

Ministry of Health of Ukraine
O.O. Bogomolets National Medical University

GUIDELINES
to practical classes for students

Elective discipline: 5.1. Basics of neonatology

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine", 228 "Pediatrics"

Department of Pediatrics No 2

Approved at the meeting of the department
from protocol № 1 dated 27.08.2026

Reviewed and approved by: Center for Pediatric Disciplines
from protocol № 1 dated 28.08.2026

Lesson topic : Modern concept of perinatal infections. Tactics of managing children born to HIV-infected mothers.

Competencies :

- carry out an assessment of the general condition of a newborn child by making a reasoned decision according to existing algorithms and standard schemes, observing the relevant ethical and legal norms;
- distinguish and identify leading clinical symptoms and syndromes (anemic syndrome, hemorrhagic syndrome, asphyxia, jaundice, edematous syndrome, shortness of breath, vomiting);
- according to standard methods, using the previous data of the patient's history, the data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (intrauterine infection);
- collect obstetric anamnesis, assess the physical development and state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis (general analysis of blood, urine, blood proteins, blood glucose, bilirubin and its fractions, electrolytes, X-ray of the chest and abdominal cavity, neurosonography);
- establish a final clinical diagnosis by making a reasoned decision and analyzing the obtained objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms;
- assess and monitor the child's development, provide recommendations on feeding and nutritional features;
- to determine tactics and provide emergency medical aid in emergency situations (asphyxia, respiratory failure) in accordance with existing clinical protocols and treatment standards;
- perform medical manipulations (perform indirect heart massage, artificial respiration, install nasogastric and orogastric tubes, restore airway patency).

Goal:

Formation of professional competences; achievement of program learning outcomes in the process of discussing the topic and performing independent work on the topic; mastering practical skills and methods of providing emergency care.

Equipment: newborn baby manikin, ventilator and oxygen therapy kit, resuscitation bag and face mask size "1", equipment for airway sanitation (rubber pears), umbilical vein catheterization kit (scalpel, ligature, tweezers, umbilical catheter, syringe for injections), neonatal stethoscope, pulse oximeter, diapers, disposable gloves, antiseptic for hand treatment.

Lesson plan and organizational structure

The name of the stage	Description of the stage	Levels of assimilation	Time
Preparatory	<i>Organizational issues</i> <i>Learning motivation:</i> The frequency of perinatal infections, according to the literature, ranges from 10 to 60%, reaching 70% among prematurely born children. As is known, infectious agents cause about 80% of congenital malformations, they are also one of the important causes of premature birth of a child or ZVUR. Intrauterine infections cause almost a third of early neonatal mortality. That is why considering issues of timely diagnosis, prevention and treatment of perinatal infections is very important for future family doctors and pediatricians. <i>Control of the initial level of knowledge (test control and oral survey):</i> 1. Which causative agent is exclusively characterized by the transplacental route of infection? A. Toxoplasmosis B. Chlamydia V. Herpes G. Gonorrhea D. AIDS 2. Which of the following pathologies is characteristic of late fetopathies? A. Polycystic lung disease B. Renal aplasia B. Microcephaly G. Hydrocephalus D. Hepatitis 3. What antiretroviral therapy is prescribed for a newborn child with a gestational age of 34-37 weeks of gestation, if the mother has an HIV RNA < 50 copies/ml? A. AZT for 4 weeks orally every 12 hours at a dose of 4 mg/kg+3TC for 4 weeks orally every 12 hours at a dose of 2 mg/kg+NVP for 2 weeks orally every 24 hours: the first week at a dose of 2 mg/kg, the second week at a dose of 4 mg/kg; B. AZT monoprophylaxis for 4 weeks orally every 12 hours at a dose of 4 mg/kg; B. AZT monoprophylaxis intravenously at a dose of 1.5 mg/kg every 24 hours;	Introductory Reproductive	20 min

	D. Appointment of tenofovir disoproxil/emtricitabine 300/200 mg (TDF/FTC) once a day for 2 weeks. D. Prescribe 1 dose of nevirapine 200 mg (NVP) immediately after the birth of the child. 4. What drug is prescribed to prevent pneumocystis pneumonia? A. Zydovudin, B. Lamivudin, V. Nevirapine, G. Trimethoprim/sulfamethaxone. D. Tenofovir disoproxil / emtricitabine 5. In what case can a vaginal birth be the method of delivery? A. Full-term pregnancy or premature delivery in the period of 34-37 weeks on the background of ART. VN < 50 copies/ml HIV RNA B. Full-term pregnancy or premature birth at 34-37 weeks on the background of ART. VN > 50 copies/ml HIV RNA B. Premature birth before 34 weeks on the background of ART. Early departure amniotic fluid D. Childbirth in women who did not take ARV treatment during pregnancy or whose HIV-positive status was established immediately before and during childbirth.		
Basic	<i>Performance of practical tasks :</i> - demonstration of a thematic patient in the neonatal intensive care unit; - study of obstetric anamnesis; - evaluation of the results of laboratory and instrumental examination methods; - on the basis of obstetric anamnesis, examination data and results of laboratory and instrumental studies, establishment of a preliminary clinical diagnosis; - determination of factors and pathogenetic mechanisms of disease development; - appointment of treatment (emergency measures, medical treatment, particularities of care, feeding); - determination of disease prevention measures; - familiarization with the operation of the equipment - incubators, resuscitation table, phototherapy lamp, radiant heat lamp, ventilators;	Introductory Introductory Reconstructive Creative Reproductive	80 minutes

