

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

GUIDELINES
to practical classes for students

Educational discipline: 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 28.08.2023

Reviewed and approved by: Center for Pediatric Disciplines
from protocol № 1 dated 28.08.2023

Lesson topic: Modern perinatal technologies. Medical care of very low and extremely low birth weight premature babies.

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, apnea, respiratory failure, jaundice, hypoglycemia, hypothermia);
- according to standard methods, using the previous data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (respiratory distress syndrome, asphyxia, bronchopulmonary dysplasia, retinopathy, anemia);
- collect obstetric anamnesis, evaluate the physical development of a premature baby, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (general analysis of blood, urine, blood proteins, blood glucose, bilirubin and its fractions, electrolytes, radiography thoracic and abdominal organs, 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;
- determine tactics and provide emergency medical care in emergency situations (asphyxia, hypoglycemia, respiratory distress, apnea) in accordance with existing clinical protocols and treatment standards;
- perform medical manipulations (indirect heart massage, artificial respiration, install a nasogastric and orogastric tube, 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 system of perinatal care involves the management of pregnancy and childbirth, the organization of care for newborns, including: weaning, intensive therapy and rehabilitation of children who were born prematurely or who were born sick. According to the WHO, deep morpho-functional immaturity is the main cause of neonatal mortality. Premature births do not show a decreasing trend, so the problem of intensive care and nursing of prematurely born children, especially with extremely low body weight, remains relevant, despite the introduction of new technologies for pregnancy management, childbirth and medical care for children. <i>Control of the initial level of knowledge (test control and oral survey):</i> 1. What position applies to modern perinatal technologies at the level of the delivery room? A. Removal of residual lubricant. B. Suctioning of mucus in newborns from the oral cavity and nasopharynx. B. Checking the patency of the esophagus. D. Putting a bandage on the umbilical cord remnant and using antiseptics. D. Attaching to the mother's breast immediately after the birth of the child for the appearance of searching and sucking reflexes. 2. Prevention of which disease in prematurely born children is carried out by prescribing steroids to pregnant women? A. Respiratory distress syndrome B. Retrolental fibroplasia B. Hemolytic disease G. Pneumonia D. Anemia 3. Which method of respiratory support in premature babies is the initial one? A. Filling the lungs B. CPAP V. Ventilator D. High-frequency oscillatory ventilation D. Oxygen therapy	Introductory Reproductive	25 min

	4. Which pathology of the cardiovascular system is most characteristic of prematurely born children? A. Congenital heart defects B. Myocardiopathies V. Arrhythmias G. Pulmonary hypertension D. Myocarditis 5. What blood level should be checked in case of detection of hypothermia in a prematurely born child? A. Glucose B. Total bilirubin B. Hematocrit G. Creatinine D. Leukocytes		
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; - practicing medical manipulations using a dummy of a newborn child.	Introductory Introductory Reconstructive Creative Reproductive	1 hour 45 minutes
Final	<i>Control of the final level of training (situational problems):</i> 1. A girl from the first pregnancy the first premature birth in the period of 25 weeks, of the mother has a difficult obstetric and gynecological history (infertility due to bilateral tubectomy, during pregnancy, with the use of RT, asymptomatic bacteriuria was observed, the threat of abortion of pregnancy in the period of 21 weeks and premature birth in at the term of	Creative	30 min

