophylaxis of Rh-conflict needs to be appointed for puerpera?

- A. It does not need prophylaxis
- B. Vitamines
- C. Anti-Rh- immunoglobulin
- D. Antihistaminic preparations
- E. Enterosorbents

11. A child after delivery has the following clinical data: icterus, pallor, splenohepatomegalia. Blood type is (III) Rh (+); Hb in blood 150 g/l, RBC is $4,2 \cdot 10^{12}/l$, reticulocytes 9 %. Bilirubin of blood is 58 $\mu\text{mol}/l$, unconjugated. Mother's blood is (III) Rh (-), titer of anti- Rh-antibodies during pregnancy are 1:128; 1:256. What test will help to define the tactic of treatment?

- A. Increasing of bilirubin per hour
- B. Clinical supervision
- C. Routine blood test
- D. Proteinogramme
- E. Level of hepatospecific enzymes

12. A mature child, Apgar score 6 points. Pale, hamorrhages on the skin, general edema: liver +6cm, spleen +4cm. Mother's blood is (I) Rh (-), child's is (I) Rh (+). The Hb in umbilical cord blood 70 g/l, RBC. $1,5 \cdot 10^{12}/l$ reticulocytes 15%; normoblastes is 70 per 100 leucocytes, in peripheral blood there is eritroblastes. Bilirubin at birth is 58 $\mu\text{mol}/l$, unconjugated. Woman has abortions in her anamnesis. What is the most reliable diagnosis?

- A. Sepsis of newborns
- B. Congenital leucosis
- C. Rhesus conflict, edematic form
- D. Fetal hepatitis
- E. Hereditary hemolytic anemia

13. Mature newborn after the normal pregnancy and physiologic delivery. On a 4 day of life there is severe icterus of skin and mucoses, liver +1 cm. Spleen is not palpated. Reflexes and tone of muscles are not broken, the child is active. Hb 170 g/l, RBC. $5,1 \cdot 10^{12}$, Ht-0,58. Blood type of mother (III) Rh (+), child (III) Rh (+). Bilirubin of

blood is 430 $\mu\text{mol/l}$, unconjugated is 420 $\mu\text{mol/l}$. What is the most reliable diagnosis?

- A. Hepatitis
- B. Conjugated icterus
- C. ABO-conflict
- D. Physiologic icterus
- E. Syndrome of cholestasis

14. A child of 2 days. At the end of the first day of life icterus of skin appeared, liver was enlarged to 3,5cm. The child is enough active, reflexes and muscular tone are not broken. bilirubin of blood is 170 $\mu\text{mol/l}$, unconjugated, Hb 150 g/l, RBC $4,7 \times 10^{12}$, Ht 0,5. Define the tactics of medical treatment.

- A. Hemotransfusion
- B. Exchange blood transfusion
- C. Extracorporeal hemosorption
- D. Light-therapy
- E. Hemotransfusion + membranestabilizing preparations

15. In mature child after the first pregnancy, difficult confinement, there was cephalohematoma. Icterus appeared on 2 day of life, on 3 day the changing in neurological state: nystagmus, Grefe Symptom. Urine is yellow, excrements yellow. Blood type of mother (II)Rh-, child's (II)Rh+. On the third day Hb 200 g/l, RBC $6,1 \times 10^{12}$, bilirubin –in the blood-58 $\mu\text{mol/l}$ due to unbinding fraction, Ht-0,57. How to explain the jaundice in the child?

- A. Biliary atresia
- B. Fetal hepatitis
- C. Cranial- natal trauma
- D. Hemolytic disease of newborns
- E. Physiologic icterus

16. In a newborn, two days of life to the end of the first day icterus appeared. On clinical examination icterus of skin and sclera. Liver under the edge of costal arc on 4 cm, spleen on 2 cm. Mother's blood type is- (0) the Rh+ child's II Rh(+). On routine blood test the reticulocytosis 15 %, RBC $2,8 \times 10^{12}$ /l, hemoglobin 120 g/l, bilirubin of umbilical blood is 78 $\mu\text{mol/l}$, after 8 hour is-190 $\mu\text{mol/l}$. Choose the method of medical treatment:

- A. Exchange blood transfusion
- B. Prescribing of phenobarbital
- C. Light -therapy
- D. Liquid infusion
- E. Intra-gastral dropping infusion

17. A new-born child has the diagnosed physiologic icterus. For this state it is characteristic:

- A. Repeated increasing of icterus intensity after the period of its reduction or disappearance

- B. Appearance of icterus during 1 day of life
- C. Duration of icterus more than 10 days
- D. Level of indirect bilirubin more than 205 $\mu\text{mol/l}$
- E. Appearance of the yellow skin colouring on a 2-3 day of life

18. In anamnesis of a woman the previous child had hemolytic disease of newborn; abortions, medical abortions. Now the woman has VII pregnancy with 16 weeks of gestational age, threat of pregnancy, breaking (II) Rh (-), titer of anti-Rh-antibodies 1:512. Specific prophylaxis of Rh-conflict was not conducted. What method of antenatal medical treatment of Rh-conflict to be prescribed?

- A. Hepatotropic medicines and vitamins
- B. Plasmaferesis
- C. Enterosorbents
- D. Dimedrol
- E. Infusions of glucose

19. A child of 21 day of life, was born on a 38-39 week of gestational age, from 5th pregnancy, 2- delivery, with weight 2480g, length 51cm. On 7th months of pregnancy in a mother the marker of viral hepatitis V was revealed. To the end of 1 day of life in the child had an icterus with gradually increased intensity. To the 7 day of life the rise of liver specific enzymes activity was noted, that persists presently. Cardiac tones are muffled, moderate tachycardia. Hepatosplenomegalia. What are the late complications which can be observed in the child?

- A. Respiratory infections
- B. Diabetes mellitus
- C. Cirrhosis of liver
- D. Leucosis
- E. Elastofibrosis

20. A newborn child is in the newborn pathology department with icteric form of hemolytic disease caused by immune ABO conflict between mother and fetus. What purpose is this child prescribed carbolen with?

- A. Strengthening of hepatocytes transferase activity
- B. Breaking of intestinal-hepatic cycle of bilirubin
- C. Compacting of hematoencephalic barrier
- D. Stabilization of erythrocyte membranes
- E. Stimulation of bile secretion

Tasks

1. A newborn is noted to be quite jaundiced at 3 days of age. Which of the following factors is associated with an increased risk of neurologic damage in a jaundiced newborn?

2. A primiparous woman whose blood type is O positive gives birth in term to an infant who has A-positive blood and a hematocrit of 55%. Serum bilirubin level

obtained at 36 h of age is 12 mg/dL. Which of the following laboratory findings would be characteristic of ABO hemolytic disease?

3. You are speaking to a couple who are expecting their first baby in about 2 weeks. They are concerned about the safety of childhood immunizations and also about “unnecessary” medications given to newborns in the hospital. They ask about the purpose of the routine administration of intramuscular vitamin K. You explain to them about hemorrhagic disease of the newborn, stating that the untreated baby can manifest

4. You are called to the normal newborn nursery to see a baby who was noted to be mildly jaundiced and has a total serum bilirubin concentration of 12 mg/dL at 48 h of age. The baby is a 3500-g boy who was born in term to a 27-year-old O-positive, Coombs-test-negative primigravida 2 h after membranes ruptured. There were no prenatal complications, and the mother had regular prenatal care. Breast-feeding has been well tolerated, and the baby’s vitals have been normal. The most appropriate additional diagnostic studies to evaluate the cause of this infant’s jaundice are

5. Since you are a new intern, you ordered all of the diagnostic studies you could think of instead of just the ones your senior resident told you were most appropriate. The nurse calls to inform you that the infant’s studies are back. Both the mother and baby have O-positive blood. The baby’s direct serum bilirubin is 0.2 mg/dL, with a repeated total serum bilirubin of 11.8 mg/dL. Urine bilirubin is positive. The mother’s white count is 13,000/L with a differential of 50% polymorphonuclear cells, 45% lymphocytes, and 5% monocytes. The hemoglobin is 17 g/dL, and the platelet count is 278,000/L. Reticulocyte count is 1.5%. The peripheral smear does not show fragments or abnormal cell shapes. Blood cultures are pending in the laboratory. Liver enzymes and liver ultrasound are normal. G6PD levels and osmotic fragility testing are normal. The most likely diagnosis in this infant is.

Methodical materials to support basic stage class.

Professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming .

No	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of newborn infant with hemorrhagic disease.	<p>1. To conduct the complaints, disease and obstetric anamnesis gathering.</p> <p>2. To conduct examination of the patient.</p>	<p>To pay attention to features of disease course, underlying factors, concomitant diseases etc.</p> <p>To establish the availability of risk factors which facilitate disease occurrence.</p> <p>To assess patient’s general condition, position in bed, color and humidity of skin</p>

		<p>and mucouse, presence of hemorrhages and bruises on the skin, and extremities swelling.</p> <p>To pay regard to the presence of haemorrhages, bleeding from mucouses, umbilical wound, nasal bleedings, melena and cephalohematomas, internal hematomas, lung bleedings, so on.</p> <p>To pay regard to rhythm of pulse, its tension and size on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR (tachi-or bradycardia, extrasystole),BP.</p> <p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation.</p> <p>Presence of apneustic breath, character of veesels during the auscultation.</p> <p>Presence of emesis, belches, swellings, fast decline of weight, signs of enterocolitis or peritonitis.</p> <p>Presence of edemas, anuria.</p> <p>Signs of depression or hypoexcitability, crumps.</p>	
		<p>3. To examine cardiovascular system of the patient (palpation, percussion).</p> <p>4. To conduct hart and main vessels auscultation.</p> <p>5. To examine the pulmonary system</p> <p>6. To conduct lungs auscultation.</p> <p>7. To examine the system of digestion.</p>	
2	To formulate the initial diagnosis.	<p>1.To formulate the initial diagnosis</p> <p>2. To substantiate all components of initial diagnosis based on</p>	To formulate the initial diagnosis of hemolytic or hemorrhagic disease and to substantiate each component of it, based on

		complaints, anamnesis, and examinations.	modern classification
3	To evaluate the parameters of additional laboratory tests.	<p>1. To evaluate the blood count data.</p> <p>2. To conduct Apt's test in the presence of melena.</p> <p>3. To evaluate the bleeding time, clotting time, platelete count, clot retraction, platelet aggregation tests(using activators), thrombin time, prothrombin index, APTT (Activated Partial Thromboplastin Time), ACT, fibrinogen, tests to assessing the fibrinolytic mechanims.</p> <p>4. To evaluate the results of instrumental patient's examination.</p>	<p>To pay attention to signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to bleeding time, clotting time, platelete count, clot retraction, platelet aggregation tests(using activators), thrombin time, prothrombin index, APTT (Activated Partial Thromboplastin Time), ACT, fibrinogen, tests to assessing the fibrinolytic mechanims.</p> <p>To pay attention on US of internals and brain, ECG, X-ray of chest organs.</p>
4.	To conduct differential diagnosis.	<p>1. Consistently to find out the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental tests in patient and in similar states.</p> <p>2. To find the differences amog complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of examination and in similar nosology.</p> <p>3. On the basis of the differences found exclude similar diseases</p>	<p>Special attention must be paid to differential diagnosis among the syndrome of "mothers swallowed blood", intranatal infections, respiratory distress syndrome in premature, thrombopenia, inherited coagulopathy, jaundice, natal trauma.</p>

		<p>from the list of probable diagnoses.</p> <p>4. To conduct differential diagnostics according to the above mentioned algorithm among all nosologies are having the similar signs, among other diseases.</p> <p>5. Taking into account the impossibility to exclude the diagnosis of haemorrhagic disease from the list of probable diagnoses to draw a conclusion about most probability of such diagnosis.</p>	
5.	To formulate the final clinical diagnosis.	<p>To formulate the final clinical diagnosis.</p> <p>Based on initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of the final clinical diagnosis.</p>	<p>On the basis of modern classification of hemorrhagic diseases to formulate the final clinical diagnosis, complications of disease and presence of concomitant diseases.</p>
6.	To prescribe treatment for patients.	<p>1.To prescribe non medicinal treatment.</p> <p>2.To prescribe medicinal treatment.</p>	<p>Expressly to specify the regimen and detailed nutrition according to clinic and status of newborn.</p> <p>Taking into account gestational age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with the standards of hemorrhagic diseases therapy.</p>

Materials of the medical support for students' self preparation: a reference chart for organization of students' independent work with educational literature.

Tasks	Instructions
To study the etiology of hemolytic and hemorrhagic diseases in newborn infants.	To enumerate basic etiologic factors of hemolytic and hemorrhagic diseases in newborns.
To study pathogenesis of hemolytic and hemorrhagic diseases in newborns.	To separate out the main pathogenic links of hemolytic and hemorrhagic diseases in newborns.
To study clinical manifestations of hemolytic and hemorrhagic diseases in newborns.	To select clinical symptoms, which can prove the probable diagnosis of hemolytic and hemorrhagic disease in newborn.
To study diagnostic criteria of hemolytic and hemorrhagic diseases in newborns.	To make a structural scheme of disease.
To study additional investigation methods(laboratory and instrumental)	To make a plan of investigation the patient with hemolytic and hemorrhagic disease.
To study pathognomic changes of additional investigation methods	To recapitulate the main diagnostic criteria of hemolytic and hemorrhagic diseases according to the data of additional investigation methods
To conduct differential diagnostics, to establish a final diagnosis.	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.
To prescribe individual complex treatment to the newborn patient with hemolytic and hemorrhagic diseases.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient' state, the presence of complications and concomitant diseases.

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INTRAUTERINE INFECTIONS. (TORCH-INFECTIONS).

Classification, etiology, pathogenesis. Clinic. Diagnostics. Differential diagnostics, treatment. Prophylaxis, prognosis.

I. Actuality of the theme.

Intranatal infections are the group of diseases which originates from a mother in ante- and intranatal period of fetus development. For today it's one of important problems of modern perinatology, neonatology and paediatrics in general - through wide distribution, high lethality and unfavourable medical-social consequences. In the structure of perinatal death the rate of intranatal infection makes to 65 %. Polymorphism of clinical signs, absence of patognomonic symptoms makes difficult the timely diagnostics of intrauterine infections.

Inrtanatal infections – are one of the leading reasons of neonatal and child's morbidity, death rate and disability. intranatal infections predetermine in maturing of pregnancy, premature births, stillborn, congenital defects of development of central nervous system, cardiovascular system, system of digestion of a child. A baby can be born with the unspecific clinical manifestations of infection, that in the case of absence of etiologic diagnostics considerably complicates treatment and determines an unfavorable prognosis for a subsequent health and development of a child. Among reasons of perinatal death rate the intranatal infections are 25-30%, from the data of A.V.Zinserling even to 68-70%.

II. Classes (pointing out studies planned mastering level)

A student must know (to familiarize with): $\alpha 1$

- the place of intranatal infections in the structure of perinatal pathology.
- statistical information in relation to morbidity, frequency of complications origin, lethality, the nearest and longterm prognosis of patients with intanatal infections;
- history of scientific study and contribution of domestic scientists;

A student must know (master): $\alpha 2$

- etiology of intanatal infections;
 - key etiologic factors and factors of risk of perinatal infections;
- key links of pathogenesis of intranatal infections;
- classification and be able to conduct the analysis of clinical picture of perinatal infectious diseases in newborn: intranatal infection, local and generalised infection;
 - complication of intranatal infections;
 - principles of treatment of intranatal infections;

2. A student must muster: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;
- Examination of patient with thyroid diseases and revealing the main symptoms and syndromes.
 - To formulate and substantiate the initial diagnosis;
 - Determination of laboratory and instrumental plan of patient's examination (in obedience to diagnostics standards);

Abilities:

- To determine the features of perinatal infectious diseases of newborn (intrauterine infection, local and generalised infection) and make an initial diagnosis;
- to work out a plan of examination at the perinatal infectious diseases of newborn (intranatal infection, local and generalised infection)
- to interpret the results of laboratory and instrumental examinations;
- to conduct differential diagnostics of intranatal infections;
- to give recommendations in relation to the regimen and diet of a patient with intranatal infections, the general state and concomitant pathology;
- to work out a plan of treatment for patient with intranatal infections (in obedience to the standards of treatment) taking into account the stage of disease, presence of complications and concomitant pathology;
- to give urgent help in extreme situations and at the urgent states;
 - to carry out the prognosis of life at the perinatal infectious diseases of newborn;

III. Aims of personality development (educative aims):

- A student must demonstrate the domain of medical specialist moral-deontologic principles and principles of professional deference to the rank in neonatology
- A student must learn to adhere to the rules of behaviour and principles of medical etiquette and deontology to develop bedside manner in patients with intrauterine infections;
- To be able to set a psychological contact with a patient and his family;
- to master the sense of professional responsibility for a timely and adequate medicare.

Methodical materials to support basic stage class supporting

Professional algorithm of patient's management implementation (reference chart) for the practical skills and abilities forming.

No	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of the patient with intrauterine infection.	1. To conduct the complaints and disease anamnesis gathering. 2. To conduct the complaints and disease anamnesis gathering. 3. To conduct patient's clinical examination 4. Examine the cardiovascular system of the patient (palpation, percussion).	Pay attention to features of disease course, underlying factors, concomitant diseases etc. To establish the availability of risk factors which facilitate disease occurrence To assess patient's general condition, position in bed, colour and wetness of skin and mucous, neurologic state. To pay regard to rhythm of pulse, its tension and size on both hands, apex shove,

		its properties, margins of absolute and relative cardiac dullness, its changes, HR (tachi-or bradycardia, extrasystoly), BP.
	5. To conduct heart and main vessels auscultation.	To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.
	6. To examine the pulmonary system (percussion, bronchophony).	To pay attention to features of percussion and auscultation in children of different ages. To reveal the changes in auscultation.
	7. To conduct the lungs auscultation	To pay attention to the signs of intoxication.
	8. To examine the system of digestion.	
2	To formulate the initial diagnosis.	On the basis of modern classification to formulate the diagnosis of intrauterine infections and to substantiate each component of it.
	1. To formulate the preliminary diagnosis.	
	2. To substantiate all components of initial diagnosis based on complaints, anamnesis, and examinations.	
3	To evaluate the parameters of additional laboratory investigations.	To pay attention to the presence of leucocytosis, shifting of formula, increasing of SR, anaemia.
	1. To evaluate blood count data.	To pay attention to the presence in mother's and child blood of elevated Ig G and Ig M against intrauterine infection agents.
	2. To interpret immunoassay data	To pay attention to agents presence in urine, blood and liquor of the patient.
	3. To asses PCR outcomes.	To pay attention to the ultrasound signs of intrauterine infections on NSG, Doppler of heart.
4	To understand the data of additional and laboratory investigations.	
	To interpret the data of:	
	1. Chest X-ray.	
	2. Neurosonography.	
	3. Liver ultrasound	
	4. urinary tract ultrasound	
	5. Doppler heart ultrasound.	
5.	To conduct	Special attention must be
	1. Consistently to find the	

differential diagnosis.

common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient and in similar states.

2. To find differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of examination and in similar nosology.

3. On the basis of found out differences to exclude similar diseases from the list of probable diagnoses.

4. To conduct differential diagnostics according to the above mentioned algorithm among all of nosologies having the similar signs included with intranatal infections.

5. Taking into account the impossibility to exclude the diagnosis of intranatal infection from the list of probable diagnoses to draw a conclusion about the most probability of such diagnosis.

6 To formulate the final clinical diagnosis.

To formulate the final clinical diagnosis.

On the basis of initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.

7. To prescribe treatment for patient.

1. To prescribe non medicinal treatment

2. To prescribe medicinal treatment.

paid to differential diagnosis among the birth trauma, infectious diseases, HIV.

On the basis of modern classification of leukemias to formulate a diagnosis, complications of disease and presence of concomitant diseases.

Expressly to specify the regimen and detailed diet according to a disease. Taking into account age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal

treatment in accordance with the standards of intrauterine infections therapy.

MATERIAL FOR THE CONTROL AND MEDICAL PROVIDING OF THE CLASS

Control materials for the preparatory stage of class.

Questions for the control of knowledge, skills and abilities level:

1. Etiology and pathogenesis of intrauterine infections.
2. Risk factors of intrauterine infections.
3. Clinical signs of CMV infection.
4. Clinical signs of congenital toxoplasmosis.
5. Clinical signs of rubella.
6. Clinical signs of HSV infection.
7. Clinical signs of listeriosis..
8. Clinical signs of chlamydial and micoplasma infection.
9. Ethiothropic treatment and principles of prophylaxis of intranatal infection.

TESTS:

1. Mother of a 7-day-old infant has developed chickenpox. Which of the following is the most appropriate measure?
 - a. Isolate the infant from the mother
 - b. Hospitalize the infant in the isolation ward
 - c. Administer acyclovir to the infant
 - d. Administer varicella-zoster immunoglobulin to the infant
 - e. Advise the mother to continue regular well-baby care for the infant
2. The signs and symptoms of meningitis in an infant can be different than those in an adult. Which of the signs and symptoms of meningitis listed below is more helpful in an adult patient than in a 4-month-old?
 - a. Lethargy
 - b. Jaundice
 - c. Vomiting
 - d. Brudzinski's sign
 - e. Hypothermia
3. A 2-year-old boy is being followed for congenital cytomegalovirus (CMV) infection. He is deaf and developmentally delayed. The child's mother informs you that she has just become pregnant and is concerned that the new baby will be infected. Which of the following is true?
 - a. The mother has antibodies to CMV that are passed to the fetus
 - b. The mother's infection cannot become reactivated
 - c. The likelihood that the new baby will become clinically ill is approximately 80%
 - d. Termination of pregnancy is advised

e. The new infant should be isolated from the older child

4. As you are about to step out of a newly delivered mother's room, she mentions that she wants to breast-feed her healthy infant, but that her obstetrician was concerned about one of the medicines she was taking. Which of the woman's medicines, listed below, is clearly contraindicated in breast-feeding?

