TREATMENT OF NEWBORNS IN INTENSIVE CARE

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Annotation. *This article describes in detail the modern principles, organizational aspects and clinical protocols of intensive care for newborns in the intensive care unit. The main focus is on the early detection and elimination of life-threatening conditions such as asphyxia, respiratory failure, cardiovascular disorders and metabolic imbalances that occur in the neonatal period. The article analyzes the methods of restoring and stabilizing vital functions in infants, including airway patency, artificial ventilation, cardiopulmonary resuscitation, the use of drugs and ensuring thermoregulation. It also shows the importance of preventing infectious complications, maintaining a sterile environment and monitoring in intensive care.*

Keywords. *Newborn, neonatal resuscitation, asphyxia, Apgar score, mechanical ventilation (MV), cardiopulmonary resuscitation (CPR), intubation, oxygen therapy, incubator, thermoregulation, neonatal intensive care.*

Аннотация. *В данной статье подробно описаны современные принципы, организационные аспекты и клинические протоколы интенсивной терапии новорожденных в отделении интенсивной терапии. Основное внимание уделяется раннему выявлению и устранению угрожающих жизни состояний, таких как асфиксия, дыхательная недостаточность, сердечно-сосудистые расстройства и нарушения обмена веществ, возникающие в неонатальном периоде. В статье анализируются методы восстановления и стабилизации жизненно важных функций у младенцев, включая проходимость*

дыхательных путей, искусственную вентиляцию легких, сердечно-легочную реанимацию, применение лекарственных препаратов и обеспечение терморегуляции. Также показана важность профилактики инфекционных осложнений, поддержания стерильной среды и мониторинга в отделении интенсивной терапии.

Ключевые слова: *Новорожденный, реанимация новорожденных, асфиксия, оценка по шкале Апгар, искусственная вентиляция легких (ИВЛ), сердечно-легочная реанимация (СЛР), интубация, кислородная терапия, инкубатор, терморегуляция, интенсивная терапия новорожденных.*

Annotatsiya. *Mazkur maqolada reanimatsiya bo‘limida yangi tug‘ilgan chaqaloqlarga ko‘rsatiladigan intensiv tibbiy yordamning zamonaviy tamoyillari, tashkiliy jihatlari va klinik protokollari batafsil yoritilgan. Asosiy e’tibor neonatal davrda uchraydigan asfiksiya, nafas yetishmovchiligi, yurak-qon tomir tizimi buzilishlari hamda metabolik muvozanatning izdan chiqishi kabi hayot uchun xavfli holatlarni erta aniqlash va bartaraf etishga qaratilgan. Maqolada chaqaloqlarda hayotiy muhim funksiyalarni tiklash va barqarorlashtirish usullari, jumladan nafas yo‘llarini ochish, sun’iy ventilyatsiya, yurak-o‘pka reanimatsiyasi, dori vositalarini qo‘llash va termoregulyatsiyani ta’minlash masalalari tahlil qilingan. Shuningdek, infeksion asoratlarning oldini olish, steril muhitni saqlash va intensiv terapiya sharoitida monitoring olib borishning ahamiyati ko‘rsatib berilgan.*

Kalit so‘zlar*. Yangi tug‘ilgan chaqaloq, neonatal reanimatsiya, asfiksiya, Apgar shkalasi, sun’iy o‘pka ventilyatsiyasi, yurak-o‘pka reanimatsiyasi, intubatsiya, kislorod terapiyasi, inkubator, termoregulyatsiya, neonatal intensiv terapiya.*

The first minutes and hours of a newborn's life are extremely important for their subsequent healthy development. The neonatal period (the first 28 days of life) is a stage of adaptation of the body to the external environment, during which the functioning of all organs and systems, especially the respiratory, cardiovascular and central nervous systems, stabilizes. Therefore, any pathological condition that occurs during this period can pose a serious threat to the baby's life.

Complications that occur during or after childbirth - in particular, perinatal asphyxia, hypoxia, respiratory failure, heart rhythm disturbances, congenital malformations and infectious diseases - cause severe clinical conditions in newborns. In such situations, urgent resuscitation is required to maintain the baby's vital functions.