	24-25 weeks, isthmic-cervical insufficiency, corrected by an obstetric pessary, premature rupture of the fetal membranes, duration of the waterless period - 42 hours). Antenatal steroid prophylaxis was performed. At birth, the child's condition is difficult: single breathing movements, spontaneous movement activity is absent. Determine the algorithm for providing initial and resuscitation care to a child in the delivery room. Answer standard: Separate the child from the mother, place it in a plastic bag, transfer it to the resuscitation table, ensure patency of the airways, dry it, perform tactile stimulation, put the pulse oximeter sensor on the right hand, assess the efficiency of breathing, heart rate and saturation. Provide initial CPAP respiratory support via mask or nasal cannulae. 2. The boy from the first pregnancy, which was a threat of abortion at 13-14 weeks, the first premature birth at 25 weeks of gestation in a purely breech presentation was born by cesarean section, due to premature detachment of the normally located placenta, with a mass body 660 g, height 33 cm. Apgar score was 5-6 points, Silverman score was 9 points. The child's condition at birth was extremely severe: moaning, generalized cyanosis, heart rate 144 per minute, muscle hypotonia, areflexia, in connection with which initial and resuscitation care was provided, after which the child was transferred to a transport incubator under manual lung ventilation in the neonatal intensive care unit. Establish a preliminary diagnosis. Determine the examination and treatment plan. Answer standard: 1) Respiratory distress syndrome. Prematurity (gestational age 25 weeks). Extremely low birth weight. 2) Examination plan: blood group, rhesus affiliation, lactate, acid-base status, general blood test, biochemical blood test, general urinalysis, microbiological examination, X-ray of chest organs, neurosonography. Monitor body temperature, heart rate, oxygen saturation, blood pressure, urine output, body weight. 3) Treatment plan: incubator regime (temperature 35, humidity - 80%), respiratory		
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	support - ventilator, "Kurosurf" endotracheally, infusion therapy for the purpose of parenteral nutrition (glucose solution 10%, amino acid solution), calcium gluconate 10%, hemodynamic support in case of arterial hypotension (dopamine), vitamin K, antibiotic therapy (ampicillin, gentamicin). <i>General evaluation of the student's educational activity</i>		
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Recommended reading :

Basic:

1. Neonatology: a national textbook: in 2 volumes / edited by by Professor E.E.Shunko - K., 2015. - Volume 2. - pp. 259-341.
2. Neonatology: textbook: in 3 volumes / T.K. Znamenska, Y.G. Antipkin, M.L. Aryaev, etc.; under the editorship T.K. Znamenskaya. – Lviv: T.V. Marchenko Publisher, 2020. – Volume 2. - pp. 114-131.
3. Unified clinical protocol of secondary (specialized) and tertiary (highly specialized) medical care "Enteral nutrition of premature children", approved by Order of the Ministry of Health of Ukraine dated May 5, 2021 No. 870 <https://neonatology.org.ua/news/docs/2021/05/225-nakaz-moz-ukraini-870-enteralne-kharchuvannya-nedonoshenikh-nemovlyat>
4. Unified clinical protocol of secondary (specialized) and tertiary (highly specialized) medical care "Respiratory distress syndrome in premature babies", approved by Order of the Ministry of Health of Ukraine dated May 5, 2021 No. 873 https://zakononline.com.ua/documents/show/497056__675313
5. Unified clinical protocol of secondary (specialized) and tertiary (highly specialized) medical care "Parenteral nutrition of newborn children", approved by the Order of the Ministry of Health of Ukraine dated April 18, 2022 No. 650 http://journal.medlib.dp.gov.ua/wpcontent/uploads/2022/05/N_650_18_04_2022_dod.pdf
6. Protocol of medical care for a newborn child with low birth weight, approved by the Order of the Ministry of Health of Ukraine dated August 29, 2006 No. 584 <http://ukraine.uapravo.net/data/base05/ukr05859.htm>
7. Unified clinical protocol "Initial, resuscitation and post-resuscitation care for newborns in Ukraine", approved by the Order of the Ministry of Health of Ukraine dated March 28, 2014 No. 225 <http://document.ua/pro-zatverdzhennja-ta-vprovadzhennja-mediko-tehnologichnih-d-doc190536.html>

Additional:

1. Academic lectures on pediatrics/under the editorship of Yu.G. Antipkin.-Kyiv: RA-HARMONIA LLC, 2020 - p.349-363, p.435-462.
2. Nelson Textbook of Pediatrics, Volume 1 of 5 volumes , 21th Edition, 2019 by R obert MK liegman , Nathan J. Blum, Samir S. Shah, Joseph W. ST GEME III, Robert C. Tasker, Karen M . Wilson, R ichard E. B ehrman , P. 906, 925-928.

Questions for student self-preparation for practical training:

1. Modern principles of perinatal care.
2. The main stages of providing medical care to prematurely born children.
3. Basic requirements for managing premature births.
4. Modern technologies of medical care for prematurely born children with a gestational age of <32 weeks.
5. The main pathological conditions that are characteristic of prematurely born children with very low body weight at birth.
6. Intensive therapy of children with very low birth weight.
7. Enteral feeding of children with a gestational age of <32 weeks.
8. Parenteral nutrition of prematurely born children.
9. Consultative and catamnestic observation of a prematurely born child.

Methodical development is completed

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