	- practicing medical manipulations using a dummy of a newborn child.		
Final	<i>Control of the final level of training (situational problems):</i> 1. The child was born from the 1st pregnancy, during which the mother had pyelocystitis and colpitis, the 1st term delivery, weight 3000 g, length 50 cm, an Apgar score- 5-6 points. From the moment of birth, the child's condition is serious. Breathing is non-rhythmic, shallow, with contraction of the intercostal spaces, trembling of the wings of the nose. A sail-like swelling of the cheeks is periodically observed. BR 80 in 1 min. Breathing is hard in the lungs, scattered crackling wheezes. The skin is pale, acrocyanosis, cyanosis around the mouth. Muscle tone is weakened, reflexes are slowed down. The reaction to external stimuli is adequate. The cry is loud. Sucks actively, but constantly vomits. Heart sounds are weakened, 160 in 1 minute. The abdomen is soft, swollen. The liver and spleen are not enlarged. Meconium leaves. In the general blood analysis on the 2nd day of life: er. - $5.8 \times 10^{12}/l$, Nv - 200 g/l, l. - $28 \times 10^9/l$, b. - 15%, s. - 65%, lymph. - 15%, m. - 5%. On the X-ray of the chest, there is an increase in the lung pattern, peribronchial infiltration. Task: 1. Make a preliminary diagnosis. 2. Assign an examination. 3. Specify the main areas of treatment. Answer: 1. Intrauterine infection: congenital pneumonia. 2. X-ray of chest organs, general blood test, CRP, procalcitonin, microbiological examination. 3. Respiratory support, antibiotic therapy, immunotherapy, parenteral nutrition, minimal trophic nutrition. 2. A girl from the first pregnancy the first birth of a 17-year-old mother, who was not observed in a women's consultation, was born with a body weight 2200 g, a height 49 cm. The HIV-positive status was established	Creative	35 min

	immediately during childbirth. Child care algorithm in this case? Answer standard: 1) primary processing according to the standard method; 2) express diagnosis of the umbilical cord blood sample using rapid (express) tests; 3) artificial feeding; 4) AZT for 4 weeks orally every 12 hours at a dose of 4 mg/kg; 5) 3TC for 4 weeks orally every 12 hours at a dose of 2 mg/kg; 6) NVP for 2 weeks orally every 24 hours: the first week at a dose of 2 mg/kg, the second week at a dose of 4 mg/kg; 7) on the 2nd-3rd day, sampling to determine HIV proviral DNA in order to detect antenatal infection <i>General evaluation of the student's educational activity</i>		
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Recommended reading :

Basic:

1. Pediatrics (neonatology, hematology, endocrinology): Teaching and methodical manual / Edited by O.P. Volosovets. – Kyiv: MEDPRINT, 2023. – 410 p.
2. Neonatology: textbook: in 3 volumes / [T. K. Znamenska, Yu. G. Antipkin, M. L. Aryaev and others]; edited by T. K. Znamenska. – Lviv: Publisher Marchenko T. V., 2020. – T. 1. – 408 p., T2- 456 p., T3- 380 p.
3. Fundamentals of pediatrics according to Nelson: in 2 volumes. Volume 1 / Karen J. Markdante, Robert M. Kligman; translation of the 8th English edition. Scientific editors of the translation V.S. Berezenko, T.V. Rest Kyiv: VSV "Medicine", (2020). T1-378p.
4. Nelson Textbook of Pediatrics, 2-Volume set, 22-nd edition. By Robert M. Kliegman, Bonita M.D. Stanton, Joseph St. Geme and Nina F Schor. – Philadelphia, PA : Elsevier Inc., 2024 - 4472 p. (Ch. 629, pp. 3515-3549) ISBN-10 : 032352950X ISBN-13 : 978-0323529501
5. Unified clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care "Prevention of HIV transmission from mother to child", approved by the Order of the Ministry of Health of Ukraine dated 05/16/2016 No. 449 (as amended by the order of the Ministry of Health of Ukraine 07/02/2016 No. 655

Questions for student self-preparation for practical training:

1. Perinatal infections.
2. Intrauterine infection.
3. Intrauterine infection (IUI).
4. The concept of "TORCH infection".
5. Factors that determine the nature of the lesion in IUI.
6. Dependence of the nature of the lesion on the term of infection.
7. Ways of infection.
8. Risk factors of IUI.
9. Characteristic clinical signs of IUI.
10. Methods of diagnosis of IUI.
11. Principles of treatment of IUI.
12. Principles of prevention of IUI.
13. Methods of prevention of HIV infection in a newborn depending on the clinical situation.

Methodical development is completed

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