Neonatal resuscitation is a set of complex medical measures aimed at restoring the respiratory and circulatory systems in newborns, which is carried out based on specific algorithms. This process includes a rapid assessment of the baby's condition, opening the airway, artificial respiration, heart massage, oxygen therapy, and, if necessary, the use of medications.

In modern medicine, neonatal resuscitation methods are constantly improving. As a result of the introduction of new technologies, high-performance equipment, and international clinical protocols, the survival rates of babies in critical condition have increased significantly. At the same time, the success of the resuscitation process largely depends on the level of knowledge, practical skills, and the ability to make quick decisions of medical personnel.

Therefore, in-depth study and implementation of the theoretical and practical aspects of providing resuscitation care to newborns is one of the urgent issues.

In the intensive care unit, care for newborns is carried out in stages, based on clear clinical algorithms. This process is aimed at the rapid restoration and stabilization of the baby's vital functions, and each stage has its own importance.

Stage 1 - initial assessment of the baby's condition.

Immediately after birth, the baby's general condition is assessed. This includes checking breathing, heart rate (normal 100–160 beats/min), muscle tone, reflexes, and skin color. The Apgar score is often used for assessment (at 1 and 5 minutes). If the baby is not crying, not breathing, or has a heart rate below 100 beats/min, resuscitation is immediately initiated.

Stage 2 - ensuring thermoregulation and providing first aid.

Newborns lose heat quickly, so they need to be dried, wrapped in warm cloth, and placed on a special heated table. It is important to maintain body temperature at 36.5–37.5 °C. Hypothermia can increase complications.

Stage 3 - opening and clearing the airway.

The baby's head is placed with the head tilted slightly back (sniffing position). If necessary, the mouth and nasal cavity are cleaned with an aspirator. In cases of meconium contamination, deep aspiration or intubation may be required.

Stage 4 - artificial respiration (ventilation).

If the baby is not breathing independently or breathing is slow, positive pressure ventilation (PPV) is immediately started. This is done using a mask and an ambu-bag (bag-valve-mask) or special devices. The respiratory rate is usually 40–60 times / minute. If effectiveness is not observed, the trachea is intubated and artificial pulmonary ventilation is continued.

Stage 5 - cardiac activation (cardiac massage).

If the heart rate is below 60 beats / minute, cardiac massage is started together with artificial respiration. Pressure is applied to the lower third of the chest using 2 thumbs or two fingers. The ratio is usually 3:1 (3 compressions - 1 breath), which is approximately 120 movements per minute.

Stage 6 - use of drugs. If the above measures are not effective enough, drugs are used. The most commonly used drugs are: adrenaline (to stimulate the heart), glucose solutions (to eliminate hypoglycemia), sodium chloride or other fluids (in hypovolemia), in some cases sodium bicarbonate (in acidosis).

Drugs are usually administered intravenously or endotracheally.

Stage 7 - oxygen therapy and monitoring.

The baby's oxygen supply is monitored by pulse oximetry. Oxygen therapy is carried out carefully, avoiding excessive hyperoxia. Heart rate, breathing, blood pressure and other indicators are constantly monitored.

Stage 8 - prevention and care of infections.

During resuscitation, the rules of asepsis and antiseptics are strictly observed. Antibiotics are used if necessary. The baby is kept in an incubator, ensuring optimal humidity and temperature. Thus, when the resuscitation process is carried out consistently and based on standard algorithms, complications in newborns are reduced and survival rates are significantly improved.

In conclusion, medical care provided to newborns in the intensive care unit is of decisive importance in reducing mortality and disability in the neonatal period. Correct and timely resuscitation measures carried out in the first minutes of a baby's life determine not only his survival, but also his subsequent physical and mental development.

Research and practical observations show that the effectiveness of the resuscitation process is directly related to the implementation of clear algorithms, the use of modern medical equipment, and the high qualification of medical personnel. An integrated approach to restoring breathing, supporting cardiac activity, ensuring thermoregulation, and preventing infections is an important factor in stabilizing the baby's condition.

At the same time, a preventive approach in neonatal resuscitation is also of great importance. Monitoring maternal health during pregnancy, conducting the delivery process correctly, and identifying at-risk infants in advance will help prevent serious complications.

Improving the system of neonatal intensive care, widely implementing international standards and protocols, and regularly improving the theoretical knowledge and practical skills of medical personnel will further improve the quality of neonatal care.

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