- a. Ibuprofen as needed for pain or fever
- b. Labetolol for her chronic hypertension
- c. Lithium for her bipolar disorder
- d. Carbamazepine for her seizure disorder
- e. Acyclovir for her HSV outbreak.

5. A 19-year-old primiparous woman develops toxemia in her last trimester of pregnancy and during the course of her labor is treated with magnesium sulfate. At 38 weeks' gestation, she delivers a 2100-g infant with Apgar scores of 1 at 1 min and at 5 at 5 min. Laboratory studies at 18 h of age reveal a hematocrit of 79%, platelet count of 100,000/ μ L, glucose 38 mg/dL, magnesium 2.5 meq/L, and calcium 8.7 mg/dL. Soon after, this the infant has a generalized convulsion. The most likely cause of the infant's seizure is

- a. Polycythemia
- b. Hypoglycemia
- c. Hypocalcemia
- d. Hypermagnesemia
- e. Thrombocytopen

6. A full-term infant is born to a known HIV-positive mother. She has been taking antiretroviral medications for the weeks prior to the delivery of her infant. Routine management of the healthy infant should include

- a. Admission to the neonatal intensive care unit for close cardiovascular monitoring
- b. HIV ELISA on the infant to determine if congenital infection has occurred
- c. A course of zidovudine for the infant
- d. Chest radiographs to evaluate for congenital *Pneumocystis carinii*
- e. Administration of IVIG to the baby to decrease the risk of perinatal HIV infection

7. You are advised by the obstetrician that the mother of a baby she has delivered is a carrier of hepatitis B surface antigen (HBsAg-positive). The most appropriate action in managing this infant would be to

- a. Screen the infant for HBsAg
- b. Isolate the infant for enteric transmission
- c. Screen the mother for hepatitis B "e" antigen (HBeAg)
- d. Administer hepatitis B immune globulin and hepatitis B vaccine to the infant
- e. Do nothing because transplacentally acquired antibody will prevent infection in the infant

8. The infant presented with hepatosplenomegaly, anemia, persistent rhinitis, and a maculopapular rash. The most likely diagnosis for this child is
- Toxoplasmosis
 - Glycogen storage disease
 - Congenital hypothyroidism
 - Congenital syphilis
 - Cytomegalovirus disease
9. The following results of blood cord investigation. Are there characteristic of the intrauterine infection?:
- the level of immunoglobulin M is increased.
 - the level of immunoglobulin G is reduced;
 - the level of general albumin is reduced;
 - the level of immunoglobulin M is reduced;
 - all answers are correct;
10. For treatment of CMV encephalitis could be applied:
- gentamicin;
 - cephodox;
 - Acyclovir;
 - nothing of mentioned above;
 - all marked preparations.
11. In a child of 3 weeks of life a cerebral type of intranatally acquired herpes was established with manifestations of fever, convulsive syndrome.,changes in cerebrospinal liquor. The dose of zovirax is :
- 1 mg/kg per day
 - 1-5 mg/kg per day
 - 10 mg/kg per day
 - 20 mg/kg per day
 - 100 mg/kg per day
12. In a child of 3 weeks of life a cerebral type of intranatally acquired herpes was established with manifestations of fever, convulsive syndrome changes in cerebrospinal liquor. What preparations must be prescribed as a causal treatment?
- cephosolin
 - novobiocin
 - flemoxin
 - laferon
 - valtrex
13. A child., was born in 37 weeks of gestation with weight 2800 g. On the 3^d day of life jaundice appeared. On 4 day the manifestations of conjunctivitis were added. On NSG moderate internal hydrocephaly. - Survey of ophthalmologist:-bilateral cataract. The method of IFA in blood serum a diagnostic titer of low avidity of anti-Rubella Ig G antibodies was registered. It is necessary to include into the complex of therapy:

- A. hyperimmune gamma globulin
- B. glukocorticoids
- C. antibiotics
- D. desagregants
- E. antioxidants

14. In a child of 3 weeks of life a cerebral type of intranatally acquired herpes was established with manifestations of fever, convulsive syndrome, changes in cerebrospinal liquor. What preparations must be prescribed as a causal treatment?

- A. cephasolin
- B. novobiocin
- C. flemoxin
- D. laferon
- E. valtrex

15. A child., 1 day of life, after the 3^d pregnancy. .Weight is 3100 g., length 51 cm. Reflexes of neonates invoked. but quickly exhausted. Skin is clear. In lungs and heart auscultation without changes. On 7 month of pregnancy in mother the marker of hepatitis B virus was detected. For prophylaxis of hepatitis a standard immunoglobulin in doses it is necessary to prescribe:

- A. 2-3 mg per kg
- B. 1 mg per kg
- C. 10 mg per kg
- D. 10 mg per kg
- E. 0,5 mg per kg

16. In a child, 25 day of life there is congenital herpes infection with dominating CNS injury as a hydrocephalic hypertensive syndrome, intrauterine hypotrophy and the fetal hepatitis, there is an immunodeficiency.

What preparation must be prescribed as immunomodulation?

- A. extract of eleuterococcy
- B. decaris
- C. cimeven
- D. cicloferon
- E. chloridin

17. A prematurely born child on the tenth day of life presented the interstitial pneumonia, conjunctivitis. What infection is suspected?:

- A. gonococcus;
- B. listeriosis
- C. CMV infection;
- D. syphilis;
- E. chlamidial infection.

18. All characteristic for the congenital toksoplasmosis, except for:

- A. icteruses;
- B. hepatosplenomegaly;

- C. eosinophilia
- D. cerebral calcification;
- E. pneumonias

19. In prematurely born child from the mother experienced the mild unconfirmed diseases in 7-8 weeks of gestation the Greg triade observed (microcephaly, CHD, cataract). What agent is the most likely the cause of this conditions?

- A. CMV;
- B. Rubella;
- C. Enterovirus;
- D. listeria;
- E. Micoplasma

20. All listed below are characteristic for the intrauterine CMV infection, except for:

- A. jaunduce;
- B. hepatoslenomegaly
- S. carditis;
- D. hematogenous osteomyelitiss;
- E. Meningoencephalitis.

Situational tasks:

Task 1

Premature child, after II pregnancy, II delivery, at 33-34 weeks of gestation, was born with weigt 2100 g, length - 41cm. Apgar score 5-6 points. From the anamnesis reported that first pregnancy ceased with abortion. Current pregnancy was threatened to abortion, toxicosis of the first and the second half of pregnancy, several times during the pregnancy the body temperature increased. The woman is from rural area, keeps domestic cat and dog.. After delivery the general condition is severe. The clinical signs of perinatal CNS injury and hydrocephaly are present. Answer the following questions:

1. To determine the risk factors of this state development.
2. What is the preliminary diagnosis?
3. What specific clinical signs of intranatal infection are in the child?
4. Is there any specific therapy and what kind of it is indicated in this case?

Task 2

Premature child from the first pregnancy. It was born in the term of 34-35 weeks of gestation with weight of 2400 g, height is 47 cm. After delivery his general condition is severe: the signs of perinatal – hypoxic ischemic CNS injury, irritability, tremor of extremities, hepatoslenomegaly, at the end of the first day of life hyperbilirubinemia. At the third day of life the skin rash appears with separate vesicules clumping on the chest. Mother of the child is ill with genital herpes.

Give the following answers:

1. To enumerate the intranatal infection with signs mentioned above.
2. What laboratory investigations could support the diagnosis?
3. Specify the initial diagnosis.

4. What kind of specific therapy must be prescribed?

Task 3.

The child's age is 21 days old. Staying in hospital. From the anamnesis: reported about complicated course of pregnancy during the first trimester. At 24 weeks of gestation the body temperature increased without symptoms of viral infection. She wasn't treated and once been tested for intranatal infection. The increased Ig G to toxoplasmosis detected – 290 IU/ml, Ig M is negative. Delivery at 37 weeks of gestation. Weight 2450 g, height 48cm. at the end of the first day of life jaundice appears. At the third day was transferred to neonatology department because of worsening in general condition. The signs of irritation, regurgitation, poor sucking. On examination: pallor of the skin, decreased subcutaneous fat, hydrocephalic head, sagittal suture is open to 0,8 cm., bulging and pulsatile big fontanel, dimensions is 3x3 cm muscle tone in adductors. Spleen +1 cm, liver +3 cm.

Questions:

1. What disease is the most likely?
2. What additional investigation could confirm the diagnosis?
3. What are the ways of transmission?
4. What specialists must examine the child?
5. What are the treatment principles of the disease?

Task 4

A girl S, 3 days old. From the 5 pregnancy, the first delivery. Previous pregnancies ceased by abortions at early stages. Mother had punctulate rash on her face, trunk and extremities accompanied by body temperature rising during the 2 days at 7-8 weeks of gestation. There was pain in the nape. In the city where the woman lived there was the epidemic of German measles. Apgar score is 6-7 points. Weight after birth is 2170g., height is 43cm. On examination: Multiple stigmas admitted, severe condition due to RDS, CNS depression. Skin pallor, petechial rash. In the lungs weakened breathing. On heart auscultation, hard murmur is heard. Liver + 3 cm, spleen + 1,5 cm. are dense on palpation. Blood count: Blood count: Hb 125 g/l, erh.: $3,5 \times 10^{12}/l$, thromb. $45 \times 10^9/l$, leucocytes $7,1 \times 10^9/l$, bands- 6 %, s-49 %, eos.- 1 %, lymph. – 32 %, mon. – 12 %, SSR – 4 mm/hour.

Questions:

1. What disease is the most likely in this case?
2. What additional investigation must be conducted in this case?
3. What are the signs of classic Gregg tirade?
4. What signs could be revealed on ophthalmologic examination?.
5. What signs could be revealed in Doppler heart ultrasound?

Task 5

A child D, 15 days old, was born in term, with weight correspondent to gestation. On the 2nd day of life resistant jaundice appears. then, conjunctivitis with relapsed course occurs. Blood count is unchanged. Mother have chlamydial colpitis.

Questions:

1. What type of antibodies must be detected to confirm the diagnosis In suspicion to chlamidia infection?
2. What investigations must be conducted in this case?
3. What are the main signs of chlamidial infection?
4. What are the main principles of therapy?

VII. Materials of the medical support for the students independent preparation: a reference chart for organization of students independent work with educational literature.

Tasks	Instructions
To study the etiology and pathogenesis of intranatal infections.	To enumerate basic etiological factors of intranatal infections
To study the pathogenesis of intranatal infections dependent of the agent.	To select the key links of pathogenesis in intrauterine infections.
To study clinical signs of CMV, toxoplasmosis, HSV, herpes, rubella, clamidial, micoplasmial infectons, congenital syphilis.	To detect the symptoms, to group it in syndromes that allows to establish probable diagnosis of intrauterine infection.
To study diagnostic criteria of intrauterine infections.	To compose the structural scheme of disease.
To study the additional methods of examinations (laboratory, instrumental).	To work out a plan of patient investigation.
To study the changes in additional investigational methods which are pathognomonic for lintranatal infections.	To enumerate the basic diagnostic criteria of intrauterine infections according to the data of additional investigational methods.
To conduct differential diagnostics, to establish a final diagnosis.	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.
To prescribe individual complex treatment for patients with intrauterine infections.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient state, stage of disease, presence of complications and concomitant diseases.

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BACTERIAL INFECTIONS IN NEWBORN INFANTS.

Classification of bacterial infections in newborn Etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis of inflammatory diseases of skin and subcutaneous connective tissue, inflammatory diseases of umbilical cord, umbilical wound and omphalic vessels in newborn infants. Neonatal sepsis: classification, etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis, prognosis.

I. Actuality of the topic.

Neonatal sepsis, sepsis neonatorum, and neonatal septicemia are terms that have been used to describe the systemic response to infection in the newborn infant. There is little agreement on the proper use of the term, i.e., whether it should be restricted to bacterial infections, positive blood cultures, or severity of illness. Currently, there is considerable discussion of the appropriate definition of sepsis in the critical care literature. The incidence of neonatal sepsis varies according to definition from 1{endash}–4/1,000 live births in developed countries with considerable fluctuation over time and geographic location. Hospital-to-hospital variability in incidence may be related to rates of prematurity, prenatal care, conduct of labor, and environmental conditions in nurseries. Attack rates of neonatal sepsis increase significantly in low-birthweight infants and in the presence of maternal (obstetric) risk factors or signs of chorioamnionitis such as prolonged rupture of membranes (>18 hr), maternal intrapartum fever (>37.5°C), maternal leukocytosis (>18,000), uterine tenderness, and fetal tachycardia (>180 beats/min).

Host risk factors include male sex, developmental or congenital immune defects, galactosemia (*Escherichia coli*), administration of intramuscular iron (*E. coli*), congenital anomalies (urinary tract, asplenia, myelomeningocele, sinus tracts), omphalitis, and twinning (especially the second twin of an infected twin). Prematurity is a risk factor for both early-onset and late-onset sepsis. That is why the early diagnosis is very important.

II. Classes (pointing out planned mastering level)

1. A student must know: 1

- the place of bacterial infections in the structure of diseases of neonatal period;
- statistical information in relation to morbidity, frequencies of complications, lethality, the nearest and remote prognosis;

2. A student must know: α2

- risk factors of beginning and pathogenesis of septic diseases in newborn infants;
 - clinical classification of inflammatory diseases of newborn infant;
 - classic clinical manifestation of septic diseases of newborn infant;
 - links of prenatal sepsis;
 - features of septical course in full-term and premature infant;
 - classic clinical manifestation of septical shock;
- laboratory and instrumental diagnosis of inflammatory diseases in newborn infants;
- treatment principles of inflammatory diseases in newborn infants;

- main measures of inflammatory diseases prophylaxis in newborn;
- organization of dispensary observation of newborn infants, who were ill with sepsis.

3. A student must master: $\alpha 3$

Skills:

- Examination of newborn infant with septic diseases and revealing the main symptoms and syndromes.
- To evaluate character of rash on newborn's skin and mucous cover;
- To form the scheme of diagnostic search;
- To formulate and substantiate the initial diagnosis;
- Determination of laboratory and instrumental plan of a patient's examination (according to diagnostics standards);
- To give the first aid in DIC-syndrome.

4. Abilities:

- evaluating condition of newborn's health;
- collection of complaints and anamnesis of disease;
- interpreting results of laboratory and instrumental tests;
- to complete treatment plan in inflammatory disease according to standards taking into account the stage of disease;
- to render the first aid in extreme situations and exigent states;
- to prescribe medication according to the treatment.

Questions for elementary level of knowledge control

1. Which of physiological features of newborn infants helps to development of septic diseases?
2. Etiology of pyoinflammatory diseases of skin and hypodermic tissue.
3. Clinical course of inflections diseases of skin and hypodermic tissue (pemphigus, exfoliative dermatitis, phlegmon of newborn, mastitis of newborn, catarrhal and festering omphalitis, candidosis of skin).
4. Clinical manifestations of inflammatory diseases of umbilical wound.
5. Principles of local pyoinflammatory diseases' treatment.
6. To count risk factors of newborn sepsis' development
7. To count the main clinical form of sepsis.
8. Features of sepsis' course in newborn.
9. Features of sepsis' course in premature newborn.
10. What are the clinic manifestations of immunologic insufficiency in patients with sepsis?
11. Diagnostic criteria of sepsis and means of laboratory investigation.
12. Differential diagnostics among immunodeficiency disorders, intranatal infections, genetic defects of metabolism, pathology of endocrine system.
13. Define principles of treatment of sepsis in newborn.
14. Principles of prophylaxis of pyoseptic diseases in newborn infants.
15. Dispensary observation of infants, who were ill with sepsis.
- 16.

Examples of tests and tasks:

1. A child of 5 days of life, developed hyperemia, infiltration of umbilical wound, purulent discharge from umbilical wound, umbilical vein is palpated as tension bar. One following symptoms appeared during the next day of life: stiff neck, tonic abduction of eye globes, retraction of big fontanel, pulsation of an angle of a mouth, refusal of meal, cerebral scream. On the routine blood test there is leucotsytosis, deviation to the left, acceleration of a blood sedimentation rate. On bacterial sowing from umbilical wound *St.aureus* allocated. Establish provisional diagnosis:

A Hypoxia CNS injury , acute period, hypertensive hydrocephalic syndrome, convulsive syndrome, severe course

B. Purulent omphalitis. Thrombophlebitis of an umbilical vein

C. Subarachnoid hemorrhage. Purulent omphalitis

D. Postnatal staphylococcal umbilical sepsis. Septicopyemia. Purulent omphalitis. Purulent meningitis. Thrombophlebitis of umbilical vein.

E Complicated purulent meningitis.

2. A child 5 days of life, developed hyperemia, infiltration of umbilical wound, purulent discharge from umbilical wound, umbilical vein is palpated as tension bar. Follows symptoms appeared during the next day of life: stiff neck, tonic abduction of eye globes, retraction of big fontanel, pulsation of an angle of mouth, refusal of meal, cerebral scream. On the routine blood test there is leucotsytosis, deviation to the left, increased rate of blood sedimentation. In a bacterial sowing from umbilical wound *St.aureus* was found. What test allows to diagnose purulent meningitis?

A Lumbar puncture

B. The developed analysis of blood

C. Neurosonography

D. Bacteriological blood analysis

E. Echo - encephalography

3. A child 5 days of life, developed hyperemia, infiltration of umbilical wound, purulent discharge from umbilical wound, umbilical vein is palpated as tension bar. The following symptoms appeared during the next day of life: stiff neck, tonic abduction of eye globes, retraction of big fontanel, pulsation of an angle of mouth, refusal of meal, cerebral scream. On the routine blood test there is leucotsytosis, deviation to the left, acceleration of blood sedimentation rate. On bacterial sowing from umbilical wound *St.aureus* was found. Define the most comprehensible variant of debut antibacterial therapy

A. Cefazolin, azlocillin

B. Ampiox, gentamicin

C. Oxacillin, gentamicin

D. Cefazolin

E. Oxacillin, rovamycin

4. A child 5 days of life, developed hyperemia, infiltration of umbilical wound, purulent discharge from umbilical wound, umbilical vein is palpated as tension bar.. The following symptoms appeared during the next day of life: stiff neck, tonic abduction of eye globes, retraction of big fontanel, pulsation of an angle of mouth,

refusal of meal, cerebral scream. On the routine blood test is leucocytosis, deviation to the left, increased rate of blood sedimentation. On a bacterial sowing from umbilical wound *St.aureus* was found. Select an adequate dosage of antibiotics indicated in this case

- A. Oxacillin 100 mg/kg; gentamicin 3 mg/kg
- B. Oxacillin 150; mg/kg, gentamicin 3 mg/kg
- C. Oxacillin 100; mg/kg , gentamicin 5 mg/kg
- D Oxacillin 150 mg/kg; gentamicin 5 mg/kg
- E. Oxacillin 100 mg/kg; gentamicin 7 mg/kg

5. In newborn child, 1 day of life, was born in 37 weeks of gestational age with weight 1800g the absence of a physiological erythema, marbling and paleness of skin appeared, hepatosplenomegaly. RDS of III degree, convulsive readiness, protrusion of big fontanel, stiff neck, purulent conjunctivitis. Acute salpingo-oophoritis is diagnosed for mother in 3 trimester of pregnancy. Establish the provisional diagnosis:

- A. Antenatal sepsis: Septicopyemia. Purulent meningitis. Pneumonia. Purulent conjunctivitis.
- B. Natal trauma of CNS. Purulent conjunctivitis
- C. Intrauterine infection. Conjunctivitis
- D. Pneumopathy.. RDS III. Intrauterine oligotrophy
- E .Intranatal sepsis. Hematosepsis

6. In newborn of five days of life on examination hyperesthesia, compelled pose is taped with restriction of movement in the upper right extremity, pain on palpation of the right brachium, edema of the right humeral joint, right sided oppression of Moro reflex, loss of appetite, flaccidity, hypodynamia, paleness of skin. Were revealed routine blood test hyperleucocytosis, neutrophilosis, anemia were admitted. What disease do similar signs characterize?

- A. Kerer paralysis
- B. Epiphyseal osteomyelitis
- C. Paralysis of Duchen-Erb
- D. Fracture of a humeral bone
- E. Traumatic epiphisiolysis of humeral bone.

7. In a child of 6 day of life who was born in 35 weeks of gestational age with weight 2100 vesiculopustulosis was diagnosed. On 7 day of life on the background of umbilical wound physiological wetting infiltration and hyperemia of umbilical ring appeared. On the 19 day of life cuticularization of umbilical wound did not stop. From this day signs of intoxication accrued, oppression of CNS. In bacterial crop *St.aureus* was found. Select an optimal antibiotic:

- A. Rovamcin
- B. Ampicillin
- C. Oxacillin
- D. Gentamicin
- E. Carbenicillin

8. In a child of 6 day of life who was born in 35 weeks of gestational age with weight 2100 the vesiculopustulosis was diagnosed. On 7 day of life on the background of umbilical wound physiological wetting infiltration and hyperemia of umbilical ring appeared. On 19 day of life cuticularization of umbilical wound did not stop. From this day signs of intoxication accrued, oppression of CNS. In bacterial crop St.aureus was found. Select an optimal immunopreparation

- A .Antistaphilococcal immunoglobulin
- B. Native plasma
- C. Thymalin
- D. Levamisol
- E .Human immunoglobulin

9. In a child of 8 days of life on the right breech the purple - and cyanotic spot with dimensions of 3x5 cm occur, protruding above the surface of skin, dense and painful by a touch. According to mother information child became languid, sucks badly, belching, has a fever. What is the probable diagnosis?

- A. Pseudofurunculosis of Figner
- B. Adiponecrosis
- C. Exfoliative dermatitis of Ritter
- D. Postinjectional abscess
- E. Phlegmon of newborn.

10. In a child of 8 days of life on the right breech purple - and cyanotic spot with dimensions of 3,0x5,0 occurred, protruding above the surface of the skin, dense and painful by touch. According to mother's information the child became languid, sucks badly, belching, has a fever. What volume of antibacterial therapy needs to be administered?

