

A.M. Hromova, O.L. Hromova¹, N.I. Mitunina, V.B. Martynenko, V.M. Shafarchuk, Y.A. Orlova
 Poltava State Medical University, Poltava
¹Bogomolets National Medical University, Kyiv

THE ROLE OF PREVENTIVE OBSTETRICS IN REDUCING PERINATAL MORTALITY

e-mail: shafarchukvalentina@ukr.net

Implementing the latest technologies and programs aimed at helping the mother and the newborn contributed to the development of both perinatal and preventive obstetrics. The role of preventive obstetrics is aimed at predicting and preventing, if necessary, perinatal consequences. The World Health Organization has developed guidelines for effective perinatal care: evidence-based, demedicalized, technology-based, multidisciplinary, family-centered, and regionalized. In Ukraine, as in the world, among the causes of perinatal mortality, the death of premature children with meagre body weight (up to 70 %) and congenital malformations and anomalies (22–24 %) prevails. Perinatal obstetrics involves the development of a network of perinatal centres and hospitals according to the degree of development, as well as the reorganization and development of neonatal services. There should be provision of intensive therapy, the possibility of raising premature babies, and the availability of highly qualified specialists. Thus, the preventive direction of perinatal obstetrics should be based on deep knowledge of the basics of classical obstetrics during the physiological course of pregnancy and childbirth; limited (prohibitions), aggressive obstetrics with hyperpolarization of obstetric activity, which, as a rule, is based on a misunderstanding (ignorance) of perinatal obstetrics. “Management” of pregnancy and childbirth in case of risk (presence) of diagnosed fetal morbidity, manifestations of intrauterine infection, autoimmune pathology, and pathology of the placental complex in the presence of modern technologies that ensure the development of the newborn.

Key words: perinatology, development of obstetric hospitals, perinatal centers, regionalization, caesarean section.

А.М. Громова, О.Л. Громова, Н.І. Мітюніна, В.Б. Мартиненко, В.М. Шафарчук, Ю.А. Орлова РОЛЬ ПРЕВЕНТИВНОГО АКУШЕРСТВА У ЗНИЖЕННІ ПЕРИНАТАЛЬНОЇ СМЕРТНОСТІ

Втілення новітніх технологій і програм, які направлені на допомогу матері та новонародженому сприяло розвитку не тільки перинатального, а й превентивного акушерства. Роль превентивного акушерства спрямована на прогнозування та попередження, у разі потреби, перинатальних наслідків. Всесвітня організація охорони здоров'я розробила рекомендації щодо ефективного перинатального догляду, який має бути: заснованим на доказовій медицині, демедикалізованим, заснованим на належних технологіях, багато дисциплінарним, орієнтованим на сім'ю, та регіоналізованим. В Україні, як і у світі, серед причин перинатальної смертності переважає смерть дітей недоношених із екстремально низькою масою тіла (до 70 %) та з вродженими вадами розвитку і аномаліями (22–24 %). Перинатальне акушерство передбачає розвиток мережі перинатальних центрів і стаціонарів за ступенем розвитку, та реорганізацій і розвитку неонатальної служби. Повинно бути забезпечення інтенсивної терапії і можливостей виходжування недоношених дітей та наявність висококваліфікованих спеціалістів. Таким чином: превентивний напрямок перинатального акушерства повинен ґрунтуватися на глибокому знанні основ класичного акушерства при фізіологічному перебігу вагітності та пологів; обмежені (заборони), агресивного акушерства з гіперболізацією акушерської активності, яка, як правило, базується на нерозумінні (незнанні) перинатального акушерства. «Управління» вагітністю та розродженням у разі ризику (наявності) діагностованої захворюваності плода, проявів внутрішньоутробної інфекції, аутоімунної патології, патології плацентарного комплексу за наявності сучасних технологій, що забезпечують розвиток новонародженого.

Ключові слова: перинатологія, розвиток акушерських стаціонарів, перинатальні центри, регіоналізація, кесарів розтин.

The work is a fragment of the research project “Pathogenetic role of endothelial dysfunction and genetic features in pathology during pregnancy and gynecological diseases”, state registration No. 0119U005253.

The main goal of obstetrics is to preserve the mother's health and help her give birth to a healthy child because, during the period of intrauterine development of a person, a “scenario” of his health is laid for almost life. Given that the mother's body is the external environment for the development of the embryo and the fetus, its existence and preservation of life entirely, taking into account heredity, depends on the state of health of both the mother and the father. However, the state of the fetus-patient is not influenced by the ecosystem only internally but also externally. It should be noted that the risk of intrauterine diseases in the fetus is 50 times higher than in the last periods of a person's life. Fetal mortality exceeds the mortality of persons under the age of 65.

