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ORGANIZATION OF PERINATAL CARE IN UKRAINE DURING THE COVID-19 PANDEMIC

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The purpose: *analysis of the organization of perinatal care in Ukraine during the COVID-19 pandemic.* ***Materials and methods.*** *The research materials were the legislative base of Ukraine on the specified issue, the following research methods were used: bibliosemantic and the method of structural-logical analysis.* ***The results.*** *In Ukraine, organizational measures, most clinical aspects, in particular case identification, hospitalization according to clinical criteria, groups at risk of developing complications of the disease, provision of non-specific treatment, etc., are regulated by the order of the Ministry of Health of Ukraine dated 03/28/2020 No. 722 "Organization of medical care for patients with coronavirus disease (COVID-19)", and are implemented in health care institutions by developing clinical patient routes and local protocols. The treatment of coronavirus disease and vaccination of pregnant women is regulated by general regulatory documents, separate legal acts regarding the management of pregnant women and their vaccination were not adopted. The impact of the pandemic on perinatal care and the course of pregnancy in uninfected women remains poorly researched.* ***Conclusions.*** *Health services must develop plans to minimize the impact of both infections and appropriate restrictions on pregnant women, maintain the effectiveness of perinatal care in the face of outbreaks of dangerous quarantine infections, while continuing to provide both routine and emergency obstetric care.*

Key words: *pandemic, COVID-19, organization of perinatal care, pregnant women, newborns*

Perinatal care plays an important role in reducing the risk of stillbirth, reducing neonatal mortality, minimizing hospitalization of newborns in the neonatal intensive care unit [21].

Compared to previous epidemics such as severe acute respiratory syndrome and Middle East respiratory syndrome, the COVID-19 pandemic had a greater global impact and lasted longer [27]. Moreover, although the impact of COVID-19 has decreased compared to the beginning of 2020, new variants are still spreading worldwide [19].

Much of the initial clinical recommendations were based on extrapolation of data and experience in the treatment of other respiratory viruses. However, the specifics of SARS-CoV-2 require a specific understanding of the pathophysiology and treatment approach. During the early phase of the coronavirus disease 2019 (COVID-19) pandemic, pregnant women faced uncertain maternal and perinatal risks associated with SARS-CoV-2 [28].

According to published data, the prevalence of SARS-CoV-2 infection among pregnant women was 3-20% with a wide spectrum of severity, ranging from asymptomatic to extremely severe [16].

Management of pregnant women with coronavirus disease 2019 (COVID-19) is similar to that of nonpregnant women, and effective treatment, including antiviral therapy, dexamethasone, and prophylactic anticoagulants, should not be withheld during pregnancy [18].

During the early period of the COVID-19 pandemic, management of pregnant women was often delayed until polymerase chain reaction (PCR) results were available, or even among those without symptoms. In view of the spread of the infection, a cesarean section was performed instead of a vaginal delivery to prevent transmission during

delivery. In addition, if the mother's PCR test was positive, the separation of mother and child was practiced. At present, such recommendations have been revised. Most guidelines support placing newborns with an infected mother using a mask and maintaining hygiene, especially if the mother does not have fever or symptoms [12].

The majority of newborns from mothers infected with SARS-CoV-2 are not infected and are born in a satisfactory condition [20]. Neonatal morbidity (in particular, the need for artificial lung ventilation) is mostly associated with premature birth and adverse conditions of intrauterine development due to the critical illness of the mother due to COVID-19 [25, 26]. Neonatal adverse outcomes are believed to be the result of maternal hypoxia rather than direct exposure to the pathogen. Guan et al. [14] reported that fetal complications of COVID-19 include miscarriage (2%) and intrauterine growth retardation (10%). Lokken et al. [20] suggested that children born to mothers with severe or critical COVID-19 at the time of delivery are more likely to have a low birth weight (< 2500 g) and to be hospitalized in the neonatal intensive care unit for fetal reasons.

The results of the meta-analysis showed that the cumulative prevalence of preterm birth, maternal mortality, intensive care unit admission, and neonatal death was significantly higher in the group with COVID-19 infection than in the group without COVID-19 infection. Vertical transmission from mother to fetus is possible, but its immediate and long-term consequences for the newborn are unclear [23].

Vaccination reduces the risk of progression of COVID-19 to a severe or critical form and the need for hospitalization of pregnant women [22, 24].

In order to prepare for future pandemics, it is necessary to learn the lessons that this pandemic has provided, to improve preparation and response to new infections that may arise in the future. Health care providers must identify effective and reliable strategies to maintain safe maternal care even during global emergencies [18].

The purpose: analysis of the organization of perinatal care in Ukraine during the COVID-19 pandemic.

MATERIALS AND METHODS

The research materials were the legislative base of Ukraine on the specified issue, the following research methods were used: bibliosemantic and the method of structural and logical analysis

RESEARCH RESULTS AND THEIR DISCUSSION

In Ukraine, organizational measures, most clinical aspects, in particular case identification, hospitalization according to clinical criteria, groups at risk of developing complications of the disease, provision of non-specific treatment, etc., are regulated by the order of the Ministry of Health of Ukraine dated 03/28/2020 No. 722 "Organization of medical care for patients with coronavirus disease (COVID-19)" [7], and are implemented in health care institutions by developing clinical patient routes and local protocols.