- A. 2 antibiotics in therapeutic doses
- B. 1 antibiotic in therapeutical dose
- C. 1 antibiotic in maximal dose
- D. 2 antibiotics in maximal dose
- E. There is no necessity in administration of antibiotics

11. In a child of 8 days of life on the right breech purple - and cyanotic spot with dimensions of 3x5 sm occurred, protruding above the surface of the skin, dense and painful by touch. According to mother's information the child became languid, sucks badly, belching, has a fever. Determine the range of topical therapy

- A. Disclosing of a wound by alternating cuts within the limits of healthy tissues
- B. Application of bandages with hypertonic salt solutions
- C. Application the bandages with ointment of Vishnevsky
- D .Disclosing by one cut
- E. Using of UHV

12. In newborn of 5 day of life vesicles on the skin of abdomen and extremities filled with serous and purulent liquid appeared. The general state of the child has not changed Establish the diagnosis:

- A. Syphilitic pemphigus
- B. Pemphigus of newborns, malignant form
- C. Exfoliative dermatitis of Ritter
- D. Pemphigus of newborn. Simple form
- E. Physiological ecdysis

13. In newborn of 5 day of life vesicles on the skin of abdomen and extremities filled with serous and purulent liquid appeared. The general state of the child has not changed. Prescribe the treatment:

- A. Immunotherapy, topical therapy
- B. Antibiotic, topical therapy
- C. 2 antibiotics, topical therapy
- D. General UVI of skin
- E. Topical therapy, general UVI of skin

14. In newborn of 5 day of life vesicles on the skin of abdomen and extremities filled with serous and purulent liquid appeared. The general state of the child has not changed. What is the etiology of these rashes?

- A. Streptococcus
- B. St.aureus
- C Treponema pallidum
- D. Herpes simplex virus
- E. Listerias

15. In newborn of 14 day of life infiltration and hyperemia of umbilical ring can be seen, serous and purulent allocations from umbilical wound. Administration of antibiotic during 7 days and the intensive lavage of umbilical wound using of 3 % solution of Hydrogeni peroxide, 70 % medical alcohol, 5 % solution of a potassium permanganate were ineffective. Make the most probable diagnosis.

- A. Umdilical sepsis
- B. Incomplete umbilical fistula, purulent omphalitis
- C. Complete umbilical fistula, purulent omphalitis
- D Purulent omphalitis
- E. Complete urinary fistula, purulent omphalitis

16. In newborn of 14 day of life infiltration and hyperemia of umbilical ring can be seen, serous and purulent allocations from umbilical wound. Administration of antibiotic during 7 days and the intensive lavage of umbilical wound using of 3 % solution of Hydrogenium peroxide, 70 % medical alcohol, 5 % solution of a potassium permanganate were ineffective. What is the further tactics?

- A Intensifying of topical therapy
- B.Continuation of prescribed therapy
- C. Intensifying of antibacterial therapy
- D .Changing of antibiotics
- E. Consultation of Surgeon

17. In newborn weighting 1900g, the signs of an intoxication took place., RDS III, anemia, trombocytopenia, leucocytosis with deviation to the left, on X-ray pneumonia with fine centers. What variant of pneumonia course is expected?

- A. Lingerling
- B. Acute
- C. Chronic
- D. Fulminant
- E. Subacute

18. In newborn weighting 1900 g, the signs of intoxication took place, RDS III, anemia, trombocytopenia, leucocytosis with deviation to the left, on X-ray pneumonia with fine centers. Select an optimal variant of treatment:

- A. 1 antibiotic, immunostimulators, liquid infusion, physiotherapy
- B. 2 antibiotics, respiratory therapy, physiotherapy
- C. 2 antibiotics, passive immunotherapy, respiratory therapy, liquid infusion, physiotherapy
- D. immunotherapy, respiratory therapy, liquid infusion
- E. 2 antibiotics, respiratory therapy, passive immunotherapy.

19. In newborn weighting 1900 g, the signs of intoxication are taking place, RDS III, anemia, trombocytopenia, leucocytosis with deviation to the left, on X-ray pneumonia with fine centers. What parameters will define the necessary volume of respiratory therapy?

- A. Gas blood test, pH of blood
- B. Silverman score
- C. Dowence score
- D. Frequency of respiration
- E. Color of the skin

20. In newborn child of 3 days of life due to hyperbilirubinemia the catheter in an umbilical vein is fixed. The catheter functioned during 2 days. To the 6 day of life the signs of colenteritis were found. To the 8 day pneumonia was diagnosed, to the 10 day - purulent meningitis. Classify sepsis by the entrance hiluses:

- A. Pulmonary
- B. Umbilical
- C. Cryptogenic
- D. Intestinal
- E. Iatrogenic

Tasks.

1. A 1-month-old is noted to have eosinophilia, during a routine-screening. Other blood data are normal. Which of the following most common causes increased eosinophilia in the peripheral blood smear?

2. In newborn of 5 day of life vesicles on the skin of abdomen and extremities filled with serous and purulent liquid appeared. The general state of the child has not

changed. Thrombocytopenia, leucocytosis with deviation to the left, anemia is taking place.

What is the etiology of these rashes?

Prescribe the treatment to the patient

3. A newborn child was hospitalized with mother's complaints on worsening of appetite, brings up, limpness, one-time temperature increase, weeping of umbilical wound during the last few days. Bacterial inoculation from the umbilical wound is: st.aureus, st.epidermalis. Blood data are normal.

Determine diagnosis.

What is pathogenesis of infant's illness?

4. In newborn of 8 days of life with hypothermia the signs of spotted rash occurred (Candida detected). Then, pneumonia with impoverished auscultative signs and rich mucopurulent sputum was diagnosed. The sclera and icterity of skin takes place. On the routine urine analysis erythrocyturia, cylindruria, leukocyturia, proteinuria were detected.

Determine diagnosis.

Prescribe the treatment to this patient.

5. A newborn of 6 days of life, developed hyperemia, infiltration of umbilical wound, purulent discharge from umbilical wound, the umbilical vein is palpated as tension bar. The following symptoms appeared during the next day of life: stiff neck, tonic abduction of eye globes, retraction of big fontanel, pulsation of an angle of mouth, refusal of meal, cerebral scream. On the routine blood test there is leucocytosis, deviation to the left, acceleration of blood sedimentation rate. In a bacterial sowing from umbilical wound St.aureus was allocated.

Establish the provisional diagnosis.

Prescribe etiotropic causal treatment.

Methodical materials to support basic stage class.

Professional algorithm of patient's management for practical skills and abilities forming.

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of newborn infant with septic disease.	1. To conduct gathering of complaints and disease and obstetric anamnesis. 2. To conduct patient's examination.	To pay attention to features of disease course, underlying factors, concomitant diseases etc. To establish the availability of risk factors which facilitate the disease occurrence. To assess patient general condition, position in

		<p>3. To examine cardiovascular system of the patient (palpation, percussion).</p> <p>4. To examine the pulmonary system (percussion, bronchophony). To conduct lungs auscultation.</p> <p>5. To examine the system of digestion.</p> <p>6. To examine urinary tract.</p> <p>7. To examine nervous system.</p>	<p>bed, color and humidity of skin and mucous, presence of hemorrhages and pyoinflammatory components on the skin, and extremities swelling. To pay regard to presence of hemorrhages, bleeding from mucous, umbilical wound, nasal bleedings, and melena and so on. To pay regard to rhythm of pulse, its tension and size on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR (tachi-or bradycardia, extrasystole), BP. To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones. To pay attention to features of percussion and auscultation. Presence of apneustic breath, character of wheezes during the auscultation. Presence of emesis, belches, swellings, fast decline of weight, signs of enterocolitis or peritonitis. Presence of edemas, anuria. Signs of depression or hyperexcitability, cramps.</p>
2	To formulate initial diagnosis.	1.To formulate the initial diagnosis	Taking the classification as a starting point to

		2. To substantiate all the components of initial diagnosis based on complaints, anamnesis, and examinations.	formulate the initial diagnosis of pyoinflammatory disease and to substantiate each component of it.
3	To evaluate the parameters of additional laboratory investigations.	<ol style="list-style-type: none"> 1. To evaluate the blood count data. 2. To conduct Apt's test in the presents of melena. 3. To evaluate bleeding time, clotting time, platelet count, clot retraction, platelet aggregation tests(using activators), thrombin time, prothrombin index, APTT(Activated Partial Thromboplastin Time), ACT, fibrinogen, tests to assess the fibrinolytic mechanism. 4. To evaluate the results of bacterial investigation. 5. To evaluate the results of instrumental patient's investigation. 	<p>To pay attention to the signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to bleeding time, clotting time, platelet count, clot retraction, platelet aggregation tests(using activators), thrombin time, prothrombin index, APTT(Activated Partial Thromboplastin Time), ACT, fibrinogen, tests to assess the fibrinolytic mechanism.</p> <p>To pay attention to the US of internals and brain, to ECG and X-ray of thoracic organs.</p>
4.	To conduct differential diagnosis.	<ol style="list-style-type: none"> 1. Consistently to find out common signs in complaints, life and disease anamnesis, the data of examination, data of laboratory and instrumental tests in patient and in similar states. 2. To find differences among complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods in 	Special attention must be paid to differential diagnosis among the intranatal infections, respiratory distress syndrome in premature, thrombopenia, inherited coagulopathy, jaundice, and natal trauma.

		<p>similar nosology.</p> <p>3. To find out the differences to exclude similar diseases from the list of probable diagnoses.</p> <p>4. To conduct differential diagnostics according to the above mentioned algorithm among all of nosologies having the similar signs, among other pyoinflammatory diseases.</p> <p>5. Taking into account the impossibility to exclude the diagnosis of pyoinflammatory disease from the list of probable diagnoses to draw a conclusion about the most probability of such diagnosis.</p>	
5.	To formulate the final clinical diagnosis.	<p>1. To formulate the final clinical diagnosis</p> <p>2. On the basis on initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of the final clinical diagnosis.</p>	On the basis of modern classification of pyoinflammatory diseases to formulate a final clinical diagnosis, complications of disease and presence of concomitant diseases.
6.	To prescribe treatment for patients.	<p>1. To prescribe non medicinal treatment</p> <p>2. To prescribe medicinal treatment.</p>	<p>Expressly to specify the regimen and detailed nutrition according to pyoinflammatory disease.</p> <p>Taking into account gestational age, severity of patient state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in</p>

			accordance to the standards of pyoinflammatory diseases therapy.
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Materials of the medical support for students' self preparation: a reference chart for organization of students' independent work with educational literature.

Tasks	Instructions
To study the etiology, epidemiology and risk factors of pyoinflammatory diseases in newborn infants.	<ul style="list-style-type: none"> - To enumerate basic etiologic factors of pyoinflammatory diseases in newborn infant; - Epidemiological links of pyoinflammatory diseases in newborn infant; - Features of immunologic reactions in newborn infant; - Risk factors of inflammatory pathology in newborn infant.
To study clinical manifestations of skin and subcutaneous fat diseases in newborn infant.	To select clinical symptoms, which can prove the probable diagnosis of pemphigus, exfoliative dermatitis, and phlegmon of newborn, mastitis of newborn, catarrhal and festering omphalitis.
To study etiology, links of pathogenesis, pathomorphology of sepsis in newborns.	<ul style="list-style-type: none"> - etiology, features of causal organism, its dependency on infections period; - pathogenetic changes in sepsis; - risk factors of neonatal sepsis; - pathomorphology of sepsis.
To study clinic criteria of sepsis.	<ul style="list-style-type: none"> - characteristic of early and late sepsis; - clinical manifestations of sepsis; - clinical manifestations of septikopyemia with characteristic of festering focus, features of clinic, questions of differential diagnostics of hematogenous osteomyelitis, neonatal meningitis.
To study the main complications of sepsis	<ul style="list-style-type: none"> - septic shock; - characteristic features
To study diagnostic criteria of sepsis	To make investigation plan for newborn with sepsis
To study pathognomic changes of additional investigation methods	To recapitulate the main diagnostical criteria of sepsis according to the data of additional investigation methods

To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.
To study the main signs of neonatal sepsis' treatment.	a) ensuring of hemorrhagic stability and tissues oxygenation; b) antibacterial therapy, starting scheme of antibacterial therapy; c) modulation of microorganisms reactivity; d) anticoagulant therapy; local treatment of festering seats.
To study the main questions of prophylaxis of pyoinflammatory diseases and sepsis in newborn infants	Prophylactic measures in prenatal and natal periods
To study methods of dispensary observations of newborn infants , who endured sepsis	Observations of experts, divisional pediatrics, terms of grafting.

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IRON-, PROTEIN-AND VITAMIN DEFICIENT ANEMIA'S.

Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis. Emergency in hemorrhage. Prognosis.

I. Actuality of the topic.

Anemia is a frequent laboratory abnormality in children. As many as 20 percent of children in the United States and 80 percent of children in developing countries will be anemic at some point by the age of 18 years.

Childhood anaemia poses a major public health issue leading to an increased risk of child mortality, as well as the negative consequences of iron deficiency anaemia on cognitive and physical development.³ The United Nations General Assembly set a goal at its special session on children in 2003 to reduce the prevalence of anaemia by one third by 2010. Anemia (uh-NEE-me-eh) is a condition in which your blood has a lower than normal number of red blood cells. This condition also can occur if your red blood cells don't contain enough hemoglobin (HEE-muh-glow-bin). Hemoglobin is an iron-rich protein that gives blood its red color. This protein helps red blood cells to carry oxygen from the lungs to the rest of the body. If you have anemia, your body doesn't get enough oxygen-rich blood. As a result, you may feel tired and have other symptoms. With severe or long-lasting anemia, the lack of oxygen in the blood can damage the heart, brain, and other organs of the body. Very severe anemia may even cause death. Red blood cells are disc-shaped and look like doughnuts without holes in the center. They carry oxygen and remove carbon dioxide (a waste product) from your body. These cells are made in the bone marrow—a sponge-like tissue inside the bones. Red blood cells live for about 120 days in the bloodstream and then die. White blood cells and platelets (PLATE-lets) are also made in the bone marrow. White blood cells help to fight infection. Platelets stick together to seal small cuts or breaks on the blood vessel walls and stop bleeding. With some types of anemia, you may have low numbers of all three types of blood cells. Anemia has three main causes: blood loss, lack of red blood cell production, or high rates of red blood cell destruction. These causes may be due to a number of diseases, conditions, or other factors. Many types of anemia can be mild, short term, and easily treated. Some types can even be prevented with a healthy diet. Other types can be treated with dietary supplements. However, certain types of anemia may be severe, long lasting, and life threatening if not diagnosed and treated.

Concrete purposes:

1. To determine the etiological and pathogenetic factors in iron-, protein-and vitamin deficient anemia's in children.
2. To classify and analyze the typical clinical manifestation of iron-, protein-and vitamin deficient anemia's in children.
3. To make the plan of investigation and analyze the information about laboratory and instrumental data of iron-, protein-and vitamin deficient anemia's in children.
4. To demonstrate skills of treatment, rehabilitation and prophylaxis in iron-, protein-and vitamin deficient anemia's in children.
5. To diagnose and render an urgent help in hemorrhage.

6. To conduct differential diagnostics of iron-, protein-and vitamin deficient anemias's in children and make a initial diagnosis.
7. To determine the prognosis for life in iron-, protein-and vitamin deficient anemia's in children.
8. To demonstrate the skills of medical specialist moral and deontological principles and principles of professional subordination in pediatrics.

II. Classes (pointing of planned mastering level)

1. A student must know (to familiarize): $\alpha 1$

- About the place of iron-,protein-and vitamin deficient anemia's in the structure of hematology system diseases in children, widespread in different age-dependent and ethnic groups;
- About statistical information in relation to morbidity, frequencies of complications, lethality, the nearest and remote prognosis in patients with iron , protein-and vitamin scarce anemia's ;
- About history of scientific study and payment of domestic scientists;

2. A student must know: $\alpha 2$

- etiology of iron-, protein-and vitamin deficient anemia's in children;
- key links of iron-,protein-and vitamin deficient anemia's pathogenesis;
- clinical classification of iron-,protein-and vitamin deficient anemia's;
- the classic clinical manifestation of iron-,protein-and vitamin deficient anemia's;
- laboratory diagnosis iron-,protein-and vitamin deficient anemia's;
- laboratory and instrumental diagnosis of iron-, protein-and vitamin deficient anemia's;
- complications of iron-,protein-and vitamin deficient anemia's in children;
- the treatment principles of iron-,protein-and vitamin deficient anemia's in children;

3. A student must master: $\alpha 3$

By skills:

- collection of complaints and anamnesis of disease;
- examination of patients with iron-, protein-and vitamin deficient anemia's and revealing the main symptoms and syndromes.
- formulating and substantiating the initial diagnosis;
- to determine plan of laboratory and instrumental examination (in obedience to diagnostics standards);

By the abilities:

- interpreting the results of laboratory and instrumental investigations.
- conducting a differential diagnosis among different kinds of anemias ;
- giving recommendations in relation to the patient's regimen and diet taking into account the stage of disease, severity of the state and concomitant pathology;
- completing the treatment plan for patients with anemias according to the standards taking into account the stage of disease, complications and concomitant pathology.
- rendering the first aid in extreme situations and exigent states.

III. Aims of personality development (educative aims):

- A student must learn to adhere to the rules of behavior and principles of medical etiquette and deontology near a bed ridden patient with iron-, protein-and vitamin deficient anemias -to try hands on ability to set a psychological contact with a patient and his family;
- To master a sense of professional responsibility for a timely, adequate and skilled Medicare.

Methodical materials for class basic stage supporting

Questions for the control of primary knowledge level of abilities and skills:

1. What is the function of erythrocytes?
2. How can we use erythrocyte index?
3. What is general for anemias?
4. What is the typical triad for hemolytic anemia?
5. What are the specific clinical signs of hypoplastic anemias?
6. What are the typical syndromes for iron-deficiency anemia?
7. What are the laboratory findings of pernicious anemia?
8. To explain the iron therapy in children with iron-deficiency anemia.
9. To explain the pathogenesis of hereditary spherocytosis.
10. To explain the pathogenesis of anemia praematarorum.
11. What is the prophylaxis of iron-deficiency anemia in children?
12. To explain the clinical manifestation of Diamond-Blackman syndrome.

Primary tests

1. The true reticulocytosis is:
 - A. Rising of reticulocytes in bone marrow and in blood.
 - B. Rising of reticulocytes in blood.
 - C. Rising of reticulocytes in bone marrow.
 - D. A high level of blood reticulocytes in normal amount in bone marrow.
 - E. The reduced amount of reticulocytes in bone marrow and in normal blood concentration.
2. Poikilocytosis is:
 - A. Change of the form of separate erythrocytes.
 - B. Change of the sizes of separate erythrocytes.
 - C. Change of staining intensity of separate erythrocytes.
 - D. Presence of inclusions in cytoplasm of erythrocytes.
 - E. All answers are correct
3. Anemia's are:
 - A. Decrease of hemoglobin and erythrocytes in a unit of blood volume.
 - B. Decrease of erythrocytes amount in a unit of blood volume.
 - C. Decrease of hemoglobin in a unit of blood volume.
 - D. Decrease of circulating blood volume.
 - E. All answers are correct.

4. Time of revealing of laboratory signs in an acute post hemorrhagic anemia:
- A. 2-nd day.
 - B. in 18 hours.
 - C. in 12 hours.
 - D. The first hours from the beginning of bleeding.
 - E. 24 hours from the beginning of bleeding.
5. What is the occurrence time of reticulocytic crisis after an acute hemorrhage?
- A. 4-5 day.
 - B. 10 day
 - C. 1-2 day.
 - D. The first hours.
 - E. The first minutes
6. Urgent measures after an acute hemorrhage:
- A. Transfusion of hem correctors
 - B. Transfusion of packed red cells.
 - C. Transfusion of an integral blood.
 - D. Disaggregate therapy.
 - E. A vitamin therapy.
7. What is the definition of hypo chromic anemia concept?
- A. Anemia's in which rates of hemoglobin synthesis lag of erythrocyte formation.
 - B. Anemia's at which decreasing of average erythrocytes volume is observed.?
 - C. The anemia's connected to disturbances of goblin synthesis.
 - D. The anemia's connected to disturbances of hem synthesis.
 - E. All answers are correct
8. What is typical for a regenerator anemia?
- A. Absence of reticulocytosis in blood and bone marrow.
 - B. Decreasing of reticulocytes in blood.
 - C. Decreasing of reticulocytes in bone marrow
 - D. The normal amount of reticulocytes in blood and rising of their amount in the bone marrow.
 - E. All answers are correct.
- 9 What is the manifestation of sideropenic syndrome in an iron deficient anemia?
- A. Trophic changes, partially to unusual food.
 - B. Weakness, giddiness, nausea.
 - C. Glossitis.
 - D. Lesion of the central nervous system.
 - E. All answers are correct
10. What are the changes in blood in chronic iron deficient anemia?
- A. Essential decreasing of hemoglobin, of color parameter, of serum Ferri lactase.

- B. Decreasing of hemoglobin and erythrocytes.
 - C. Presence of anemia, leukocytosis, neutrocytosis.
 - D. Presence of anemia, leukocytosis, hyperthrombocytosis
 - E. All the above-stated takes place
11. The dimensions of erythrocytes in an iron deficient anemia:
- A. Do not change.
 - B. Essentially diminished up to microcytes.
 - C. Essentially diminished up to schizocytes.
 - D. Enlarged up to megalocytes.
 - E. All answers are correct
12. The amount of iron in blood serum in chronic iron deficient anemia:
- A. < 12, 5 mcmol/l
 - B. < 15 mcmol/l
 - C. <22 mcmol/l
 - D. <30,4 mcmol/l
 - E. <20 mcmol/l
13. Daily requirement for iron in children of early age:
- A. 2 mg
 - B. 20 mg
 - C. 50 mg
 - D. 10 mg
 - E. 1mg
14. Daily requirement for iron in teenagers:
- A. 15-20 mg.
 - B. 10 mg.
 - C. 100 mg.
 - D. 2 mg.
 - E. 40 mg
15. What kind of iron is better absorbed?
- A. 2 valent.
 - B. 3-valent.
 - C. Iron in the complex with proteins.
 - D. Iron chlorine.
 - E. Iron in a complex with polivitamines
16. Whom is a juvenile chlorosis inherent the most often to?
- A. Girls of 15-20 years old.
 - B. Young men of 17 years old.
 - C. Women of genital age.
 - D. Newborns
 - E. Children of early age
17. What is the cell –color index in juvenile chlorosis?