Implementing the latest technologies and programs aimed at helping the mother and the newborn contributed to the development of perinatal obstetrics – a system of prenatal care and assistance in childbirth and the early neonatal period. A feature of prenatal care is ensuring the health of the fetus and newborn, with the simultaneous development of the main obstetric problems related to the health of the mother.

It should be remembered that the physiological development of the fetus and newborn is ensured by pregnancy planning, a conscious attitude to the birth of a child, antenatal monitoring of fetal development, determination of the perinatal risk of pregnancy with intensive perinatal monitoring if necessary; fetal monitoring; medical and genetic counselling; timely examination for the leading causative agents of perinatal TORCH-infections, which increase the risk of the formation of perinatal pathology; psychological prophylactic preparation of the mother for childbirth; physiological childbirth; skin-to-skin contact; early attachment of the child to the mother's breast; joint stay of mother and newborn in the maternity hospital; breastfeeding babies; effective primary resuscitation of newborns.

The purpose of the study was to reflect the peculiarities of the development of preventive obstetrics to reduce perinatal mortality and morbidity.

Materials and methods. To determine the leading causes of perinatal mortality, we conducted a retrospective analysis of 6,527 birth histories and processed statistical data. We calculated perinatal mortality rates for three years through a retrospective analysis of pregnancy and childbirth histories of women who gave birth from 2021 to 2023. In 2021, we had 2,372 outpatient cards; in 2022 – 2,158; and 2023 – 1,997 outpatient cards from the city perinatal centre of the second level of the Poltava City Council, which is the clinical base of the Department of Obstetrics and Gynecology No. 1 of the State Medical University. Information about pregnant women and their newborns was entered into the database, and statistical results were processed using the Microsoft Excel program. Statistical processing of the obtained data was carried out using the Statistica 6.0 program. The obtained qualitative parameters are presented as absolute or relative shares (n, %).

Results of the study and their discussion. Thus, since 2021, the number of births has decreased: in 2022 – 214 fewer births compared to 2021, and in 2023 – 181 fewer births compared to 2021. It should be noted that, in addition to the decrease in the number of births, the fertility rate (FR) also decreases. In the Poltava region, the FR is significantly lower than in Ukraine. If the total birth rate in Ukraine is 1.23 %, then in the Poltava region it is 1.05 %. The state of war and migration of the predominantly female population have significantly reduced these indicators, which is a significant problem not only for the present but also for the future of Ukraine.

Indicators of perinatal mortality (PM) and its components, early neonatal mortality (NM) and stillbirth were calculated per 1,000 births and are listed in Table 1.

Table 1

Structure and parameters of perinatal mortality

Perinatal mortality			Early neonatal mortality			Stillbirths		
2021	2022	2023		2022	2023	2021	2022	2023
5‰	6‰	1.5‰	-	0.5‰	-	5‰	5.5‰	1.5‰

The indices listed in Table 2 are distinguished in the structure of perinatal mortality.

Table 2

Registration of stillbirths

Antenatal mortality			Intranatal mortality		
2021	2022	2023	2021	2022	2023
91.7 %	84.6 %	100 %	8.3 %	7.7 %	-

Analyzing the PS data presented in the table, it should be noted that in 2023 it was 4 times lower compared to 2022 and 3.3 times lower than in 2021. Antenatal fetal death prevailed in the structure of PM in all years. When analyzing birth stories, we noticed that with a decrease in the number of births, the morbidity of newborns increases. In 2021, 27.5 % of newborns were born sick; in 2022, the percentage was 29.4 %, and in 2023, it was 31.8 %. In the structure of the morbidity of newborns, infectious diseases prevailed: in 2021 – 18.4 %, in 2022 – 16.3 %, and in 2023 – 14.1 %, which is 0.7 less than in 2021. An attention-grabbing disorder in the structure of newborn diseases is the increase in the percentage of anemia at birth.

If in 2021, hemolytic disorders were diagnosed in 0.9 % of cases; anemia accounted for 88.2 %; in 2022, hematological disorders were detected in 1.4 %, anemia in 34.6 %, and in 2023 – 1.9 % and 90 %, respectively, which required the expansion of hematological studies.

Pre- and perinatal risk factors should also be assessed and considered. Prenatal: history of stillbirths; birth of children with congenital disorders (CD); death of previous children in the neonatal age; miscarriage; birth of children with chromosomal pathology in the mother's history; hereditary pathology in the family; mother's age is over 35 years.