According to the order, pregnant women with suspicion of COVID-19 are hospitalized in a maternity hospital, determined by the structural unit for health protection of the relevant administrative territory, regardless of the period of pregnancy. Pregnant women with suspected COVID-19 are treated in accordance with the above standards, taking into account the standards of pregnancy management. The use of medicinal products outside the scope of the instructions for them should be based on an analysis of risk and benefit (potential benefit for the mother and safety for the fetus) and should be prescribed exclusively by the decision of a council of doctors (medical and advisory commission) consisting of at least:

1) deputy chief physician;
2) an obstetrician-gynecologist;
3) pediatrician;
4) a therapist;
5) an infectious disease doctor (if necessary);
6) radiologist (if needed);
7) an anesthesiologist

The decision regarding emergency childbirth and termination of pregnancy is considered by the above-mentioned council of doctors, and takes into account the following factors: pregnancy period; mother's condition; stability of the fetus.

The specifics of providing medical care to pregnant women with suspected COVID-19 are listed in Appendix 13 to the Standards of Medical Care "Coronavirus Disease (COVID-19)". The main recommendations of which are given below.

When providing outpatient medical care to pregnant medical workers, it is necessary to adhere to the schedule of visits in accordance with the pregnancy management plan. Moreover, consultations that do not require research and ultrasound should be conducted remotely. Women who have to undergo a mandatory examination should agree on an appointment in advance to avoid contact with other patients.

Pregnant women with symptoms that may indicate COVID-19 are recommended to self-isolate, control body temperature, and immediately notify their family doctor and obstetrician-gynecologist.

If a pregnant woman with suspected or confirmed COVID-19 infection has no labor, no obstetric pathology is detected, and the course of the disease is determined to be mild, she remains in self-isolation with daily information about her condition to the family doctor and obstetrician-gynecologist, who provide active remote monitoring of the condition female patients

During self-isolation of pregnant women with suspected or confirmed COVID-19 infection, planned visits to specialists are postponed until the end of isolation if possible. If a pregnant woman has to undergo planned examinations that cannot be postponed, the patient is assigned a time to undergo the examination last.

Pregnant women must be referred to a specialized maternity hospital designated by the structural unit for health care to provide assistance to pregnant women with suspected or confirmed COVID-19 infection in the event of:

- the beginning of labor in a patient who was in self-isolation;
- if a pregnant woman with suspected or confirmed infection with COVID-19 has a severe or moderate course of the disease, severe concomitant extragenital or obstetric pathology with confirmation of COVID-19;
- indications for hospitalization related to obstetric or exacerbation of extragenital pathology.

When receiving a patient with suspected or confirmed COVID-19, it is necessary to provide for the absence of contact with other patients. If possible, arrange for the pregnant woman to be admitted immediately to a boxed ward, where she will be examined and medical documentation processed.

The reception department of the institution, in addition to the standard equipment list, is equipped with a pulsoximeter, an ultrasound machine, a cardiac monitor for diagnosing the state of the fetus, an oxygen supply and the ability to immediately start oxygen therapy if necessary.

The method of delivery is chosen, taking into account obstetric indications, except for the situation when the woman has developed respiratory failure, which requires immediate delivery.

In childbirth, constant electronic monitoring of the fetus and saturation should be carried out. Saturation in childbirth in a maternity ward with suspected or confirmed COVID-19 should be at least 94%. Decisions to shorten the duration of the 2nd period of childbirth are made individually if the woman's condition worsens.

Child care in the delivery room should be carried out in accordance with the standards (compliance with the conditions of the thermal chain).

Symptomatic treatment of viral or viral-bacterial pneumonia and its complications is carried out according to existing standards.

Obstetric care should be provided in full and the necessary urgent delivery should not be delayed.

A newborn from a mother with confirmed COVID-19, who does not require medical assistance, is discharged home with remote monitoring of the condition by a primary care physician.

A newborn born to a mother with suspected or confirmed COVID-19 who requires medical care is transferred to the intensive care unit if the child's condition requires it.

If the mother is transferred to another institution, and the child is discharged home, the discharge is carried out immediately after the transfer or as soon as the child's condition

allows. If the mother remains in a maternity hospital, the child can be left with the mother.

Women with COVID-19 can breastfeed as long as they choose to take precautions, including: practicing respiratory hygiene while breastfeeding, including wearing a mask, and maintaining hand and breast hygiene.

The Ministry of Health of Ukraine updated the standards of medical care for COVID-19 in connection with the end of the quarantine by Order No. 1396 dated August 2, 2023 [4]. The main changes were related to the following. There is no longer a clinical pathway for a patient that meets the definition of a COVID-19 case. The list of persons who need to take rapid or ELISA tests for COVID-19 has been shortened. The list of persons who must undergo PCR has been shortened. You no longer need to monitor your contacts. It is no longer necessary to inform territorial centers of disease control and prevention about the results of treatment and self-isolation of covid patients. The epidemiological criteria for determining a case of COVID-19 have changed.