- A. 0, 44-0, 5
- B. 0, 7-0, 85
- C. 0, 82-1, 65
- D. 1, 1-1, 3
- E. More than 1, 3

18. What is the basic prominent feature of a peripheral blood in newborns?

- A. Lymphopenia
- B. Europhile leukocytosis.
- C. Erhythrocytosis
- D. Anemia.
- E. Lymphocytosis

19. Is there a possibility of iron deficiency correction with a diet?

- A. No
- B. Yes.
- C. Possible with the help of using vegetable products.
- D. Possible with the help of animal parentage products.
- E. Possible with the help both of vegetable and animal parentage products

20. Are hem transfusions indicated in iron scarce anemia?

- A. No.
- B. Yes.
- C. Indicated in hemoglobin amount lower than 100 g/l.
- D. Indicated in hemoglobin amount lower than 90g/l
- E. Indicated in hemoglobin amount lower than 80 g/l.

Typical situational tasks of 2 level

1. On a routine-screening complete blood count, 1-year-old is noted to have a microcytic anemia. A follow-up hemoglobin electrophoresis demonstrates an increased concentration of hemoglobin A2.

Task

-What is the preliminary diagnosis?

2. 4-year-old previously well boy develops pallor, dark urine, and jaundice. There has been no apparent exposure to a jaundiced person or to any toxins. He is taking trimethoprim-sulfamethoxazole for otitis media. You consider the possibility of a hemolytic crisis caused by glucose-6- phosphate dehydrogenase (G6PD) deficiency.

- a. African American
- b. Greek
- c. Chinese
- d. Middle Eastern
- e. Scandinavian

Task

- Which of the following ethnic groups is the lowest incidence in?

- Key links of pathogenesis of disease

3. 2950-g black baby boy is born at home at term. On arrival at the hospital, he appears pale, but the physical examination is otherwise normal. Laboratory studies reveal the following: mother's blood type A, Rh-positive; baby's blood type O, Rh-positive; hematocrit 38%; reticulocyte count 5%. Which of the following is the most likely cause of anemia?

- a. Fetomaternal transfusion
- b. ABO incompatibility
- c. Physiologic anemia of the newborn
- d. Sickle cell anemia

Task

-What is the preliminary diagnosis?

4. A preterm black male infant was found to be jaundiced 12 h after birth. At 36 h of age, his serum bilirubin was 18 mg/dL, hemoglobin concentration was 12.5 g/dL, and reticulocyte count 9%. Many nucleated red cells and some spherocytes were seen in the peripheral blood smear.

- a. Pyruvate kinase deficiency
- b. Hereditary spherocytosis
- c. Sickle cell anemia
- d. Rh incompatibility
- e. Polycythemia

Task Which of the following should the differential diagnosis include?

5. Having performed a complete history and physical examination of the patient, you proceed with a diagnostic workup. Initial laboratory results are as follows: hemoglobin 8 g/dL; hematocrit 24%; leukocyte count 11,000/L with 38% neutrophils, 7% bands, 55% lymphocytes; hypochromia on smear; free erythrocyte protoporphyrin (FEP) 110 g/dL; lead level 7 g/dL whole blood; platelet count adequate; reticulocyte count 0.5%; sickle cell preparation negative; stool guaiac negative; and mean corpuscular volume (MCV) 65fl.

Task You would most appropriately recommend

- a. Blood transfusion
- b. Oral ferrous sulfate
- c. Intramuscular iron dextran
- d. An iron-fortified cereal
- e. Calcium EDTA

Methodical materials for the class

A professional algorithm of patients management implementation (reference chart) for the practical skills and abilities forming.

No	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct	1. To collect complaints	To pay attention to

	examination of a patient with anemia.	<p>and disease's anamnesis.</p> <p>2. To gather thoroughly the patient's life anamnesis.</p> <p>3. To conduct examination of the patient.</p> <p>4. To examine cardiovascular system of the patient (palpation, percussion).</p>	<p>features of disease course, underlying factors, concomitant diseases etc.</p> <p>To establish the risk factors which can cause the development of disease.</p> <p>To assess patient's general condition, position in bed, color and humidity of skin and mucous, presence of neck veins and extremities swelling.</p> <p>To pay regard to pulse rhythm, it's tension and size on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR(tachi-or bradycardia, extra systole), BP.</p>
		<p>5. To conduct heart and main vessels auscultation.</p> <p>6. To examine the pulmonary system (percussion, bronchophony).</p> <p>7. To conduct lungs auscultation.</p> <p>8. To examine the system of digestion.</p> <p>9. To conduct examination and palpation of thyroid gland and local lymphatic nodes.</p>	<p>To pay regard to heart weakening tones or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation in children of different age.</p>
2	To formulate the initial diagnosis.	<p>1. To formulate the initial diagnosis</p> <p>2. To substantiate all the components of initial diagnosis based on complaints, anamnesis, and examinations.</p>	<p>To formulate the initial diagnosis of anemia's and substantiate each component of it.</p>

3	To evaluate the parameters of additional laboratory examination.	<ol style="list-style-type: none"> 1. To evaluate the blood count data. 2. To evaluate the biochemistry data. 3. To evaluate the blood hormonal profile. 	<p>To pay attention to the signs of anemia, reticulocyte count iron, ferritin and total iron binding capacity levels, leucocytosis, changing of formula, blood film, red cell enzyme studies, folate, vitamin B12 levels , elevation of sedimentation rate.</p> <p>To pay attention to cholesterol, lipids and glucose levels.</p>
4	To understand the data of additional and laboratory examination.	To understand the data of bone marrow puncture.	
5.	To conduct differential diagnosis.	<ol style="list-style-type: none"> 1. Consistently to find the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental findings in patient and in similar states. 2. To find the differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of research and in similar nosology. 3. On the basis of the differences found to exclude similar diseases from the list of possible diagnoses. 4. To conduct differential diagnostics according to the above mentioned algorithm among all the nosologies having the similar signs, among 	Special attention must be paid to differential diagnosis among the leukemias

		other kinds of anemia's 5. Taking into account the impossibility to exclude the diagnosis of anemia from the list of credible diagnoses to draw a conclusion about the probability of such a diagnosis.	
6	To formulate the final clinical diagnosis.	1. To formulate the final clinical diagnosis. 2. Basing on the initial diagnosis, additional investigations data, conducted differential diagnosis, substantiate all elements of the final clinical diagnosis.	Basing on modern classification of anemias, formulate the final diagnosis, complications of disease and the presence of concomitant diseases.
7	To prescribe treatment for patients.	1.To prescribe non medicinal treatment 2.To prescribe medicinal treatment.	Specify the regimen and detailed diet according to the disease. Taking into account the age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with the standards of anemia's therapy.

Materials of the medical support for the student's independent training: a reference chart for organization of student's independent work with educational literature.

Tasks	Instructions
To study the etiology and pathogenesis of iron-,protein-and vitamin deficient anemias in children	To select the key links of anemia's pathogenesis.
To study the clinical manifestations of iron-, protein-and vitamin deficient anemias in children.	To establish the symptoms and gather it to clinical syndromes which enable to make the credible diagnosis of anemias.
To study diagnostic criteria of anemia's.	To make the structural plan of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.
To study the changes in additional	To enumerate the basic diagnostic cri-

investigational methods which are pathognomonic for anemias.	teria of anemias according to the data of additional investigational methods.
To conduct differential diagnostics, to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual solitary to patient with anemias. To be able to render the first aid in hemorrhage for children.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, the stage of disease, presence of complications and concomitant diseases.

Literature:

1. Nelson Textbook of Pediatrics, ed 16.2000.
- 2.Дитячі хвороби. За ред. В.М. Сідельникова, В.В.Бережного. К.:Здоров'я, 1999.- 734 с.
- 3.Медицина дитинства. За редакцією П.С. Мощича. - К.Здоров'я, 1994. -Т. 1-4.- 2350 с.
- 4.Майданник В.Г. Педиатрия. Учебник (2-е издание, испр. и доп.) - Харьков: Фолио, 2002. - 1125 с.

TOPIC: LEUKEMIAS IN CHILDREN.

Leukemias and lymphadenomas in children: etiology, pathogenesis, classification, diagnostics, differential diagnostics among other diseases of the blood system and diseases with hyperplastic syndrome, treatment. The first aid in hemorrhagic syndrome and in syndromes of prelum. Prognosis.

I. Actuality of the topic.

Leukemias are the most common childhood cancers, accounting for about 33% of pediatric malignancies. Acute lymphoblastic leukemia (ALL) represents about 75% of all cases, with a peak at the age of 4 yr. Acute myeloid leukemia (AML) accounts for about 20% of leukemias, with an incidence that is stable from birth through the age of 10 yr, increasing slightly during adolescence. Most of the remaining leukemias are the chronic myeloid form; chronic lymphocytic leukemia is rarely seen in children. The overall annual incidence of leukemia is 42.1 per million white children and 24.3 per million black children. The difference is due mainly to the lower incidence of ALL among black children. General clinical features of the leukemias are similar because all involve severe disruption of bone marrow function. Specific clinical and laboratory features differ, however there is marked variability in responses to therapy and in prognosis.

Concrete purposes:

1. To determine the etiologic and pathogenetic factors in diffuse leukemias and lymphadenomas in children.
2. To classify and analyse the typical clinical manifestation of leukemias and lymphadenomas in children.
3. To determine the features of leukemias and lymphadenomas in children and put the initial clinical diagnosis.
4. To make the plan of examination and analyze the information about laboratory and instrumental data in the classic course of leukemias and lymphadenomas in children.
5. To demonstrate skills of treatment, rehabilitation and prophylaxis of leukemias and lymphadenomas in children.
6. To diagnose and render an urgent help in cell lysis crisis in children.
7. To conduct differential diagnostics among leukemias and lymphadenomas and make the final diagnosis.
8. To determine the prognosis for life in leukemia and lymphadenoma in children.
9. To demonstrate the skills of medical specialist's moral and deontological principles and principles of professional subordination in pediatrics.

II. Classes (pointing out planned mastering level)

1. A student must have a notion (to familiarize):
 - About the place of leukemia in the structure of blood system's diseases in children, dependent on different age and ethnic groups;
 - About statistical information in relation to morbidity, frequency of complications, lethality, immediate and long-term prognosis for patients;

- About the history of scientific studying and the contribution of domestic scientists;

2. A student must know (to master): $\alpha 2$

- etiology of leukemia;
- key links of leukemia's pathogenesis;
- citochemical and immunologic classification of leukemias;
- classical clinical manifestation of leukemia;
- classical clinical manifestation of lymph adenoma;
- laboratory and instrumental diagnosis of leukemia;
- complications of leukemia and lymph adenoma;
- treatment principles of leukemias and lymphadenias in children;

3. A student must master: $\alpha 3$

Skills:

- Complaints and anamnesis taking;
- Examination of patient with leukemia and revealing the main symptoms and syndromes.
- To formulate and substantiate the initial diagnosis;
- Determination of laboratory and instrumental examination, to make the plan of patient's investigation (according to diagnostics' standards).

Abilities:

- To interpret the results of laboratory and instrumental tests;
- To conduct differential diagnostics with a mielodysplastic syndrome, lymphogranulomatosis, non-Hodgkin lymph adenomas, and other clinical states which are accompanied by the increase of lymphatic nodes, increase of temperature, bleeding and other signs of disease;
- To give recommendations in relation to the patient's regimen and diet in leukemia and lymph adenoma, taking into account the stage of disease, severity of the state and the concomitant pathology;
- Taking into account the stage of disease to specify the severity of the state and concomitant pathology;
- To complete the treatment plan in leukemias and lymph adenomas according to the standards taking into account the stage of the disease, complications and concomitant pathology;
- To render the first aid in extreme situations and exigent states.

III. Development of personal skills (educative goals):

- A student must learn to adhere to the rules of behavior and principles of medical etiquette and deontology near a patient's bed;

Be able to set a psychological contact with a patient and his family;

- To master the sense of professional responsibility for a timeliness and adequacy of skilled medicare.

Methodical materials for the class basic knowledge control

A professional algorithm of patient's management (reference chart) for the practical skills and abilities forming.

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct an examination of a patient with leukemia	<p>1.To collect complaints and disease's anamnesis.</p> <p>1. To collect complaints and disease's anamnesis.</p> <p>3.To conduct examination of the patient.</p> <p>4.To examine lymphatic nodes system of the patient (palpation).</p>	<p>To pay attention to the features of disease course, underlying factors, concomitant diseases etc.</p> <p>To establish the risk factors of the disease occurrence.</p> <p>To assess patient's general condition, position in bed, color and wetness of skin and mucous, presence of neck veins and extremities swelling.</p> <p>To pay regard to the rhythm of pulse, it tension and size on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR (tachi or bradycardia, extra systole), BP.</p>
		<p>5.To conduct condition of heart and main vessels auscultation.</p> <p>6.To examine the pulmonary system (percussion, bronchophony).</p> <p>7.To conduct lungs auscultation.</p> <p>8.To examine the digestive system.</p>	<p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to the features of percussion and auscultation in different aged children.</p>
2	To formulate	1.To formulate the initial diagnosis	Taking the

	the initial diagnosis.	2.To substantiate all the components of the initial diagnosis, based on complaints,anamnesis, and examinations.	classification as a starting point to formulate the initial diagnosis of leukemia and to substantiate each component of it.
3	To evaluate the parameters of additional laboratory investigations.	1.To evaluate the blood count data. 2.To interpret the data of CSF.	To pay attention to the presence of leucocytosis, shifting of formula, increasing of SR, presence of blasts. To pay attention to the presence of blasts and their morphology, features of red stem in SP. To pay attention to agent and sensitiveness to antibiotics.
4	To understand the data of additional and laboratory investigation.	To understand the chest X-Ray data, SP, ECG, and ultrasound.	To pay special attention to the signs of pneumonia, lungs infiltration, to additional formations in lungs etc., ECG signs, hepatosplenome by ultrasound.
5	To conduct differential diagnosis.	1.Consistently to find the common signs in complaints,life and disease anamnesis, data of the examination, data of laboratory and instrumental examination of the patient and in similar states. 2.To find out the differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of research and in similar nosology. 3.On the basis of the differences to find out similar diseases from the list of probable diagnoses.	Special attention must be paid to differential diagnosis among the lymphogranulomatosis, non–Hodgkin disease and hemorrhagic syndromes.

		<p>4. To conduct differential diagnostics according to the mentioned algorithm among all the nosologies which have the similar signs.</p> <p>5. Taking into account the impossibility to exclude the diagnosis of leukemia from the list of probable diagnoses to draw a conclusion about the highest degree of probability of such diagnosis.</p>	
6	To formulate the final clinical diagnosis.	<p>3. To formulate the final clinical diagnosis.</p> <p>2. Taking as a starting point the provisional diagnosis, additional investigations data, conducted differential diagnosis to substantiate all the elements of final clinical diagnosis.</p>	Taking as a starting point the classification of leukemia to formulate a provisional diagnosis, complications of the disease and the presence of concomitant diseases.
7	To prescribe treatment for patient.	<p>1. To prescribe non medicinal treatment.</p> <p>2. To prescribe the medicinal treatment</p>	<p>Expressly to specify the regimen and detailed diet according to the disease.</p> <p>Taking into account the age, severity of the patient's state, the stage of the disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with the standards of leukemia's therapy.</p>

A question for initial level control of knowledge, skills and abilities:

Definition of hemoblastoses.

1. To determine an etiology of acute and chronic leukemia in children.
2. To specify the key links of leukogenesis.
3. Basic statements of modern cytomorphic and immunologic classification of leukemias.
4. To call the facilitating factors for leukemia's origin.

5. To call the typical clinical manifestation of acute and chronic leukemia in children.
6. To compose the plan of laboratory and instrumental investigation of the patient.
7. To specify the most typical complications of leucosis in children.
8. To specify the principle of acute leucosis therapy. BFM protocols.
9. To specify the main groups of chemo preparations in the treatment of children with leukemia.
10. Prognosis and sensitivity to chemotherapy based on the most typical chromosome aberrations in acute and chronic leukemias in children.

The first level tests

1. To the child sick with acute lymphoblast leukemia, for correction of anemia the hem transfusion with packed red cells was performed. What laboratory investigations should be done necessarily after a hem transfusion?
 - A. Determine hemoglobin, RBC, urine tests.
 - B Coombs test, functional liver tests.
 - C Proteinogramme, coagulogramme.
 - D Electrolytes in blood and urine.
 - E Urinary acid of blood, acid and alkaline condition of blood.

2. The family of a child having been diagnosed with acute lymphoblastic leukemia applied for information about the child's prognosis. Which of the following included is a poor prognostic sign?
 - a. Presence of a mediastinal mass
 - b. Hyperdiploidy with more than 50 chromosomes
 - c. White blood cell count at diagnosis of less than $50 \times 10^9/l$
 - d. Age between 1 and 10 years
 - e. Early pre-B-cell variety of the disease

3. A boy of 12 years old has been admitted to the clinic with complaints on short wind, cough, increasing of body temperature up to 37, 0C. He's been falling sick during 3 months. On thorax X-ray a "pipe"-like mediastinal shadow with presence of polycyclic contours has been revealed. What preliminary diagnosis is the most probable?
 - A. Leukemia
 - B Tubercular bronchadenitis
 - C Lungs cancer
 - D Lymphogranulomatosis
 - E Sarcoidosis

4. A boy of 4 years old has been admitted with complaints of fever, itching, raised sweating, enlarged cervical and auxiliary lymph nodes. On examination of the patient the lymph nodes conglomerate (like potatoes in the bag) in the left site of the neck and in the right auxiliary area are palpated. The liver and lien are enlarged. What are the most typical signs of lymphogranulomatosis in this patient?
 - A. Splenomegaly

- B. Itch
- C Fever
- D Hepatomegalia
- E Conglomerate of lympho nodes

5. A patient of 7 years old has been admitted to the hospital with complaints of weakness, fatigue, fever, short wind and cough, decreasing of body weight. On X-ray of the thorax the enlargement of mediastinum shadow and the presence of polycyclic contours were revealed. What disease is the most probable?

- A. Non Hodgkin lymphoma
- B Dermoid cyst
- C Tumor of thymus gland
- D Tuberculosis
- E Lymphogranulomatosis

6. A girl of 12 years old during 6 months has been complaining of growing thin, labored respiration and dry cough. On X-ray of the thorax there are considerably enlarged mediastinal lymph nodes. Mantoux test is negative. Hemogramme: Hb-90 g/l, erythrocytes. - $2,9 \times 10^{12}/l$, thrombocytes - $94 \times 10^9/l$, leucocytes - $12 \times 10^9/l$, relating to stab neutrophiles - 12 %, segmented - 70 %, blood sedimentation rate is 18 mm / hour. What is the prime test for establishing of diagnosis?

- A. Morphological investigation of bone marrow
- B Histological investigation of mediastinal lympho nodes
- C Computer tomography of abdominal cavity
- D Spirographic tests with Metacholine and Salbutamolium
- E Thermometry in each 3 hours during a week

7. A girl of 5 years old, that has been healthy before, during 3 months has been treated for pneumonitis. Body temperature is 37-37,50C, generalized lymphodenopathy, liver + 4 cm, lien +5 cm, ossalgies. Antibiotic therapy was ineffective. Hemogramme: Hb - 90 g/l, erythrocytes. - $2,9 \times 10^{12}/l$, thrombocytes. - $80 \times 10^9/l$, leucocytes. - 56 g/l, blastes - 20 %, relating to stab neutrophiles - 12 %, segmented - 26 %, lymphocytes - 41 %. What is your subsequent tactics?

- A. To conduct sternal puncture and to investigate bone marrow
- B To direct to genetic center and to investigate karyotype
- C To conduct spirographic tests and analysis of sputum
- D To investigate the biopsy of the most enlarged lymph nodes
- E To hospitalize for urgent plasmapheresis

8. A girl of 6 years old, was taken to hematology department in a serious state: high fevers, all groups of lymph nodes are enlarged, hemorrhagic syndrome, hepatosplenomegalia. Blood count: RBC - $2,0 \times 10^9/L$, Hb - 84 g/l, CI: 0,75, WBC- $24,0 \times 10^9/L$, eosinophiles.-3 %, relating to stab neutrophile -1 %, segmented neutrofiles.-16 %, lymphocytes-75 %, monocytes -5 %, a thrombocytes.- $150 \times 10^9/l$, ESR-56 mm/h . In a myelogram the blastes is 92 %. Which of the listed parameters plays the main role for the establishing of a diagnosis?

- A. Blastosis in a myelogram
- B. Leukocytosis
- C. Thrombocytopenia
- D. Lymphocytosis
- E. Anemia

9. A child of 4 years old. During the last 4 months asthenia, dermal haemorrhages admitted. Nasal bleedings, paleness, hyperthermia. On the routine blood analysis : hemoglobin - 45 g/L, erythrocytes - $1,2 \times 10^9$ /L, a color index - 0,9, leucocytes $1,5 \times 10^9$ /L, relating to stab neutrophile - 1 %, segmented - 25 %, eosinocytes - 1 %, lymphocytes - 5 %, monocytes - 4 %, blood sedimentation rate 50 mm / h, thrombocytes - 40×10^9 /L. What is the preliminary diagnosis?

- A. Aplastic anemia
- B. Iron deficiency anemia
- C. B12 - deficiency anemia maculae
- D. Hemolytic anemia
- E. Acute leucosis

10. 8-year-old child being treated with a combination of chemotherapy an agent develops very red, inflamed sores in the mouth and esophagus. He has difficulty at eating and drinking food and liquids. Which of the following antineoplastic agents is the most likely etiology?