Perinatal: extragenital pathology of the mother; dysfunction of the placenta; the threat of abortion; acute and chronic urogenital infections, the persistence of pathogens of perinatal TORCH-infections in the

mother; gestosis; bleeding during pregnancy; isosensitization by Rh, AB0; hydramnios and polyhydramnios; intrauterine growth restriction (IUGR); incorrect position of the fetus; premature rupture of membranes; placental abruption; fetal distress; pathological childbirth

According to the recommendations of the World Health Organization regarding effective perinatal care (1998), it should be based on evidence-based medicine, holistic; de-medicalized, based on appropriate technologies; multi-disciplinary; regionalized; aimed at involving women in the decision-making process; family-oriented; to take into account cultural traditions and peculiarities.

Particular attention should be paid to timely perinatal diagnosis, which is aimed at detecting defects in the development of the fetus, taking into account modern possibilities of correcting defects. Early diagnosis of placental and fetal function disorders in perinatal morbidity, intrauterine growth retardation syndrome and its causes is of great importance. It contributes to the improvement of perinatal and neonatal outcomes due to the reduction of both perinatal and neonatal mortality and the reduction of early and late neonatal morbidity. Such observation allows us to avoid particularly severe consequences in sick newborns, in case of their survival, to improve the quality of life of both newborns and their families.

The main tasks are improving perinatal care (WHO), reducing maternal mortality to 70 deaths per 100,000 live births, reducing the global neonatal mortality rate to 9 per 1,000 live births, and reducing the global stillbirth rate to 12 per 1,000 births by 2030 [2, 6].

In 2021, WHO published a new document, Maternal and Perinatal Death Surveillance and Response, to provide a roadmap for implementing MPDSR in clinical and policy settings.

This document is a practical step-by-step guide related to creating a basis for assessing maternal and neonatal mortality, as well as stillbirth [7].

Together with countries and global partners, the U.S. government is working to significantly reduce child and maternal mortality so that by 2035, all countries will have fewer than 20 deaths per 1,000 live births and fewer than 50 maternal deaths per 100,000 live births.

The first 28 days of life are the most vulnerable period for a child's survival. Globally, 2.3 million babies will die in their first month of life in 2021 – approximately 6,400 neonatal deaths every day. In 2021, the global average was 18 deaths per 1,000 live births, a 51 % decrease from 37 deaths per 1,000 live births in 1990. The probability of death in the first month after the first month and before the age of 1 year was estimated at 11 deaths per 1,000, and the likelihood of death after the first year and before the age of 5 years was estimated at 10 deaths per 1,000 in 2021.

Primary health care, a central component of all high-performance healthcare systems, is a significant means for essential and cost-effective interventions. It is a means for necessary and cost-effective health interventions, including maternal and newborn care, family planning, malaria, nutrition, routine immunization, and treatment of common childhood diseases, reducing child and maternal mortality, which can be prevented [8].

In addition, the increase in aggressive obstetrics requires intensive monitoring of newborns.

Analysis of the indicators of surgical delivery of the Poltava perinatal centre of the second level, it should be noted that a caesarean section in 2021 was performed in 571 women, which was 24 %, in 2022, 566 (25.8 %) in 2023, 518 (25.9 %), respectively. Among the indications, uterine scars after a previous cesarean section prevail: in 2021, out of 571 cesarean section operations in 139 women, which amounted to 24.3 %, the indication was a scar with suspicion of its failure; in 2022, 155 – 27.7 %, and in 2023 – 24.5 %, respectively. Almost every fourth woman after a previous cesarean section resolves labor surgically.

This trend continues both in the region and in Ukraine. In 1980–1990, the frequency of cesarean sections did not exceed 3 %. Perinatal mortality decreased from 18–20 % to 12–13 %. Maternal mortality also decreased. From 2000 to 2010, in Ukraine, 10–14 % of births were performed by caesarean section (about all deliveries). From 2008 to 2018, the frequency of caesarean sections in the Poltava region increased from 14 % to 19.9 %, and the average rate of childbirth by caesarean section in Ukraine is 18–25 %.

Caesarean section surgery has changed attitudes towards other obstetric surgeries. Childbirth injuries have decreased (injuries to the spinal cord, dura mater, bone system). Significantly reduced fetal pathology with intrauterine suffering [9].

WHO recommendations today:

1. Caesarean section is effective in saving the life of mother and child, but only when they are needed for medical reasons.

2. At the population level, caesarean section rates above 10 % are not associated with decreased maternal and infant mortality.

3. Caesarean delivery can cause significant and sometimes permanent complications, disability or death, especially in settings where there is a lack of facilities to perform safe operations and treat surgical complications properly. Caesarean sections should ideally be performed only when medically necessary.

4. Every effort should be made to provide a caesarean section to women who need it rather than striving to achieve a certain percentage of these operations.