- A. Cephasoline
- B. Prednisone
- C. Methotrexate
- D. Antifungal drugs
- E. Dexametasone

11. What are the most distinctive features of peripheral blood and bone marrow changes that allow to suspect a myelodysplastic syndrome?

- A. WBC increasing, normal or decreased elements in bone marrow.
- B. PLTC increasing and increased bone marrow elements.
- C. WBC increasing with simultaneously decreased thrombocytes and erythrocytes and the signs of elements differentiation impairment in the bone marrow.
- D. RBC, WBC, PLTC decreasing and simultaneously increasing bone marrow elements and the signs of impaired bone marrow elements differentiation.
- E. Decreasing of blood elements (RBC, WBC, PLTC) in simultaneously significant decreasing of bone marrow elements

12. Basic criteria for the diagnostics of acute leucosis are:

- A. Rejuvenation of leukocytes blood formula.
- B. Anemia.
- C. Pancytopenia.
- D. Blasts in bone marrow (>30%).
- E. Thrombocytopenia.

13. Research method for the diagnostics of acute leucosis is:
- A. Citogic.
 - B. Histological.
 - C. Citochemical.
 - D. Immunological.
 - E. Radiological.
14. What are the changes in the blood in a leukemic acute leucosis type?
- A. Nutrotrophilosis
 - B. Anemia, thrombocytopenia.
 - C. Absence of blasts, lymphocytosis.
 - D. Eosinophilia.
 - Å. Myélocytes, métamyélocytes.
15. Cytochemical criteria of acute lymphoblastic leucosis:
- A. Positive reaction to myeloperoxidase.
 - B. Positive reaction to heparin.
 - C. Positive reaction to acid phoshatase.
 - D. Positive reaction to heterospecific esterase.
 - E. Positive reaction to lipids.
16. In what types of acute lymphoblastic leukemia leucemides on the skin is the most common sign?
- A. Lymphoblast
 - B. Myeloblast
 - C. Monoblast.
 - D. Promyelociytic.
 - E. Megakaryocytic.
- 17 In what type of leucosis leukemic infiltration of gums is the most common sign?
- A. Myeloblastic
 - B. lymphoblastic.
 - C. Monoblastic.
 - D. Promyeloctyctoblastic
 - E. Megakaryocytic
18. Neuroleucemia most often complicates the course of acute leucosis:
- A. Myeloblast.
 - B. Monoblast.
 - C. Lymphoblast.
 - D. Erhythromyelos.
 - E. Megakaryoblast.
19. Diagnostic criteria for nurolecosis:
- A. Headache, nausea, vomiting.
 - B. Stiffed neck
 - C. Kernig syndrome.

- D. Cytosis of neurolymph more than $>10/\text{iml}$, presence of blasts.
- E. Blood in a neurolymph

20. The increase of lymphatic nodes and spleen is the most common sign in:

- A. Mieloblast leucosis.
- B. Promyelocytic leucosis.
- C. Monoblast leucosis.
- D. Lymphoblastic leucosis.
- E. Erhythromyelosis.

Tasks:

1. Patient D.7 years, transferred to children department from ophthalmologic department, where he had stayed because of lacrimal saccus phlegmone.

On examination: general condition is mild, skin pallor, some hemorrhages on the upper extremities. On cheek mucosae there is a hemorrhagic rash. Enlarged lymph nodes palpated (up to 2 cm in diameter): subscullid, retrocervical, supraclavicular, sublingual, inguinal are painful and elastic in consistency

The breathing under lungs is unchanged. Pulse rate is 74 per min. BP 144 to 90 mm Hg. Tongue is clear. Hemorrhages on cheek mucous and palate. Gums are pale. Throat is red. Glands are uneven, enlarged. Liver and spleen are unchanged.

Blood count: Er. $2.1 \cdot 10^{12}/\text{l}$, Hb 74 g/l, CI 1, polichromathophilia, anisocytosis, poicilocytosis, reticulocytosis 30%, leuc. $4.5 \cdot 10^9/\text{l}$, bands: 6%, s: 10%, lymph. 80%, blasts 4%, tr. $33 \cdot 10^9/\text{l}$, SR 55 mm. per hour. Urine count is unchanged.

1. Establish the diagnosis.
2. What additional investigational methods are needed?

2. A patient, 4 years, old, had symptoms of an acute disease: fever, relapse vomiting. Next 2-3 days a considerable general weakness appeared. He was admitted to the hospital with a diagnosis of Bodkin's disease to infectious department and after examination and blood count taking was transferred to children department. From the anamnesis it was reported that the child was born healthy, in the past he hadn't been ill. The parents are healthy.

On examination: the general condition is grave, the skin is pale with a rather yellow tint, and scleras are subicteric. Preferefic lymph nodes are palpated up to the kidney bean dimensions, dense, painless. Pulse is 76 beats per minute, rhythmic, filled satisfactory, Heart margins are normal, on auscultation the systolic murmur over all the sites of auscultation. Liver is 2 cm under the costal arch, painless and soft. Spleen is 4-5 cm under the costal arch, soft and painless. Body temperature is 37.8- 39.8 C. Blood count: erh. $0.98 \cdot 10^{12}/\text{l}$, Hb 28 g/l, L: $3.8 \cdot 10^9/\text{l}$, neutrophilosis without shifting in formula. In the blood smear there is a big amount of normoerhthroblasts. In blood data Tr. $12 \cdot 10^9/\text{l}$, reticulocytes 22%, General bilirubin is 102 mcmol/l, indirect bilirubin 96 mcm/l. Urine is darkly brown color with big sediment of urates. Urobilin test is very positive.

1. Establish preliminary diagnosis.

2. What additional methods of investigation are necessary?

3. A patient, 6 of years old, was admitted to the hospital in a severe condition. A month ago she had had some disease with fever, treated with sulphadimesin and penicillin. A week ago the pain on swallowing occurred, gum pain, increasing of body temperature up to 39C. On the mucosa of the mouth and glands the ulcerations were found. The treatment was prescribed: oral cavity lavage with furacillinum, eternally sulphadimetoxinum, levomycetin, but the state was unchanged and the patient was hospitalized.

4. On examination general condition is grave, body temperature is 39,0C, tongue is dry: on the mucosa of gums, hard and soft palate, tongue and tonsils the necrotizing ulcers covered with grey scurf are found.

Blood count: Er. $3.2 \times 10^{12}/l$, Hb 100 g/l, L: $0.8 \times 10^9/l$, eos: 0%, bands .0%, s;22%, lymph; 73%, monocytes 3%, blasts 2%, SR 2 mm/year.

1. Establish preliminary diagnosis.

2. What additional investigations are needed?

5. A boy U. was admitted to the clinic with complaints on enlargement of subjaw and parauricular lymphatic nodes, increased body temperature. He has been feeling sick during a month, was treated in the outpatient department for the diagnosis of epidemic parotitis without any effect. Besides, the hemorrhages on skin and pallor appeared. In the outpatient department the blood count was taken where the leucocytes consists of $3,7 \times 10^9/l$, lymphocytes were 90 %, SR 70 mm/h.

From the anamnesis it was reported: from the first pregnancy, normal development. On admission to the hospital the general state is mild, pallor, ecchymomas on the extremities, enlargement of cervical and subjaw lymph nodes up to 2-3 cm in diameter, dyspnea, weakened breathing on lungs auscultation, no rales. On heart auscultation the systolic murmur over the fifth site was heard with mild intesivity. Liver is 4 cm under the costal arch, spleen is 3 cm, dense and painless.

Blood count: erh. $2.56 \times 10^{12}/l$, Hb 60 g/l, anysocytosis. Leucocytes: $3,5 \times 10^9/l$, e: 1%, bands: 5%, s: 9%, lymph 11%, mon:1%, lymphoblasts 73 %, SR 2 mm/h.

What disease could be suggested?

What are the additional investigations?

What test will confirm the clinical diagnosis?

The questions for the control of secondary knowledge level of abilities and skills:

1. Definition of hemoblastoses.

2. To determine an etiology of acute and chronic leukemias in children.

3. To specify the key links of leukomogenesis.

4. Basic statements of modern cytomorphologic and immunologic classification of leukomias.

5. To define the facilitating factors for leukemias origin.

6. To define the typical clinical manifestation of acute and chronic leucemia in children.

7. To compose the plan of laboratory and instrumental investigation of leukemic child patient.

8. To specify the most typical complication of leukoses in children.

9. To specify the principle of acute leucoses therapy. BFM protocols.

10. To specify the main groups of chemopreparations in treatment children with leukemia.

11. Prognosis and sensitivity to chemotherapy based on the most typical chromosome aberrations in acute and chronic leukemias in children.

VII. Materials of the medical support for the students independent training: a reference chart for organization of students independent work with educational literature.

Tasks	Instructions
To study the etiology and pathogenesis of leukemia and lymphadenoma in children. To be able to detect the risk group for the severity of leukemia.	To enumerate basic etiologic factors, to select the key links of leukemia, pathogenesis.
To study clinical manifestations of leukemias and lymphadenomas in children.	To establish the symptoms and gather it to clinical syndromes which enable to put the credible diagnosis of leukemia.
To study diagnostic criteria of leukemia.	To make the flow diagram of the disease
To study the additional methods of examinations (laboratory, instrumental)	To work out a plan of patient's examinations.
To study the changes in additional investigational methods which are pathognomonic for leukemias.	To enumerate the basic diagnostic criteria of leukemia according to the data of additional investigational methods.
To conduct differential diagnostics, to make a final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual poliatory to patient with the leukemia. To be able to render the first aid in cell lysis crisis for children.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, the stage of the disease, the presence of complications and concomitant diseases.

Literature:

Основна література

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2. Майданник В.Г., Майданник И.В. Справочник современных лекарственных средств. - М.: АСТ; Харьков: Фолио, 2005. - 1024 с.
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HAEMORRHAGIC DISEASES IN CHILDREN. HAEMOPHILIA, THROMBOPATHY, THROMBOPENIA.

Etiology. Pathogenesis. Classification. Diagnostics. Differential diagnostics between haemorrhagic diseases in children. Treatment. The first aid in case of haemorrhage. Prognosis.

I. Actuality of the topic. Haemorrhagic syndrome can manifest itself as an independent disease or can be a manifestation of other pathology. A course of haemorrhage is damage in haemostasis, which can be primary in case of congenital haemorrhagic diseases and secondary in case of complications. Bleeding cessation occurs in compliance with interaction of three haemostasis links: vascular, platelets and coagulatory. Isolated or combined breaking in one or several haemostasis links can lead to haemorrhagic syndrome.

II. Classes (expected level of knowledge)

1. A student must have conception (to familiarize): $\alpha 1$

- the place of haemorrhagic diseases in the structure of diseases in children;
- statistical information in relation to morbidity, frequencies of complications, lethality, the nearest and remote prognosis;
- the history of scientific studying and assessments of domestic scientists.

2. A student must know (master): $\alpha 2$

- risk factors of manifestation and pathogenesis of haemorrhagic diseases in children;
- modern scheme of coagulation and anticoagulative systems, thrombocyte haemostasis;
- key links of haemorrhagic diseases' pathogenesis;
- clinical classification of haemorrhagic diseases in children;
- classic clinical manifestation of haemophilia;
- classic clinical manifestation of thrombopenia;
- classic clinical manifestation of thrombopathia;
- laboratory diagnosis of haemophilia;
- laboratory and instrumental diagnostics of haemorrhagic diseases;
- complications of haemorrhagic diseases in children;
- treatment principles of haemorrhagic diseases in children;
- preventive measures of haemorrhagic diseases in children, rehabilitation methods of patients and their dispensary observation.

3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis morbi;
- Examination of patient with haemorrhagic disease and revealing the main symptoms and syndromes;
- To formulate and substantiate initial diagnosis;
- Determination of laboratory and instrumental plan of patient's examination (according to diagnostics standards);
- Giving the first aid in case of acute bleeding, haemorrhagic shock in children;

- To realize life prognosis of a patient with haemophilia, thrombopathy and thrombopenia.

Abilities:

- to interpret the results of laboratory and instrumental tests;
- to conduct differential diagnosis among haemophilias, thrombopenias and thrombopathias;
- to conduct differential diagnosis among diseases with bleeding;
- to give recommendations in relation to the regimen and diet of a patient with haemorrhagic disease, according to the stage of disease, severity of the state and concomitant pathology;
- to complete the treatment plan in haemorrhagic disease according to standards taking into account the stage of disease, complications and concomitant pathology;
- to render the first aid in extreme situation and exigent states.

III. Aims of personality development (educative aims):

- A student must adhere to rules of behaviour and principles of medical etiquette and deontology, to develop bedside manner;
- to set a psychological contact with patient and his family;
- to master the sense of professional responsibility for a timely and adequate medicare.

Questions for elementary level of knowledge control.

1. To determine the concept of hemorrhagic syndrome in children.
2. Modern scheme of clotting, anticoagulative system, thrombocyte homeostasis.
3. What are hemophilia's, thrombopenia's and thrombopathia's etiology and pathogenesis?
4. What are the clinical manifestations of hemophilia, thrombopenia and thrombopathia in children?
5. What are the main diagnostic principles of hemophilia, thrombopenia and thrombopathia in children? To conduct differential diagnostic of hemorrhagic syndrome in children.
6. What is the first aid in case of acute bleeding or hemorrhagic shock?
7. To prescribe treatment, prophylactic and rehabilitations measures in children with hemophilia, thrombopenia and thrombopathia.

Examples of tests and tasks:

1. What is the transferring type of genetic defect in hemophilia A?
 - A Dominant - autosomal.
 - B Recessive - autosomal.
 - C Recessive bonded to the X-chromosome.
 - D Recessive bonded to the Y-chromosome
 - E Dominant bonded to the Y-chromosome
2. What joints are the most frequently injured in hemophilia A acute hemarthroses?
 - A. Humeral.
 - B. Ulnar.
 - C. Knee.

- D. Talocrural.
E. Radiocarpal.
3. What joints are the most frequently injured in hemophilia A secondary rheumatoid syndrome?
- A. Ulnar.
B. Fine joints of a foot.
C. Knee.
D. Talocrural.
E. Fine joints of palm.
4. What causes the reniform bleedings in hemophilia A patients?
- A Spontaneously
B After a trauma of lumbar area
C. As a consequence of a pyelonephritis
D. As a consequence of a nephrolithiasis
E. Owing to the increased excretion of calcium.
5. What is the transferring type of genetic defect in hemophilia B?
- A Dominant autosomal.
B Recessive - autosomal.
C Recessive bonded to the X-chromosome.
D Recessive bonded to the Y-chromosome
E. Dominant bonded to the Y-chromosome
6. What parameters of unified coagulogramme can be used for the diagnostics of hemophilia?
- A. Determination of blood coagulation factors.
B. Prothrombine time.
C. Time of coagulation.
D. Thrombine time.
E. All listed above
7. What are the basic methods of transfusion therapy in Christmas disease?
- A Direct hem transfusion.
B Using of the frozen donor plasma
C Indirect transfusion of donor plasma.
D Transfusion of the scarce factor of blood coagulation.
E Using of PPSB preparation.
8. What type of an immune thrombocytopenia is the most frequent in clinical practice?
- A. Transimmune.
B. Heteroimmune.
C. Auto-immune.
D. Alloimmune.
E. Isoimmune

9. What is the basic diagnostic principle for idiopathic (autoimmune) thrombocytopenic purpura?:
- A Revealing of autoantibodies in a blood serum.
 - B- Identification of autoantibodies on the surface of thrombocytes in blood.
 - C- Identification of antigens on the surface of thrombocytes in blood.
 - D- Revealing of antigens in blood serum.
 - E. Coombs test
10. What are the clinical forms of a hemorrhagic syndrome manifestation in idiopathic Werlhof's disease?
- A Hemorrhage in knee joints.
 - B. Dermal hemorrhage.
 - C The hemorrhage in ulnar joints.
 - D Gingival bleedings.
 - E- Nasal bleedings.
11. What are the dimensions of spleen in idiopathic Werlhof's disease?
- A. Enlarged.
 - B. Unchanged.
 - C Diminished.
 - D. Diminished but dense in consistence
 - E .Unchanged and also dense in consistence
12. What is the amount of megakaryocytic of bone marrow in the immune type of an idiopathic Werlhof's disease?
- A. Diminished.
 - B. Is not changed.
 - C. Enlarged.
 - D. Depending on a thrombocytopenia level
 - E. Unchanged independently on a thrombocytopenia level.
13. What are the basic methods of pathogenetic therapy in heteroimmune type of an idiopathic Werlhof's disease?
- A. Preparations of the thyroid gland.
 - B. Splenectomy
 - C. Corticosteroids.
 - D. Immunodepressants.
 - E. .Immunostimulators
14. What are the basic methods of pathogenetic therapy in transimmune type of an idiopathic Werlhof's disease?
- A Corticosteroids
 - B Artificial delivery.
 - C. Preparations of thyroid gland.
 - D. Operative erosion of a lien.
 - E. Immunostimulators.

15. What are the basic methods of pathogenetic therapy in autoimmune type of idiopathic Werlhof's disease?
- Sandoglobulin
 - Artificial delivery.
 - Corticosteroids
 - Splenectomy.
 - Interferon.
16. What are the basic methods of pathogenetic therapy in alloimmune type of idiopathic Werlhof's disease?
- Preparations of the thyroid gland
 - Splenectomy.
 - Plasmaferesis
 - Stimulators of T-lymphopoiesis.
 - Suppressors of T-lymphopoiesis.
17. What type of genetic defect transferring is in thrombasthenia of Hlantzman?
- Dominant autosomal
 - Recessive autosomal.
 - Dominant with a complete penetration.
 - Dominant with incomplete penetration.
 - Recessive bonded to the X-chromosome.
18. What is the basic hereditary pathogenetic defect in Hlantzman disease?
- Infringement in structure of megakaryocytic.
 - Decrease in amount of megakaryocytic.
 - Infringement in structure of thrombocytes.
 - Decrease in amount of thrombocytes.
19. What are the clinical forms of hemorrhagic syndrome in disease of Hlantzman?
- Hemorrhage in knee-joints.
 - Skinning hemorrhage.
 - Bleeding in elbow joints.
 - Bleeding of mucous of nose.
 - Bleeding of synovial coatings
20. What are the laboratory changes in patients with Hlantzman disease?
- Thrombocytopenia.
 - Thrombocytosis.
 - Infringement of thrombocytes adhesion.
 - Infringement of thrombocytes aggregation.
 - Presence of antibodies on a thrombocytes surface.

Tasks:

- Two weeks after a viral syndrome, 2-year-old child develops bruising and generalized petechiae, more prominent over the legs. No hepatosplenomegaly or

lymph node enlargement is noted. The examination is otherwise unremarkable. Laboratory testing shows the patient to have a normal haemoglobin, hematocrit, and white blood count and differential. The platelet count is 15,000/L.

To conduct the most likely diagnosis.

To conduct differential diagnosis.

2. Two weeks after a viral syndrome, 2-year-old child develops bruising and generalized petechiae, more prominent over the legs. No hepatosplenomegaly or lymph node enlargement is noted. The examination is otherwise unremarkable. Laboratory testing shows the patient to have a normal haemoglobin, hematocrit, and white blood count and differential. The platelet count is 15,000/L.

To conduct the most likely diagnosis.

Appropriate treatment of this child include

3. 3-year-old child presents with a petechial rash but is otherwise well and without physical findings. Platelet count is 20,000/L; haemoglobin and WBC count are normal.

The most likely diagnosis is...

To conduct differential diagnosis.

4. 2-year-old child in shock has multiple non blanching purple lesions of various sizes scattered about on the trunk and extremities; petechiae are noted, and oozing from the puncture site has been observed. The child's peripheral blood smear is presented.

Clotting studies are likely to show which of the following?

Prescribe the treatment to this patient.

5. 10-year-old boy is admitted to the hospital because of bleeding. Pertinent laboratory findings include a platelet count of 50,000/L, prothrombin time (PT) of 15 s (control 11.5 s), activated partial thromboplastin time (aPTT) of 51 s (control 36 s), thrombin time (TT) of 13.7 s (control 10.5 s), and factor VIII level of 14% (normal 38 to 178%).

The most likely cause of his bleeding is...

To conduct differential diagnosis.

Methodical materials to support basic stage class.

Professional algorithm of patient's management for practical skills and abilities forming.

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of patient with hemorrhagic disease.	1.To conduct gathering of complaints and disease anamnesis. 2.To gather thoroughly the patient's life anamnesis.	To pay attention to features of disease course, underlying factors, concomitant diseases etc. To establish the availability of risk factors which

		<p>3.To conduct patient's examination.</p> <p>4.To examine cardiovascular system of the patient (palpation, percussion).</p>	<p>facilitate disease occurrence</p> <p>To assess patient's general condition, position in bed, color and humidity of skin and mucosa, presence of petechias, bruises, hematomas on it, presence of neck veins and extremities swelling.</p> <p>To pay regard for rhythm of pulse, it's tension on both hands, apex shove, it's properties, margins of absolute and relative cardiac dullness, it's changes, HR(tachi-or bradycardia, extrasystole),BP, presence of bleedings from mocoses, nasal bleedings, melena, hemarthrones, hematomas, bronchial hemorrhage, and so on.</p>
		<p>5.To conduct auscultation of the heart and the main vessels.</p> <p>6.To investigate the pulmonary system (percussion, bronchophony).</p> <p>7.To conduct lungs auscultation.</p> <p>8.To examine the system of digestion.</p>	<p>To pay regard for heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To focus attention on the features of percussion and auscultation of different age children.</p>
2	To formulate the initial diagnosis.	<p>1.To formulate the initial diagnosis</p> <p>2.To substantiate all components of initial diagnosis based on complaints,anamnesis, and examinations.</p>	To formulate initial diagnosis of hemorrhagic disease and substantiate each component of it, based on modern classification
3	To evaluate the parameters of additional laboratory tests.	<p>1.To evaluate the blood count data.</p> <p>2. To evaluate the biochemistry data.</p> <p>3.To evaluate the platelet</p>	To pay attention to platelet count, bleeding time, prothrombin time, and activated partial thromboplastin time

		<p>count, bleeding time, prothrombin time, and activated partial thromboplastin time (APTT), tourniquet test, whole blood clotting time, prothrombin consumption time, and thromboplastin generation test.</p> <p>4. To evaluate the data of instrumental investigation.</p>	<p>(APTT), tourniquet test, whole blood clotting time, prothrombin consumption time, and thromboplastin generation test, cholesterol, lipids and glucose levels.</p> <p>To pay attention to US of internal organs, radiography of chest organs, joints.</p>
4	To conduct differential diagnosis.	<p>1.To find out common signs in complaints, life and disease anamnesis, the data of examination, the data of laboratory and instrumental tests in patients with similar status.</p> <p>2.To find differences among complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods in similar oncology.</p> <p>3. To find out the differences for excluding similar diseases from the list of probable diagnoses, being based on this algorithm.</p> <p>4. To conduct differential diagnostics among all of nosologies which have the similar signs, among other blood diseases, using this algorithm</p> <p>5.Taking into account the impossibility of excluding the diagnosis of haemorrhagic disease from the list of probable diagnoses to draw conclusion about the probability of such diagnosis.</p>	<p>Special attention must be paid to differential diagnosis among the DIC-syndrome, hypo- and aplasic anaemias, leucosis, hemorrhagic vasculitis.</p>

6	To formulate the final clinical diagnosis.	1. To formulate the final clinical diagnosis. 2. Based on primary diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.	Basing on modern classification of hemorrhagic diseases to formulate diagnosis, complications of disease and concomitant diseases.
7	To prescribe treatment for patients.	1.To prescribe non-medicinal treatment 2.To prescribe medicinal treatment.	To specify regimen and detailed diet according to the disease. To prescribe modern medicinal treatment in accordance with the standards of hemorrhagic diseases therapy, taking into account age, severity of patient state, stage of disease, presence of complications and concomitant pathology.

Materials of the medical support for students' self-preparation: a reference chart for organization of students' independent work with educational literature.

Tasks	Instructions
To study etiology of hemorrhagic diseases in children.	To enumerate basic etiologic factors, to select the key links of hemorrhagic disease.
To study pathogenesis of hemorrhagic diseases in children.	To separate out the main links of hemorrhagic diseases' pathogenesis.
To study clinical manifestations of hemorrhagic diseases in children.	To establish the symptoms and to gather it into the clinical syndromes which enable to establish the probable diagnosis of hemorrhagic disease.
To study diagnostic criteria of hemorrhagic diseases	To make the flow diagram of disease
To study additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.
To study changes in additional investigational methods which are pathognomonic for hemorrhagic diseases.	To enumerate the basic diagnostic criteria of hemorrhagic diseases according to the data of additional investigational methods.
To establish the final diagnosis	To substantiate the basic components

	of diagnosis in accordance to modern classification, and to conduct a differential diagnosis.
To prescribe individual solitary to patient with hemorrhagic disease. To be able to render the first aid in child with bleeding.	To prescribe specific regimen, diet, medicinal treatment, taking into account the age, severity of patient state, the stage of disease, the presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic:

1. Nelson textbook of pediatrics, 15th ed. / edited by Richard E. Behrman, Robert M. Kliegman, Ann M. Arvin; senior editor, Waldo E. Nelson, 1996, part XXII, chapter 441, 444-451.

2. Медицина дитинства / За ред. П.С. Мощича. - К.: Здоров'я, 1994.

3. Педиатрия : Учебник для студентов высших медицинских учебных заведений III – IV уровней аккредитации. – 3-е изд./ В.Г.Майданник;– Харьков: Фолио, 2006.-с.805-854.

DIABETES MELLITUS IN CHILDREN.

Classification of diabetes mellitus in children, etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis, prognosis. Insulin therapy. Hypoglycemic, hyperglycemic comas and ketoacidosis: etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics. Emergency and prophylaxis in comas. Prognosis.

I. Actuality of the topic.

Diabetes mellitus is a group of metabolic disorders of carbohydrate metabolism in which glucose is underutilized, producing hyperglycemia. Each year, approximately 600,000 people are diagnosed with diabetes. The disease is classified into several categories. Type 1 diabetes mellitus, formerly known as insulin-dependent diabetes mellitus or juvenile-onset diabetes mellitus, is caused by autoimmune destruction of the b-cells of the pancreas, rendering the pancreas unable to synthesize and secrete insulin. Type 2 diabetes mellitus, formerly known as non-insulin-dependent diabetes mellitus or adult-onset diabetes, results from a combination of insulin resistance and inadequate insulin secretion. Other types of diabetes are rare. Type 2 is the most common form, accounting for 90–95% of diabetes in developed countries.

In 1992, the costs of diabetes in the US were estimated to be \$98 billion. The mean annual per capita healthcare costs for an individual with diabetes are approximately fourfold higher than those for individuals who do not have diabetes. Similarly, in the United Kingdom, diabetes accounts for roughly 10% of the National Health Service budget (49 billion).

The high costs of diabetes are attributable to care for both acute conditions (such as hypoglycemia and ketoacidosis) and debilitating complications. The latter include both micro vascular complications—predominantly retinopathy, nephropathy, and neuropathy; and macro vascular complications, particularly stroke and coronary artery disease. Together these make diabetes the seventh most common cause of death in the developed world.

Concrete purposes:

1. To determine the etiological and pathogenic factors in diabetes mellitus.
2. To classify and analyze the typical clinical manifestation of diabetes mellitus.
3. To make a plan of investigation and analyze the information about laboratory and instrumental data in the classic course of diabetes mellitus in children.
4. To demonstrate skills of treatment, rehabilitation and prophylaxis of diabetes mellitus in children.
5. To diagnose and render urgent help in hyperglycemic, hypoglycemic, hyperosmolar, hyperlactacidemic and ketoacidosis coma patients.
6. To conduct differential diagnostics of diabetes mellitus in child, different kinds of comas and make a initial diagnosis.
7. To determine the prognosis for life in diabetes mellitus.
8. To demonstrate both the skills of medical specialists moral and deontological principles and the principles of professional subordination in pediatrics.

II. Classes (pointing out planned mastering level)

1. A student must know (to familiarize): α_1

-about the place of diabetes mellitus in the structure of the endocrine system, and diseases in children which are widespread in different age-dependent and ethnic groups;

- about statistical information in relation to morbidity, frequencies of complications, lethality, and the nearest and remote prognosis in patients with diabetes mellitus;

-about the history of scientific study and the contribution of domestic scientists;

2. A student must know (master): α_2

-the etiology of diabetes mellitus type 1 in children

-key links of diabetes mellitus pathogenesis type 1;

-clinical classification of diabetes mellitus type 1;

-the classic clinical manifestation of diabetes mellitus type 1;

-laboratory and instrumental diagnosis of diabetes mellitus type 1;

-the long-term complications of diabetes mellitus type 1;

-the acute complications of diabetes mellitus type 1;

-the treatment principles of diabetes mellitus type 1 in children and long-term complications of diabetes mellitus type 1.

3. A student has to be skilled in: α_3

-collecting of complaints and anamnesis of disease;

-examination of patients with diabetes mellitus and revealing the main symptoms and syndromes.

-formulating and substantiating the initial diagnosis;

-determining a laboratory and instrumental examination plan of patient's investigation (with obedience of diagnostics standards);

By the abilities:

- interpreting the results of laboratory and instrumental investigations;

- conducting a differential diagnosis among diabetes insipidus, kidney glucosuria, short-lived glucosuria and hyperglycemia ;

- conducting a differential diagnosis among different kinds of comas;

- giving recommendations in relation to the patient's regimen and diet with the diseases of diabetes mellitus - taking into account the stage of disease, severity of state and concomitant pathology;

- completing the treatment plan for patient with diabetes mellitus according to the standards taking into account the stage of disease, complications and concomitant pathology.

- rendering the first aid in extreme situations such as hyperglycemia, hypoglycemia, hyperosmolar, hyperlactacidemic, and ketoacidosis coma.

III. Aims of personality development (educative aims):

-A student must learn to adhere to the rules of behavior and principles of medical etiquette and deontology near a bed ridden patient with diabetes mellitus;

-to be able to set a psychological contact with a patient and his family;

-to master a sense of professional responsibility for timely, adequate and skilled medicare.

Methodical materials for the class basic stage supporting

The questions for the control of primary knowledge level of abilities and skills:

1. What is the role of genetics in the development of diabetes mellitus type 1?
2. What is the main mechanism in the development of glycosuria in children with diabetes mellitus, type 1?
3. What leads to the occurrence of hyperglycemia in children with diabetes mellitus, type 1?
4. How can you estimate the level of glucose with the help of an oral glucose tolerance test (OGTT)?
5. What is the role of glycosylated hemoglobin derivatives (HbA1a, HbA1b, HbA1c) for the diagnosis of diabetes and its complications?
6. What is the role of hyperglycemia in the development of long-term complications (retinopathy, cataracts, hypertension, progressive renal failure, early coronary artery disease, and peripheral vascular disease. Neuropathy, both peripheral and autonomic)?
7. Describe the pathogenesis of microalbuminuria in children with diabetes mellitus, type 1.

Make the table "Classification of nephropathy"

Stage	Laboratory investigations
I	
II	
III	
IV	
V	

GFR – glomerular filtration rate

RP – renal perfusion

8. To render the first aid in the case of diabetic ketoacidosis.
9. How many various insulins and mixtures are available for children with diabetes mellitus?
10. Dietary management of diabetes care.
11. To render the first aid in the case of hypoglycemic coma.
12. To conduct a differential diagnosis for hyperglycemic, hypoglycemic, hyperosmolar, hyperlactacidemic, and ketoacidosis coma patients.

Primary tests

1. A boy of 7 years old was hospitalized with complaints of thirst intensifying and polyuria. During 5 years he has been suffering from diabetes, in anamnesis a diabetic comma occurred three times. The level of sugar in the blood is 15, 54 mmol/l, in urine it is 5%. By the oculist retinoangiopathy was found. What dose of insulin will be administered to the child?

- A. 1,5 U/kg
- B. 0,25 U/kg
- C. 0,5 U/kg
- D. 1,0 U/kg
- E. 2,0 U/kg

2. A diabetic boy was delivered to the induction centre of child's hospital in severe condition. On examination there was the absence of consciousness. His skin was dry and pale, skin turgor was diminished. Hypotonus of muscles and eyeballs. Lips mucus was dry and in bright red color. Heart tones were hyposthenia, tachycardia, decreased blood pressure, threadlike pulse. Kussmaul type of breathing. Strong smell of acetone in air. Specify the day's dose of insulin for the acute management.

- A. 1,5 U/kg
- B. 2,5 U/kg
- C. 2,0 U/kg
- D. 1,0 U/kg
- E. 3,0 U/kg

3. Patient O, 13 years old, has been suffering from diabetes for 6 years. Hospitalized to the department in coma. Consciousness was absent, reflexes were low-speed. Skin and mucous membranes were pale, dry. Breathing was loud. The smell of acetone. Anuria. Laboratory data: blood glucose – is 35 mmol / l, serum potassium is 2,5 mmol / l, sodium is 120 mmol / l. Blood urea is 9,5 mmol / l, ketonic bodies in the serum were 7,5 mmol / l. In the urine is +++++, glucose of urine – is 120 mmol / l. What is necessary for the taking the patient out of coma?

- A. to conduct blood transfusion
- B. to conduct neuroleptanalgesia
- C. to conduct dehydration
- D. to carry out the correction of acid - alkaline equilibrium
- E. to administer hydrocortisone

4. A child of 5 years old was first hospitalized in the department with a diagnosis of I type diabetes, decompensation (ketoacidosis). What is the main mechanism in the development of the disease?

- A. Surplus of glucagon
- B. Insulin insufficiency
- C. Surplus of somatostatin
- D. Disturbance of insulin binding with receptors.
- E. Disturbance of post receptor mechanism of insulin action.

5. A child of 10 years old was hospitalized with complaints of thirst, intensifying urination, weight losing, and weakness, languor after the clinical and –laboratory examination. The diagnosis of type I diabetes was made, decompensation. How is it possible to explain the symptom of polyuria in the patient?

- A. Diminished production of thyroid hormone.
- B. Diminished production of antidiuretic hormone.

- C. Increased vasopressin production.
- D. Glucose is selected with urine acts as osmotic diuretic.
- E. Elevated thyroid hormone production.

6. A girl of 12 years old. Since 2-years-old age she has been suffering from diabetes. On examination there was considerably enlarged stomach, liver palpated 6 cm below costal arc, somewhat painful and, dense; Cushing –like type of obesity, nanism. The signs of the sexual maturation are not present. Blood glucose is 17 mmol/l, of urine is 4 mmol/l. In the blood elevated cholesterol, ketonic bodies. What is the initial diagnosis?

- A. type I Diabetes, precoma
- B. I type diabetes, Nob cur syndrome
- C. I type diabètes, Mauriac syndrome
- D. Cushing disease Illness
- E. Cushing syndrome

7. A girl of 12 years old was delivered to the hospital in the unconscious state. During the last month she has been losing weight, although the appetite is preserved. Stomach-aches, vomiting, appeared. Weakness grew, became put on the brakes. On examination: without consciousness, sharply exhausted, the skin is pale-grey, dry, hyperemia of cheeks. Breathing is deep, noisy. The smell of acetone. Hearts tones are muffled and rhythmic. Pulse 90 b. per minute, blood pressure is 90/50 mmHg Stomach is falling back. Liver +3, 0 cm. What disease can be supposed?

- A. Acetonemic condition.
- B. E. coli infection with neurotoxicosis
- C. Hepatic coma
- D. Diabetic coma
- E. Suprarenal failure

8. A child of 7 years old was hospitalized with complaints on weight loss, thirst, and frequent urination. During the examination in the blood tests the level of sugar on an empty stomach was 14 mmol/l, the level of sugar in urine was 5 g/l. What caused hyperglycemia in the child?

- A. Intensifying of lipolysis.
- B. Intensifying of proteins catabolism.
- C Decreasing of glyconeogenesis.
- D. Intensifying of glycolysis
- E. Decreasing of glycolysis and intensifying of glyconeogenesis.

9. A child of 7 years old was hospitalized with complaints on thirst, frequent emiction, weight loss (3 kg per month). On examination the level of glucose in the blood on an empty stomach was 19, 2 mmol/l. A diagnosis of 1 type diabetes was made. How is it possible to explain the weight loss in the child?

- A. Intensifying of proteins catabolism and inhibiting of it synthesis.
- B Decreasing of lipolysis.
- C. Intensifying of gluconeogenesis.

- D. Decreasing of lypolysis.
- E. Disturbancies of basic exchange.

10. A boy of 10 years old, sharp languor, somnolence, thirst, frequent urination. On examination the smell of acetone from the mouth was marked, on the cheeks bright blush, noisy arrhythmic breathing, enlarged liver. In the blood tests the level of sugar was 20, 5 mmol/l, sugar of urine is 20 g/l, acetone in urine is +++. How is it possible to explain the appearance of acetone in midair and urine?

- A. By the increased disintegration of ketogenic amino acids and lipids.
- B. By the disturbance of water - electrolyte balance.
- C. By the disturbance of acid - alkaline balance.
- D. By the disturbance of glucose phosphorylating processes.
- E. By the decreasing of glycolysis.

11. A patient of 8 years old was taken to the hospital without consciousness. A week ago she had flu, whereupon a girl became sickly, ate badly, mainly milk, tea, grumbled about headache (mother reported). Stomach-aches appeared the day before, repeated vomiting, the girl was sleepy, and lost consciousness to the evening. Consciousness was absent. The skin was dry. The tongue was dry, red. Breathing was deep, noisy, 32/ min., the smell of acetone. Pulse 128 / min., small. Blood pressure - 75/40 mmHg. On palpation the stomach was soft, without pains. Liver + 4 cm is soft. Body temperature is 36, 7 C. Kehr and other symptoms are negative. What is the provisional diagnosis?

- A. Acute adrenal insufficiency.
- B. Meningitis.
- C. Septic shock.
- D. type I diabetes is revealed for the first time, ketoacidic comma.
- E. Hepatitis.

12. Patient K., has been suffering from diabetes for 8 years. Objectively: the skin is dry, breathing is noisy, the smell of acetone. What type of comma is it possible to suspect?

- A. ketoacidic
- B. hyperosmotic
- D. lactatacidic
- E. cerebral

13. A boy of 14 years old complains on thirst, loss of weight, weakness, increased urination(4 l per day), pain in the legs, itching of the skin. What diagnosis is the most probable?

- A. neurogenic polyuria
- B. diabètes
- C. diabètes insipidus
- D. acute nephrite
- E. kidney diabetes

14. A boy of 14 years old complains on thirst, loss of weight, weakness, increased emiction (4 l per day), pain in the legs, and itch of the skin. What is necessary to prescribe for clarification of the diagnosis?

- A test with xerophagea
- B to determine the level of sugar in the blood
- C. roentgenography of skull
- D. Zimnitski test
- E. to determine the protein loss with urine per day

15. Patient K., was delivered without consciousness. He has been suffering from diabetes for 10 years. During the last week he had gastroenteritis. Objectively: the skin is dry, eyeballs are soft. Breathing is superficial; the smell of acetone is not present. Blood pressure is 80/40 mm.Hg. What kind of coma is the most probable?

- A hyperosmotic
- B. hyperlactatacidemic
- C. ketoacidic
- D. glucopenia
- E. alcoholic

16. Patient K., was delivered without consciousness. He has been suffering from diabetes during 10 years. During the last week he had gastroenteritis. Objectively: the skin is dry, eyeballs are soft. Breathing is superficial; the smell of acetone is not present. Blood pressure is 80/40 mm.Hg. What do you expect to get from the results of analyses?

- A. glycemia is more than 20 mmol/l, acetone in urine is «+++»
- B glycemia is 2, 0 mmol/l, acetone in urine is absent
- C. glycemia is more than 40 mmol/l, acetone in urine is absent
- D. glycemia is up to 10 mmol/l, pH of blood is less than 7, 2
- E. glycemia is 5, 0 mmol/l, the high level of alcohol in the blood

17. Patient K., 8 years old. He has been suffering from diabetes for 6 years, got insulin 46 U/day. During the last 5 months for compensation of glycemia the dose of insulin was multiplied to 108 U. Glucopenia was not present.

How do you consider such a state?

- A. syndrome of chronic overdose of insulin
- B. resistance to insulin
- C. lability of diabetes course
- D. Kimmelstill –Wilson syndrome
- E. allergy to insulin

18. Patient K., 8 years old. He has been suffering from diabetes for 6 years, got insulin 46 U/day. During the last 5 months for compensation of glycemia the dose of insulin was multiplied to 108 U. Glucopenia was not present.

What is the further tactics of treatment for this patient?

- A, to multiply the dose of insulin
- B. to cancel insulin and to prescribe biguanids.

- C. hyposensibilisation by the small doses of insulin
- D. to increase the amount of carbohydrates in the diet
- E. to prescribe simple insulin + prednisolon

19. Patient M, without consciousness. The skin is moist, on the shoulders and thighs there are signs of injections. Breathing is superficial. Blood pressure is 110/170 mmHg. Muscles tones and tendon reflexes are high, there are cramps in the extremities. What is probable disease?

- A. Hyperglycemic comma
- B Glycopenic comma
- C. Hyperosmotic comma
- D. Hyperlactatacid comma
- E. cerebral comma (stroke)

20. Patient K., has been suffering from diabetes for 8 years. During the last year the dose of insulin was diminished to 14 U. In the urine analysis of protein is 1, 7 %, sugar 0, 8 %, a lot of red corpuscles and cylinders.

The indicated signs are the manifestation of:

- A. resistance to insulin
- B. nephrosclerosis
- C. decompensations of diabetes
- D. Allergy to insulin
- E. syndrome of chronic overdose of insulin

Typical situational tasks of 2 level

1. A boy of 14 years old, from age 12 has been suffering from diabetes. In the anamnesis hypoglycemic diabetic comma developed, on the eye ground the micro aneurysm of vessels, hemorrhages in the retina, pain in the legs, decrease of amplitude on a rheography, level of glucose in the blood is 13,1 mol/l.

Task To establish the diagnoses based upon modern classification

2. A boy of 7 years old, was hospitalized with complaints of rashes, weakness, weight loss, he had flu 6 months ago. The level of glucose in the blood is 6,6 mmol/l, oral glucose tolerance test- fasting blood sugar level is 6,16 mmol/l, blood glucose concentration again after 30 min(after glucose) is 7,7 mmol/l, blood glucose concentration again after 60 min is 12,1 mmol/l, blood glucose concentration again after 90 min is 10,54 mmol/l, blood glucose concentration again after 120 min is 11,7 mmol/l.

Task

- To evaluate the oral glucose tolerance test (OGTT)
- What is the initial diagnosis?
- To prescribe treatment

3. A girl of 11 years old, from the age of 9 has been suffering from diabetes, got insulin 18 U/day. She had pneumonia 2 weeks ago. The girl was hospitalized with complaints of thirst, stomach-ache, vomiting, and loss of consciousness. The smell of

acetone. Pulse 120 b. per minute, Blood pressure is 80/45 mmHg. Breathing is deep, noisy.

Task

- What is the initial diagnosis?
- To work out a plan of patient's investigation.
- To Prescribe treatment

4. A girl of 6 years old from 1-year-old has been suffering from diabetes, was delivered to the hospital in the unconscious state. On examination the skin is pale-grey, lips mucus is dry and in a bright red color, constriction of pupils, heart tones are hyposthenia, tachycardia, decreased blood pressure, the smell of acetone. Blood glucose is 22, 4 mmol/l.

Task

- What is the initial diagnosis?
- To render the first aid
- What kind of insulin will most probably be prescribed to the child?

5. A boy of 16 years old. Since 2-years-old age has been suffering from diabetes, got alcohol, hospitalized with complaints of weakness, consciousness,

On examination: the skin is pale and cyanotic, consciousness, sweating. Breathing is superficial, the smell of alcohol, tachycardia, cramps.