5. The effect of the caesarean section rate on other outcomes, such as maternal and perinatal morbidity, pediatric outcomes, and psychological or social well-being, is still understudied and unclear. More research is needed to understand the health effects of caesarean section on immediate and future outcomes.

The ideal caesarean section rate should be from 10 to 15 % [11].

The strategy of perinatal care at the current level includes the regionalization of obstetric and neonatological care according to the level of its provision.

I – hospital level for the care of healthy women with an uncomplicated pregnancy;

II – for high-risk pregnant women;

III – for high-risk pregnant women.

The three-level system provides for the distribution of medical services between maternity and childhood care facilities by the levels of perinatal care, and above all, the concentration of modern equipment is envisaged to ensure the timely provision of medical care according to the level. Improve organizational and medical technologies for newborn care by integrating obstetric and neonatological care into perinatal care. Reducing the risk of disability of newborns in the care of profoundly premature and sick infants [1].

Thus, perinatal obstetrics can function in the presence of the development of a network of perinatal centres and obstetric hospitals by degrees of risk.

Reorganization and development of the neonatology service in the direction of provision of intensive fetal therapy; possibilities of modern resuscitation of newborns; review of the system for the care of premature children; training of highly qualified perinatologists and neonatologists.

Conclusion

The preventive direction of perinatal obstetrics should be based on deep knowledge of the basics of classical obstetrics during the physiological course of pregnancy and childbirth.

Restriction (prohibition) of aggressive obstetrics with hyperbolization of obstetric activity, which, as a rule, is based on misunderstanding (ignorance) of perinatal obstetrics.

“Management” of pregnancy and childbirth in case of risk (presence) of diagnosed fetal morbidity, manifestations of intrauterine infection, autoimmune pathology, and pathology of the placental complex in the presence of modern technologies that ensure the development of the newborn.

References

1. Ketova OM. Vady rozvytku embrioniv i plodiv: svitovyy dosvid. Ukrainian Journal Health of Woman. 2023. 3(166): 44–49; doi: 10.15574/HW.2023.188.44. [in Ukrainian]
2. Tarasenko KV, Hromova AM, Shafarchuk VM, Nesterenko LA. Zrostannya chastoty kesarevoho roztynu yak problema suchasnoho akusherstva. Ukrayinskyy zhurnal medytsyny, biolohiyi ta sportu. 2019. 4. № 5, 197–201; doi: 10.26693/jmbs.04.05.19 [in Ukrainian]
3. Atkins B, Kindinger I, Mahindra MP, Moatti Z, Siassakos D. Stillbirth: prevention and supportive bereavement care. BMJ Med. 2023 Jun 27;2(1): e000262 doi: 10.1136/bmjmed-2022-000262
4. Hajji AA, Daba M. Preventing maternal and child mortality: upcoming WHO Resolution must galvanise action to tackle the unacceptable weight of preventable deaths. Lancet Glob Health. 2024 May 20: 2214–109 (24) 00220-1. doi:10.1016/2214–109 (24)00220-1.
5. Indications for Outpatient Antenatal Fetal Surveillance: ACOG Committee Opinion, Number 828. Obstet Gynecol. 2021 Jun 1;137(6): 177–197. doi: 10.1097/AOG.0000000000004407.
6. Maternal and perinatal death surveillance and response: materials to support implementation. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO vol.48 doi: 10.2471/BLT.22.288703
7. Volosovets O, Abaturov A, Beketova G, Zabolotko V, Rudenko N, Kryvopustov S. Birth rate, perinatal mortality and infant mortality in Ukraine: evolution from 1991 to 2021 and current risks. CHILD'S HEALTH, 17(7), 315–325. (2023); doi:10.22141/2224-0551.17.7.2022.1535
8. Partnership for Maternal N& CH, Member. 2017 progress on the Every Woman Every Child Global Strategy; 2017. p. 1–79.
9. Willcox ML, Okello IA, Maidwell-Smith A, Tura AK, van den Akker T, Knight M. Maternal and perinatal death surveillance and response: a systematic review of qualitative studies. Bull World Health Organ. 2023 Jan 1;101(1):62–75G. doi: 10.2471/BLT.22.288703.
10. World Health Organization. Every newborn action plan: country progress tracking report. 2015. 48 doi: 10.1053/j.semperi.2015.06.004.
11. World health Organization. Strategies toward ending preventable maternal mortality (EPMM). Geneva: WHO; 2015. p. 1–4. vol. 6736
12. World Health Organization. Health in 2015: from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals, 204. World Health Organization; 2015; 45.
13. WHO statement on caesarean section rates. Geneva: World Health Organization; 2015(WHO/RHR/15.02; http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement, accessed 31 May 2018), 53.