Task

- What is the initial diagnosis?
- To render the first aid

Methodical materials for the class

A professional algorithm of patient's management implementation (reference chart) for the practical skills and abilities forming.

No	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct patient's examination for diabetes mellitus type 1	1.To conduct complaints and disease's anamnesis taking. 2.To take thoroughly the patient's life anamnesis. 3.To conduct examination of the patient. 4.To examine cardiovascular system of	To pay attention to the features of disease course, underlying factors, concomitant diseases etc. To establish the risk factors which can cause the development of disease To assess patient's general condition, position in bed, color and humidity of skin and mucous, presence of neck veins and extremities swelling. To pay regard to pulse rhythm , it tension and size

		the patient (palpation, percussion).	on both hands, apex shove, its properties, margins of absolute and relative cardiac dullness, its changes, HR(tachi-or bradycardia, extrasystole), BP.
		5.To conduct heart and main vessels auscultation. 6.To examine the pulmonary system (percussion, bronchophony). 7.To conduct lungs auscultation. 8.To examine the system of digestion.	To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones. To pay attention to features of percussion and auscultation in children of different age and stage of compensation. To pay attention to the changes in the case of decompensation and diabetic hepatosis.
2	To formulate the initial diagnosis.	1.To formulate the initial diagnosis 2.To substantiate all the components of initial diagnosis taking as a basis complaints, anamnesis, and examinations.	To formulate the initial diagnosis of diabetes mellitus and substantiate each component of it.
3	To evaluate the parameters of additional laboratory findings.	1.To evaluate the blood and urine count data. 2. To evaluate the level of glycemia and glycosuria, oral glucose tolerance test (OGTT). 3. To evaluate the biochemistry data of blood and urine, renal function tests. 4.To evaluate the blood hormonal profile.	To pay attention to the signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate, glycosuria, urine ketones. To pay attention to urine glucose and blood glucose levels. To pay attention to data of OGTT. To pay attention to cholesterol, lipids, creatinine, glomerular filtration rate, glycated hemoglobin, microalbuminuria. To pay attention to C-peptide changing.
4.	To understand the	To understand the data of	To pay special attention to

	data of additional and laboratory examination.	thermograph, ophthalmoscope, rheography, vibration sensation	long-term complications of diabetes mellitus.
5.	To conduct differential diagnosis.	<p>1. Consistently to find the common signs in complaints, life and disease anamnesis, data of examination, data of laboratory and instrumental investigations in patient and in similar states.</p> <p>2. To find the differences between complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of examination and in similar nosology.</p> <p>3. On the basis of the differences found to exclude similar diseases from the list of possible diagnoses.</p> <p>4. To conduct differential diagnostics according to the above mentioned algorithm among all the nosologies having the similar signs.</p> <p>5. Taking into account the impossibility to exclude the diagnosis of diabetes mellitus from the list of credible diagnoses to draw a conclusion about the probability of such a diagnosis.</p>	Special attention must be paid to differential diagnosis among the Diabetes Insipidus, renal glycosuria, transient glucosuria and hyperglycemia, renal glucosuria.
6	To formulate the clinical diagnosis.	<p>1. To formulate the final clinical diagnosis.</p> <p>2. Taking the initial diagnosis as a basis, additional investigations data, conducted different-</p>	Basing on modern classification of diabetes mellitus, formulate the diagnosis, complications of disease and the presence of concomitant diseases.

		tial diagnosis, substantiate all the elements of the final clinical diagnosis.	
7	To prescribe treatment for patients.	1.To prescribe non medicinal treatment 2.To prescribe medicinal treatment.	To specify the regimen and detailed diet according to the disease. Taking into account the age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with the standards of diabetes mellitus therapy.

Materials of the medical support for the students independent training: a reference chart for organization of students independent work with educational literature.

Tasks	Instructions
To study the pathogenesis of diabetes mellitus in children.	To select the key links of diabetes mellitus pathogenesis type 1
To study the clinical manifestations of diabetes mellitus in children.	To establish the symptoms and gather it to clinical syndromes which enable to make the credible diagnosis of diabetes mellitus.
To study the clinical manifestations of complications of diabetes mellitus in children.	To establish the symptoms and gather it to the clinical syndromes which enable to make the credible diagnosis of complications of diabetes mellitus
To study diagnostic criteria of diabetes mellitus	To make a structural plan of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.
To study the changes in additional investigational methods which are pathognomonic for diabetes mellitus and its complications.	To enumerate the basic diagnostic criteria of diabetes mellitus according to the data of additional investigational methods.
To conduct differential diagnostics, to establish the final diagnosis	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.

<p>To prescribe the individual treatment to patient with the diabetes mellitus type 1. To render the first aid in extreme situations: hyperglycemic, hypoglycemic, hyperosmolar, hyperlactacidemic, ketoacidosis comas.</p>	<p>To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, stage of disease, presence of complications and concomitant diseases.</p>
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THYROID GLAND DISEASES IN CHILDREN.

Classification of thyroid diseases in children. Etiology, pathogenesis, clinical presentation, diagnostics, differential diagnostics, treatment, prophylaxis of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse untoxic goiter, thyroid cancer in children. Degrees of goiter. Emergency in thyroid crisis. Prognosis.

I. Actuality of the theme.

Thyroid functions disturbances is the common state among children. Thyroid diseases are quite various in children age. Thyroid diseases problems are the main relating to Chernobyl disaster because of morbidity increasing among children in autoimmune thyroiditis, hypothyroidism, benign and malignant tumors of thyroid. One of the major places is occupied by congenital hypothyroidism that occurs in frequency of 1 case to 5000 newborns. Congenital hypothyroidism in 85 – 90% of cases is primary and related to the iodine deficit or thyroid dysgenesis. Thus, the aplasia, hypogenesis or dystopia of thyroid are the more frequent states. Primary hypothyroidism in 5 – 10% of cases unconditioned by dysmorphose (autosomal – recessive inheritance). Congenital hypothyroidism is the second or tertiary (pathology of hypophysis or hypothalamus) and occurs no more than 3 – 4% of cases. Congenital hypothyroidism leads to the mental and physical development retardation and psychical inability of children, that is why the early diagnosis is very important.

Concrete purposes:

1. To determine the etiologic and pathogenetic factors in diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse untoxic goiter, thyroid cancer in children
2. To classify and analyse the typical clinical manifestation of diffuse toxic goiter, thyroiditis, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse untoxic goiter, thyroid cancer in children. To determine the features of congenital hypothyroidism for newborns and children and make an initial clinical diagnosis.
3. To make the plan of examination and to analyze the information about laboratory and instrumental data in the classic course of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, and endemic goiter in children.
4. To demonstrate skills of treatment, rehabilitation and prophylaxis in diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter in children.
5. To diagnose and render an urgent help in thyrotoxic crisis and hypothyroid coma in children.
6. To conduct differential diagnostics of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse untoxic goiter, thyroid cancer in children and make an initial diagnosis.
7. To determine life prognosis for a patient with diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis and endemic goiter.
8. To demonstrate the skills of medical specialist's moral and deontological principles and principles of professional subordination in pediatrics.

II. Classes (pointing of planned mastering level)

1. A student must have a conception (familiarize): $\alpha 1$

- The place of thyroid diseases in the structure of endocrine system diseases in children, widespread in different age-dependent and ethnic groups;

- Statistical information in relation to morbidity, frequency of complications, lethality, the nearest and remote prognosis in patients with the diseases of thyroid gland;

- The history of scientific studying and the contribution of domestic scientists;

2. A student must know (master): $\alpha 2$

- etiology of diffuse toxic goiter, thyroiditis, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse untoxic goiter, thyroid cancer in children.

- key links of thyroid diseases pathogenesis ;

- clinical classification of thyroid diseases;

- degrees of goiter;

- classical clinical manifestation of hypothyroidism;

- classical clinical manifestation of diffuse toxic goiter;

- classical clinical manifestation of autoimmune thyroiditis;

- classical clinical manifestation of endemic goiter;

- classical clinical manifestation of diffuse untoxic goiter;

- laboratory diagnosis of hypothyroidism and hyperthyroidism;

- laboratory and instrumental diagnosis of thyroid diseases;

- complications of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter in children.

- treatment principles of diffuse toxic goiter, congenital hypothyroidism, autoimmune thyroiditis, diffuse untoxic goiter in children.

3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;

- Examination of patient with thyroid disease and revealing the main symptoms and syndromes.

-To formulate and substantiate the initial diagnosis;

- Determining of laboratory and instrumental plan of patient's examination (according to diagnostics' standards);

Abilities:

- To interpret the results of laboratory and instrumental tests.

- To conduct differential diagnosis among acute and subacute thyroiditis, thyroid cancer, to diagnose thyrotoxic crisis and hypothyroid coma required for emergencies.

- To conduct differential diagnosis with thyroid cancer.

- To give recommendations in relation to the regimen and diet to the patient with disease of thyroid gland, taking into account the stage of the disease, severity of the state and concomitant pathology;

- To complete the treatment plan of the patient with thyroid diseases according to the standards taking into account the stage of the disease, complications and concomitant pathology.

- To render the first aid in extreme situations and exigent states.

III. Aims of personality development (educative aims):

- A student must learn to adhere to the of behavior and principles of medical etiquette and deontology, to develop bedside manner;
- To be able to set a psychological contact with a patient and his family;
- To master the sense of professional responsibility for a timely and adequate medicare.

Questions for elementary level of knowledge control

1. The role of thyroid hormones, mechanism of action and regulation of secretion,
2. The degrees of thyroid gland enlargement.
3. Definition of struma. Different kinds of struma.
4. Laboratory methods for the diagnosis of thyroid glands disorders.
5. Factors that promote the development of diffuse toxiferous struma.
- 6 What is the classic clinical tirade in diffuse toxiferous struma?
7. The principles of conservative treatment in diffuse toxiferous struma and indications to the surgical treatment.
8. Causes and treatment of thyroid toxic crisis.
9. Laboratory and instrumental criterions of hypothyroidism in children.
10. The causes of development of acquired and congenital hypothyroidism. The principles of treatment. Specialties in early age children.
11. Clinical and laboratory criterions of thyroiditis. Treatment.
12. The criterions of compensation in thyroid gland disorders in children.
13. Methods of early diagnosis of thyroid gland cancer in children.

Primary control tests

1. Patient G., 14 years old, complains of irritability, sweating, tremor of hands, palpitation, decreasing of body weight in normal appetite. The thyroid gland enlarged up to II degree, unpainful, elastic. The diagnosis of diffuse toxiferous struma clinically fixed. What from the results of examination will confirm your diagnosis?
 - A Hyperphosphatemia
 - B. T3 and T4 is normal
 - C. T3 and T4 is reduced
 - D. Hypocalcaemia
 - E. T3 and T4 is increased
2. A girl of 14 years old complains of sleeping disturbances, decreasing of body weight, palpitation, cardialgias, and fatigability. A thyroid gland hyperplasia of II degree and exophthalmia is marked.. What changes in hormones level are the most typical for this disease?
 - A. Decreasing of a thyroxin
 - B. Increasing of Thyrotrophic hormone
 - C. Increasing of the iodine level connected to protein
 - D. Rising a thyroxin and triiodthyronin
 - E. Increasing of triiodthyronin

3. In the girl of 12 years old after examination the diagnosis of mild diffuse toxic struma was established. What dose of thyreostatic Mercazolilum is necessary to administrate for child in this case?
- 10-15 mg per day
 - 5-10 mg per day
 - 20-30 mg per day
 - 1-5 mg per day
 - 40-50 mg per day
4. In the child of 4 years old the basic exchange is 28 %, a level of a cholesterol in blood is 8,6 mmol/l, inclusion of a radioactive iodine in the thyroid gland after 6 hours is 2,1 %, after 24 hours is 3,0 %, after 48 hours is 3,5 %.
- For what disease such laboratory parameters are characteristic?
- Diabetes
 - Hypothyroidism
 - Diseases of metabolism
 - Hyperthyroidism
 - Pituitary dwarfism
5. On the child's clinical examination the following signs were revealed - skin humidity, exaltation, irritability, decreasing of body weight, tachycardia, syndromes of Grefe, Stellwag, Moebius, palpitation. What disease are these signs characteristic for?
- Acromegaly
 - Hypothyroidism
 - Diabetes
 - Down disease
 - Thyreotoxicosis
6. On examination of 14 years old girl nodal struma of III degree is found. On scenogramm the "hot" unit was revealed. Levels of T3 and T4 in a blood are increased. What disease is it possible to think of?
- Diffuse toxic struma
 - Cancer of a thyroid gland
 - Toxic adenoma of a thyroid gland
 - Autoimmune thyroidite
 - Fibrous struma of Riddell
7. In the patient. of 13 years old, relapse of a nephrolithiasis, ostealgia, weakness, fatigability, loss of weight is observed.
- Which from the below mentioned diseases is the most likely?
- Sarcoma of bones
 - Hypoparathyrosis
 - Hyperparathyroidism
 - Multiple myeloma
 - Any of the specified diseases

8. Patient G., complains of irritability, sweating, tremor of hands, palpitation, and weight loss with normal appetite. The thyroid gland is enlarged up to I – II degree, unpainful, elastic. The specified symptoms correspond to:

- A. to a diffuse toxiferous struma
- B. to nervosas
- C. to a hypothyroidism
- D. to a nodal toxic struma
- E. to a hypoparathyrosis

9. On examination of 14 years old girl the nodal struma of III degree was found. On scenogramm the “hot” unit was revealed. Levels of T3 and T4 in a blood are increased.

What treatment will you recommend to the patient?

- A. Thyrostatic preparations
- B. Preparations of inorganic iodine
- C. Radio-active iodine
- D. Surgical treatment
- E. Supervision

10. In the boy of 15 years old attacks of seizures in masseters and hands with prevalence of flexors tone are observed. Seizures are painful and symmetric. On examination there are positive signs of Hvosstek and Trussot. What is your diagnosis?

- A. Epilepsy
- B. Hypoparathyroidism
- C. Hyperparathyroidism
- D. Tetanus
- E. Spasmophilia

11. In the girl of 13 years old on examination there is I degree thyroid gland enlargement. She does not show any complaints. On palpation the thyroid gland is elastic, painless and of homogeneous consistence. During investigation the disorders of thyroid gland functions are not found, the level of thyroid hormones is normal. What is the diagnosis?

- A. Juvenile struma.
- B. Autoimmune thyroidite.
- C. Cancer of a thyroid gland.
- D. Diffuse toxic struma.
- E. Ridel fibrosal struma.

12. In the girl of 10 years old, complaints on irritability, sweating, pains in the area of heart, headache. Enlargement of a thyroid gland. On examination the III degree nodal struma is found. Skin is wet, hot by touch, tachycardia 104 b. per minute. On the scanning image the hot node was revealed. Level of thyroid hormones is high. What is the diagnosis?

- A. Diffuse toxic struma.
- B. Autoimmune thyroidite.

- C. A cancer of a thyroid gland.
- D. Toxic adenoma.
- E. Ridel fibrosal struma

13. Patient C., 14 years old, enlargement of a thyroid gland is marked during 3 months, the gland is painless and mobile. On scenogramme there is some non-uniformity of structure admitted.

What is it possible to suspect on the basis of these data?

- A. Diffuse toxiferous struma
- B. Cancer of a thyroid gland
- C. Autoimmune thyroiditis
- D. Subacute thyroiditis
- E. Fibrous thyroiditis

14. What is typical for the secondary hypothyroidism?

- A. A low level of Adrenocorticotrophin.
- B. A high level of thyroliberin.
- C. A low level of thyroliberin.
- D. A low level of thyrotropin.
- E. A high level of thyrotropin.

15. On examination of 10 years old child small body height, disproportionate of a body development, lag in mental development, constipations are fixed. What hormone's deficiency caused these signs?

- A. Thyroxine
- B. Parathormone
- C. Thyrocalcitonin
- D. Corticotropin
- E. Oxytocinum

16. In 2 weeks old newborn there are constipations, icterus, flaccidity, sleepiness. On examination: moderate icterus, inflated abdomen, enlargement of liver and lien, puffing in respiration. What is the most probable diagnosis?

- A. Hepatitis
- B. Down syndrom
- C. Rinitis.
- D. Hypothyroidism.
- E. Rickets.

17. In the patient of 10 years old the delicacy, fatigability, decreasing of progress in school, dry and cold skin, fragility of hair and nails are marked. During the further investigation the hypothyroidism was diagnosed. What therapy is necessary to prescribe for this patient?

- A. Mercazolilum.
- B. Prednisolonum.
- C. Thyroxine.
- D. DOCSA.

E. Hidrocortisonum.

18. A child, 9 months old for the first time the congenital hypothyroidism clinically and according to thyroid hormones tests was confirmed. Now the most expressive manifestation is the serious lag in psychophysical development. What is the most rational therapeutic tactics in this case?

- A. Mercazolilum
- B. Thyreoidinum
- C. Ttriodthyroninum
- D. L-thyroxine + Pyracetamum
- E. L-thyroxine + Retabolilum

19. In the patient of 10 years old delicacy, fatigability, decreasing of progress in school, dry and cold skin, fragility of hair and nails are marked. During the further investigation the hypothyroidism was diagnosed. What therapy is necessary to prescribe for this patient?

- A. Mercazolilum.
- B. Prednisolonum.
- C. Thyroxine.
- D. DOCSA.
- E. Hidrocortisonum

20. On examination of 10 years old child small body height, disproportionate of a body development, lag in mental development, constipations. What hormone's deficiency caused these symptoms?

- A. Thyroxine
- B. Parathormone
- C. Thyrocalcitonin
- D. Corticotropin
- E. Oxytocinum

Situational tasks

Task 1

You are seeing a 2-week-old boy at a routine visit. The mother complains that he has been constipated, jaundiced, sluggish, and excessively sleepy. The physical examination is normal except for mild jaundice and a distended abdomen in a sleepy infant.

1. What assessment is the most appropriate course to pursue initially?
2. What diagnosis is the most likely?
3. What tests confirm the suspected diagnosis?

Situational Task 2

The boy of 3 months old was taken to the hospital because of delayed icterus and persistent constipations. He is sick from birthday. Mother's pregnancy has been complicated with a hestosis. On examination he is poorly active, the hydroptic face,

macroglossy, icteric skin. Narrow palpebral fissures. Muscle tone is reduced. Bradycardia.

1. What is the most probable diagnosis?
2. What tests confirm the suspected diagnosis?
3. What is the most appropriate next step?

Task 3

Blood samples of a 3-day-old full-term infant are sent for screening to identify diseases that would have serious, permanent consequences without prompt and appropriate treatment.

1. Match the disease with the treatment – Phenylketonuria, Hypothyroidism-
 - a. Special diet
 - b. Hormone therapy
2. What tests confirm the suspected congenital hypothyroidism ?
3. What is the most appropriate next step?

Task 4

In the boy of 5 years old after viral syndrome the temperature up to 39,2 has raised suddenly, headache, pain in the thyroid gland area is intensified on swallowing and head turning has appeared. The thyroid gland enlarged, painful in palpation, hyperemia of the skin above it. In laboratory data the function of thyroid gland is unchanged. In the analysis of blood leukocytosis and accelerated BSR.

Questions

1. What is the diagnosis?
2. What examinations are necessary?
3. What changes in hormones level are the most typical for this disease?

Situational Task 5

The girl of 11 years old. Complaints on the general delicacy, fatigability, enlargement of neck. Objectively: thyroid gland on palpation is dense, impure and enlarged up to II degree. In it structure investigation the hyperecho and hypoecho sites were marked. TTH level and of antibodies levels to the thyroid gland are raised.

1. What is the preliminary diagnosis?
2. What examination will confirm your diagnosis?
3. Conduct differential diagnostics.

VII. Methodical materials to support basic stage class.

Professional algorithm of patient’s management (reference chart) for the practical skills and abilities forming.

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of the patient with thyroid	1.To conduct the complaints and disease anamnesis. 2.To take thoroughly the patient’s	To pay attention to the features of disease course , underlying factors, concomitant diseases etc.

	disease.	<p>life anamnesis.</p> <p>3.To conduct examination of the patient.</p> <p>4.To examine cardiovascular system of the patient (palpation, percussion).</p>	<p>To establish the risk factors which can cause the development of disease.</p> <p>To assess patient's general condition, position in bed, color and humidity of skin and mucose, presence of neck veins and extremities' swelling.</p> <p>To pay regard to rhythm of pulse, it tension and size on both hands, apex shove, it properties, margins of absolute and relative cardiac dullness, it changes, HR(tachi- or bradycardia, extrasystole), BP.</p>
		<p>5.To conduct auscultation of heart and the main vessels .</p> <p>6.To examine the pulmonary system (percussion, bronchophony).</p> <p>7.To conduct lungs auscultation.</p> <p>8.To investigate the system of digestion.</p> <p>9. To conduct examination and palpation of thyroid gland and local lymphatic nodes.</p>	<p>To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones.</p> <p>To pay attention to features of percussion and auscultation in children of different age.</p> <p>To pay attention to changes in hyper- and hypothyroidism.</p> <p>To determine the degree of thyroid gland enlargement.</p>
2	To formulate the initial diagnosis.	<p>1.To formulate the initial diagnosis</p> <p>2.To substantiate all components of initial diagnosis, taking as a basis complaints,anamnesis, and examinations.</p>	<p>On the basis of modern classification formulate initial diagnosis of thyroid gland disease and substantiate each component of it.</p>
3	To evaluate the parameters of additional laboratory tests.	<p>1.To evaluate the blood count data.</p> <p>2. To evaluate the biochemistry data.</p> <p>3.To evaluate the blood hormonal profile.</p>	<p>To pay attention to signs of anemia, leucocytosis, changing of formula, elevation of sedimentation rate.</p> <p>To pay attention to cholesterol, lipids and glucose levels.</p>

			To pay attention to TSH and thyroid hormones changing.
4	To evaluate the data of additional examination.	To understand the data of thyroid ultrasound.	To pay special attention to the thyroid volume depending on age, tissue characteristics, presence of nodes.
5.	To conduct differential diagnosis.	<p>1. Consistently to find the common signs in complaints, life and disease anamnesis, the data of examination, the data of laboratory and instrumental examination in patients with similar status.</p> <p>2. To find the differences among complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods in similar nosology.</p> <p>3. To find out the differences for excluding similar diseases from the list of probable diagnoses, being based on this algorithm.</p> <p>4. To conduct differential diagnostics according to the algorithm among all the nosologies having the similar signs, among other diseases of thyroid gland.</p>	Special attention must be paid to differential diagnosis among the acute and subacute thyroiditis, thyroid cancer, tuberculosis of lymphatic nodes, systemic diseases of connective tissue, systemic blood diseases, in congenital hypothyroidism – among physical and mental retardation of child.
6.	To formulate the final clinical diagnosis.	<p>1. To formulate the final clinical diagnosis.</p> <p>2. Basing on initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of final clinical diagnosis.</p>	On the basis of modern classification of thyroid gland diseases formulate the diagnosis, complications of disease and presence of concomitant diseases.
7	To prescribe treatment for patients.	<p>1. To prescribe non medicinal treatment</p> <p>2. To prescribe the medicinal treatment.</p>	<p>To specify the regimen and detailed diet according to the disease.</p> <p>Taking into account age, severity of patient state, the stage of disease, the presence of complications and concomitant pathology, prescribe modern medicinal treatment in accordance with the standards of thyroid diseases therapy.</p>

**Materials of the methodical support for the students' self training:
a reference chart for organization of students' independent work with
educational literature.**

Tasks	Instructions
To study the etiology and pathogenesis of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse nontoxic goiter, thyroid cancer in children. Be able to detect the degrees of goiter.	To enumerate the basic etiologic factors, to select the key links of thyroid gland disease pathogenesis.
To study clinical manifestations of diffuse toxic goiter, hypothyroidism, autoimmune thyroiditis, endemic goiter, acute and subacute thyroiditis, diffuse nontoxic goiter, thyroid cancer in children.	To establish the symptoms and to gather it in the clinical syndromes, make the probable diagnosis of thyroid gland disease.
To study diagnostic criteria of thyroid gland diseases	To make the flow diagram of disease
To study the additional methods of examination (laboratory, instrumental)	To work out a plan of patient's examination.
To study the changes in additional investigational methods which are pathognomonic for thyroid gland diseases.	To enumerate the basic diagnostic criteria of thyroid gland diseases according to the data of additional investigational methods.
To conduct differential diagnostics, to establish final diagnosis	To substantiate the basic components of diagnosis in accordance with the modern classification, and to conduct a differential diagnosis.
To prescribe the individual treatment to the patient with thyroid gland disease. To be able to render the first aid in thyrotoxic crisis for children.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, the stage of disease, the presence of complications and concomitant diseases.

RECOMMENDED LITERATURE

Basic:

1. Nelson Essentials of Pediatrics, fifth edition, Copyright © 2007
/ edited by Richard E. Behrman, Robert M. Kliegman, Ann M. Arvin;
senior editor, Waldo E.

2. Rudolph's Pediatrics, 21st Edition.

Additional:

1. Майданник В.Г. Педиатрия. Учебник (2-е издание, испр. и доп.)- Харьков: Фолио, 2002. - 1125 с.

2. Волосовец А.П., Кривопустов С.П., Криворук І.М., Черній О.Ф. Навчальний посібник з дитячої ендокринології. - Тернопіль: Укрмедкнига, 2004. -495 с

3. Жуковский М.Н. Детская эндокринология.-М.: Медицина, 1996.

4. Наказ МОЗ України від 27.04.2006 № 254 Про затвердження протоколів надання медичної допомоги дітям за спеціальністю "Дитяча ендокринологія"

DISEASES OF HYPOTHALAMIC PITUITARY SYSTEM AND SEXUAL GLANDS IN CHILDREN.

Etiology, pathogenesis, classification, clinic, diagnostics, differential diagnostics, treatment, prophylaxis of different clinical forms of growth disorders (exogenous constitutional, pituitary, somatogenic); obesity (exogenous constitutional, subthalamic), pubertal dispituitarism in children, different forms of sexual glands disorders, pathology of sexual glands in children (disturbances of boys' and girls' sexual development). Prognosis.

I. Actuality of the theme.

Hypothalamic – pituitary system is one of the major links in adjusting and control of endocrine glands. The disorders hypothalamic – pituitary glands are the cause of pathological processes origin in organism and the development of many endocrine diseases. It predetermines the necessity of studying and improvement of knowledge of these problems for precise diagnostics and administering of adequate therapy.

II. Classes (studies pointing out mastering level planned)

1. 1. A student must know (to familiarize with): $\alpha 1$
 - About the diseases of hypothalamic – pituitary system in the structure of endocrine diseases in children, prevalence in different age groups;
 - About statistical information in relation to morbidity, frequency of complications origin, the nearest and remote prognosis.
 - About the history of the problem scientific studying and the contribution of domestic scientists;
2. A student must know (master): $\alpha 2$
 - Anatomic and physiological features of endocrine system in healthy child.; the features of metabolism;
 - Structure and functions of the hypothalamus and hypophysis; hormones, mechanism of their action; regulation of hemadens functions.
 - To familiarize with the modern state of problems for diagnostics and treatment of the hypothalamic – pituitary system and obesity.
 - Etiology, pathogenesis and clinical manifestations of hypothalamic – pituitary system diseases and different forms of obesity in children.
 - Methods of treatment of different clinical forms of obesity, growth disorders, diabetes insipidus, pubertal dispituitarism, disorders of sexual development.
 - Urgent condition in pathology of hypothalamic – pituitary system and different forms of obesity in children. Pathogenetic clinic and treatment methods of prophylaxis in hypothalamic – pituitary system and obesity; organization of outpatient clinical observation..
 - Differential diagnosis.
3. A student must master: $\alpha 3$

Skills:

- Collection of complaints and anamnesis of disease;
- Examination of patients with the diseases of hypothalamic – pituitary systems and revealing of basic symptoms and syndromes;
- To formulate and substantiate the initial diagnosis.
- Determination of laboratory and instrumental plan of patient's examination (according to diagnostics standards);

Abilities:

- to interpret result of laboratory and instrumental tests.
- To conduct differential diagnosis
- Using the sygmal and centile tables to detect the indexes of physical development, the degree of delaying and acceleration, weight excess and deficiency in children.
- To detect the bone age of children.
- To give recommendations in relation to the patient regimen and diet in diseases of hypothalamic – pituitary systems
- taking into account the stage of disease to specify the severity of the state and concomitant pathology;
- to complete the treatment plan in pathology of hypothalamic-pituitary glands according to the standards taking into account the stage of disease, complications and concomitant pathology.
- To render the first aid in extreme situations and exigent states.

III. Aims of personality development (educative aims):

- A student must learn to adhere to the rules of behavior and principles of medical etiquette and deontology to develop bedside manner in patients with hypothalamic-pituitary glands
- Be able to set a psychological contact with a patient and his family;
- to master the sense of professional responsibility for a timely and adequate medicare.

Methodical materials to support basic stage

professional algorithm of patients management implementation (reference chart)
for the practical skills and abilities forming.

№	Task	Sequence of implementation	Remarks and warnings related to self-control
1	To conduct examination of patient with obesity, sexual development disorders, diabetes insipidus, growth disorders.	1.To conduct the complaints and disease's anamnesis gathering. 2.Carefully gathering the life anamnesis of the patient. 3.To conduct examination of the patient. 4.To examine the state of	To pay attention to features of disease course , underlying factors, concomitant diseases etc. To establish the availability of risk factors which facilitate the disease occurrence. To assess patient's general condition, position in bed, color

		hypodermic fatty layer, estimate anthropometric information, sexual development of a child.	and wetness of skin and mucous, presence of neck veins and extremities swelling. To pay regard to rhythm of pulse, it's tension and size on both hands, apex shove, it's properties, margins of absolute and relative cardiac dullness, it's changes, HR(tachi-or bradycardia, extrasystoly), BP.
		5.To conduct heart and the main vessels auscultation. 6..To examine the pulmonary system (percussion, bronchophony). To conduct lungs auscultation. 7.To examine the system of digestion.	To pay regard to heart tones weakening or amplifying, appearance of murmurs and additional III, IV tones. To pay attention to features of percussion and auscultation in children of different age.
2	To formulate the initial diagnosis.	1.To formulate the initial diagnosis. 2.To substantiate all components of initial diagnosis based on complaints, anamnesis, and examinations.	On the basis of modern classification to formulate the preliminary diagnosis of hypothalamic-pituitary system disease and to substantiate each component of it.
3	To evaluate the parameters of additional laboratory tests..	1.To evaluate the blood count data, to determine the bone age, the body mass index, indexes of masculinisation and feminization. 2.To interpret the additional examination data.	To pay attention to the presence of changes of anthropometric information, information of harmoniousness of physical and sexual development. To pay regard to presence of delay in sexual development from the age from age-old ranges, information about lipidogrammes, to maintenance of cholesterol, biochemical

			indexes.
4	To evaluate the data of additional and laboratory examination.	To evaluate the X-Ray of chest, ECG, and of ultrasound.	To pay the special attention to the signs of changes in cella turcica configuration, information of X-ray of the skull and the long bones, the presence of additional formations in the area of cella turcica, information about specific gravity of urine, and others like that, changes of ECG
5.	To conduct differential diagnosis.	<p>1.Consistently to find the common signs in complaints,life and disease anamnesis, data of examination, data of laboratory and instrumental tests in patient and in similar states.</p> <p>2.To find differences among complaints, information of life and disease anamnesis, examination data, information about the laboratory and instrumental methods of examination and in similar nosology.</p> <p>3.To found out differences to exclude similar diseases from the list of probable diagnoses.</p> <p>4.To conduct differential diagnostics according to the above mentioned algorithm with all nosologies which have an alike clinical picture with a patient, including with the signs of hypothalamus-pituitary diseases.</p> <p>5.Taking into account the impossibility to exclude the diagnosis of deseases of hypothalamic-pituitary glands from the list of probable diagnoses to draw a conclusion about most probability of such</p>	Special attention needs to be payed to differential diagnostics with exogenous-constitutional obesity, diabetes, inherited syndromes are accompanied by the growth delay.

		diagnosis.	
6.	To formulate the final clinical diagnosis.	1. To formulate the final clinical diagnosis. 2. On the basis of initial diagnosis, additional investigations data, conducted differential diagnosis to substantiate all elements of the final clinical diagnosis.	On the basis of modern classification of obesity, diabetes, growth disorders, disorders of sexual development, to formulate diagnosis, complications of basic disease and presence of concomitant diseases.
7.	To prescribe treatment for patients.	1.To prescribe non medicinal treatment 2.To prescribe the medicinal treatment.	Expressly to specify the regimen and detailed diet according to a disease. Taking into account age, severity of patient's state, the stage of disease, the presence of complications and concomitant pathology, to prescribe modern medicinal treatment in accordance with standards of obesity, diabetes incipidus, growth disorders, disorders of sexual developmen traetment.

Tests

1. The clinical signs of diabetes insipidus could be all listed below except for
 - A) disuria;
 - B) thirst;
 - C) poliuria
 - D) dryness of skin and mucoses;
 - E) diminishing of appetite.

- 2.The most reliable sign of diabetes insipidus will be:
 - A) hypotonic poliuria;
 - B) decreasing of blood plasma osmolarity.
 - C) decreasing of cortisol level in blood;
 - D) increasing of aldosteron level in blood;
 - E) increasing of glucose level in the urine

3. The main signs of central diabetes or diabetes insipidus are all, except for:
 - A) increasing of antidiuretic hormone level in blood;

- B) decreasing of urine density;
- C) absence of kidneys disease;
- D) increasing of plasma osmolarity ;
- E) thirst, poliuria.

4. Glucosuria inherent to all the diseases listed below, except for:

- A) Diabetes mellitus;
- B) Fanconi nephrophtysis;
- C) hepatic illness;
- D) idiopatic family renal glucosuria;
- E) protracted starvation.

10. The most reliable sign of diabetes insipidus will be all, except for:

- A) hypotonic poliuria;
- B) decreasing of blood plasma osmolarity
- C) decreasing of cortisol level in blood;
- D) decreasing of aldosteron level in blood;
- E) increasing of urea level in the blood.

11. The main signs of central diabetes or diabetes insipidus are all, except for:

- A) increasing of antidiuretic hormone level in blood;
- B) decreasing of urine density;
- C) absence of kidneys disease;
- D) increasing of plasma osmolarity;
- E) thirst, poliuria.

12. Glucosuria inherent to all the diseases listed below, except for:

- A) Diabetes insipidus;
- B) Fanconi nephrophtysis;
- C) hepatic illness;
- D) idiopatic family renal glucosuria;
- E) protracted starvation.

13. In the regulation of ADH secretion the main factor will be:

- A) osmolarity of plasma;
- B) level of glucose in blood;
- C) level of electrolites in blood;
- D) pH level in blood;
- E) level of urea in blood.

14. The inherited diabetes insipidus is the most frequent diagnosed in children of:

- A) first year;
- B) pubertal age;
- C) in the period of babyhood;
- D) in prepubertal period;
- E) in the period of senior age.

16. The causes of the acquired diabetes insipidus must be all, except for:

- A) mutations of ADH receptor gene;
 - B) primary pyelonephritis;
 - C) secondary pyelonephritis;
 - D) amyloidosis;
 - E) hypercalcemia, hypokaliemia.
17. For treatment of nephrogenic diabetes insipidus are used:
- A) thiazide preparations;
 - B) osmotic diuretics;
 - C) preparations of ADH;
 - D) preparations of potassium;
 - E) antiinflammatory preparations.
18. Nephrogenic diabetes insipidus is characterized by all, except for:
- A) hyperosmolarity of urine;
 - B) elevated or normal level of ADH in a blood;
 - C) hypostenuria;
 - D) not effective treatment with adiuretin
 - E) normal parameters of glomerular filtration and tubular reabsorption
19. The causes of acquired central diabetes insipidus are all, except for:
- A) genetic defect of ADH transport synthesis;
 - B) craniocerebral trauma;
 - C) neuroinfection (encephalitis, meningitis);
 - D) operations in the area of hypophysis;
 - E) tumors (craniopharyngeomas, meningiomas).
20. The basic factors of polyuria are:
- A) all reasons;
 - B) central diabetes insipidus;
 - C) nephrogenic diabetes insipidus;
 - D) psychogenic polydipsia;
 - E) dipsogenic diabetes insipidus.

Questions for the control of abilities and skills level:

1. Hormones of hypothalamus and hypophysis, mechanism of action.
2. Syndromes of growth disorders (after the method of sigmoid deviations).
3. Diagnostics of growth acceleration signs.
4. The definition of bony age and its detecting.
5. The causes of origin and clinical signs of hypophysial dwarfism.
6. Differential diagnosis of pituitary nanism.
7. What functional tests are used for the detecting of pituitary somatotropin reserves?
8. The principles of pituitary nanism treatment?
9. The causes of origin, clinical and laboratory criteria for the diagnosis of gigantism and acromegaly.

10. Name the symptoms characteristic for progress of hypophysis adenoma growth.
11. Partial gigantism in children. The principles of treatment.
12. The causes of origin and clinical signs of pubertal dysphuitarism.
13. What clinical signs are revealed in adiposogenital dystrophy?
14. Classification of obesity. Degrees of obesity.
15. Clinical signs of exogenous - constitutional and subthalamic obesity.
16. The principles of different clinical forms therapy in obesity in children.
17. The causes and clinical signs of diabetes insipidus in children.
18. Laboratory and instrumental criteria for diagnostics of diabetes insipidus.
Functional tests in children.
19. The treatment of diabetes insipidus in children.
20. Hormones of sexual glands and the hypothalamic-pituitary system, mechanism of action, regulation of secretion, principles of feedback links.
21. The definition of genetic and gonad sex. Passport sex.
22. The definition of intersexualism.
23. Physiology of sexual maturation. (formation of gonads, of internal and external genitalia (formation of gonads, internal and external genitalia, secondary sexual signs.)
24. The criteria for girls' sex maturation.
25. The criteria for boys' sex maturation.
26. Factors which impair the process of sex maturation.
27. The pathogenesis of sexual apparatus congenital anomalies.
28. The classification of sexual anomalies congenital anomalies.
29. The diagnosis of sexual maturation disorders.
30. True agenesis and dysgenesis of gonads. Diagnosis and treatment.
31. Turner syndrome. Causes of origin, manifestation, diagnosis, treatment.
32. Dysgenesis of testicles and ovaries. Causes of origin. Diagnosis, treatment.
33. The syndrome of incomplete masculinisation. Etiology. Clinical forms.
Treatment.
34. Syndrome of testicular feminization. Etiology. Clinical signs, diagnosis, treatment.
35. Klinefelter syndrome. Etiology. Manifestation. Diagnosis. Treatment.
36. The main principles of intersexualism treatment.
37. Organization of outpatient observation in children with sexual maturation disorders.

Tasks:

1. The parents of a 14-year-old boy are concerned about his short stature and lack of sexual development. By history, you learn that his birth weight and length were 3 kg and 50 cm, respectively, and that he had a normal growth pattern, although he was always shorter than children of his age. The physical examination is normal. His upper-to-lower segment ratio is 0.98. A small amount of fine axillary and pubic hair is present. There is no scrotal pigmentation; his testicles measure 4.0 cm³ and his penis is 6 cm in length. What is the probable diagnosis?

2. The parents of a 14-year-old boy are concerned about his short stature and lack of sexual development. By history, you learn that his birth weight and length were 3 kg and 50 cm, respectively, and that he had a normal growth pattern, although he was always shorter than children his age. The physical examination is normal. His upper-to-lower segment ratio is 0.98. A small amount of fine axillary and pubic hair is present. There is no scrotal pigmentation; his testicles measure 4.0 cm³ and his penis is 6 cm in length. Compose the plan of laboratory investigations. Compose the plan of additional investigation.
3. A 10-year-old obese boy has central fat distribution, arrested growth, hypertension, plethora, purple striae, and osteoporosis. Which of the following disorders is most likely to be responsible for the clinical picture that this boy presents? What tests confirm the diagnosis?
4. A 10-year-old obese boy has central fat distribution, arrested growth, hypertension, plethora, purple striae, and osteoporosis. What conditions must be included in differential diagnosis of disease? What therapeutic approach must be applied in this case?
5. An otherwise healthy 7-year-old child is brought to you to be evaluated because he is the shortest child in his class. Careful measurements of his upper and lower body segments demonstrate normal body proportions for his age. Which of the following disorders of growth is likely? What investigations must be prescribed for diagnosis confirming?

Materials of the methodical support for the students independent preparation: a reference chart for organization of students independent work with educational literature.

Tasks	Instructions
To study the etiology and pathogenesis of hypothalamus- pituitary diseases. Be able to detect the risk group for the obesity, diabetes insipidus, growth disorders, sexual maturation disorders.	To enumerate basic etiologic factors of hypothalamic- pituitary diseases, select the key links of hypothalamic- pituitary disease's pathogenesis.
To study clinical manifestations of hypothalamic- pituitary disease's pathogenesis in children.	To establish the symptoms and gather it to clinical syndromes which enable to make the credible diagnosis of diabetes insipidus, obesity, growth disorders and sexual maturation disorders.
To study diagnostic criteria of hypothalamic- pituitary diseases.	To make the flow diagram of disease
To study the additional methods of examinations (laboratory, instrumental)	To work out a plan of patient's examinations.
To study the changes in additional	To enumerate the basic diagnostic

investigational methods are pathognomonic for hypothalamic- pituitary diseases.	criteria of hypothalamic- pituitary diseases according to the data of additional examination methods.
To conduct differential diagnostics, s to establish a final diagnosis	To substantiate the basic components of diagnosis in accordance with modern classification, and to conduct a differential diagnosis.
To prescribe the individual holiatry to patient with the diabetes insipidus, obesity, growth disorders and sexual maturation disoders. Abe able to render the first aid in hypothalamic- pituitary diseases.	To make the prescribing chart specifying the regimen, diet, medicinal treatment, taking into account the age, severity of patient's state, stage of disease, presence of complications and concomitant diseases.
To study the etiology and pathogenesis of diabetes insipidus, obesity, growth disorders and sexual maturation disorders.in children.	To enumerate basic etiologic factors, select the key links of diabetes insipidus, obesity, growth disorders and sexual maturation disorders pathogenesis.

RECOMMENDED LITERATURE

- 1.Дитячі хвороби. За ред. В.М. Сідельникова, В.В.Бережного. К.:Здоров'я, 1999.-734 с.
- 2.Медицина дитинства. За редакцією П.С. Мощича. - К.Здоров'я, 1994. -Т. 1-4.-2350 с.
- 3.Майданник В.Г. Педиатрия. Учебник (2-е издание, испр. и доп.) - Харьков: Фолио, 2002. - 1125 с.
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- 5.Nelson textbook 18th Edition by Robert M. Kliegman, MD, Richard E. Behrman, MD, Hal V. Jenson, MD and Bonita F. Stanton, MD. Видавництво: SAUNDERS

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- 2..Майданник В.Г., Майданник И.В. Справочник современных лекарственных средств. - М.: АСТ; Харьков: Фолио, 2005. - 1024 с.
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НАВЧАЛЬНО-МЕТОДИЧНЕ ВИДАННЯ

**ЛЕЖЕНКО ГЕННАДІЙ ОЛЕКСАНДРОВИЧ
РЕЗНІЧЕНКО ЮРІЙ ГРИГОРОВИЧ
ПАШКОВА ОЛЕНА ЄГОРІВНА
ГИРЯ ОЛЕНА МАКСИМІВНА
ЛЕБЕДИНЕЦЬ ОЛЕКСАНДРА МИКОЛАЇВНА**

ГОСПІТАЛЬНА ПЕДІАТРІЯ

**Навчально-методичний посібник для самостійної роботи англомовних
студентів V курсу медичного факультету**

(англійською мовою)

HOSPITAL PEDIATRICS

**(educational and methodical manual for extra-curricular preparation of
5th year English-speaking students of medical faculty)**