An important component of antenatal care when a pregnant woman is infected with COVID-19 is the choice of scientifically proven treatment for the mother that is safe for the fetus [21].

Treatment of COVID-19 during pregnancy from the standpoint of antenatal care of the fetus requires a multidisciplinary approach with clinical assessment taking into account the risk of deterioration, hypoxia, the need for artificial ventilation, and decision-making regarding continued treatment or induced labor. Cooperation between specialists (obstetricians-gynecologists, anesthesiologists, pediatricians, infectious disease specialists, pharmacists, pharmacologists, pharmacoepidemiologists, and hematologists) is extremely important for the adaptation of national recommendations [13, 15, 21].

In Ukraine, the provision of medical assistance to patients with COVID-19, in particular pregnant women, is carried out in accordance with the protocol "Providing medical assistance for the treatment of coronavirus disease (COVID-19)", approved by the order of the Ministry of Health of Ukraine dated April 02, 2020 No. 762 (with changes) [8]. This protocol is part of the normative legal acts approved by the Ministry of Health of Ukraine for the purpose of combating the coronavirus disease (COVID-19).

At the time of the protocol update, there is no specific antiviral treatment for coronavirus disease (COVID-19). The clinical protocol contains information on medicinal products that are registered with other indications or are not registered in Ukraine, but are used for the treatment of certain groups of patients with the coronavirus disease (COVID-19) in the countries defined by the Law of Ukraine dated 30.03.2020 No. 539-IX "On Amendments to Some Laws of Ukraine Regarding Provision of Treatment for the Coronavirus Disease (COVID-19)" [3].

Medicines are prescribed taking into account the individual course of the disease, concomitant pathology and the presence of contraindications, subject to obtaining informed consent.

Vaccination against COVID-19 in Ukraine was carried out on the basis of the following documents:

- Law of Ukraine 1645-III "On the Protection of the Population from Infectious Diseases" [1],
- Law of Ukraine 4004-XII "On Ensuring the Sanitary and Epidemic Welfare of the Population" (the Law expired on October 1, 2023 on the basis of Law No. 2573-IX dated September 6, 2022) [2];
- Resolution of the Chief State Sanitary Doctor of Ukraine dated April 22, 2020 No. 13 "On the organization of immunization measures in the conditions of the coronavirus disease (COVID-19) pandemic" [10];
- Order of the Ministry of Health of Ukraine dated 24.12.2020 No. 3018 "On the approval of the Roadmap for the introduction of a vaccine against acute respiratory disease COVID-19, caused by the SARS-CoV-2 coronavirus, and mass vaccination in response to the COVID-19 pandemic in Ukraine in 2021- 2022" [6];
- Program provisions of the WHO regarding vaccination during the COVID-19 pandemic and reducing the risk of SARS-CoV-2 transmission during vaccination [11].

However, these documents did not define special conditions for vaccination of pregnant women. At the initial stages of vaccination, pregnant women were afraid to vaccinate, given the lack of research into the safety of the proposed vaccines. Subsequently, pregnant

women were included in the risk group of a severe course of the disease and priority vaccination against SARS-CoV-2.

Vaccination is strongly recommended by all international guidelines, regardless of the period of pregnancy.

On July 1, 2023, quarantine due to the coronavirus pandemic ended in Ukraine. According to the recommendations of the WHO, the first to be vaccinated are risk groups, including pregnant women. The Ministry of Health of Ukraine updated the recommendations on vaccination against COVID-19, approving the Order of the Ministry of Health of Ukraine dated 27.09.2023 No. 1700 "On the implementation of subsection 1.1 of paragraph 1 of the Decision of the operational staff of the Ministry of Health of Ukraine on responding to situations of the spread of infectious diseases diseases that can be prevented by vaccination from September 15, 2023" [5], which approved the positions of the National Technical Group of Experts on Immunoprophylaxis (NTGEI) No. 04-09/2023 [9]. According to these recommendations, groups with the highest risk of death from COVID-19 (elderly people over 60 years of age, adults under 60 years of age with serious comorbidities or severe obesity) can receive the third booster vaccination in the first place, other medical risk groups (immunocompromised adults, adolescents and children from 6 months, pregnant women, medical workers). Representatives of other population groups can receive an additional booster at their own request and provided that there is a sufficient number of vaccine doses for vaccination of priority groups.

A separate important topic of the perinatal consequences of COVID-19 is the impact of the pandemic on perinatal care and the course of pregnancy in uninfected women.

The pandemic also had a negative impact on uninfected pregnant women. In this regard, Zheng et al. reported in a systematic review and qualitative meta-synthesis study that the COVID-19 pandemic has disrupted reproductive plans and routine care for pregnant women. Because the availability and quality of maternal care play a critical role in maternal and fetal outcomes, it is suggested that government or health care providers balance restrictions and access to maternal care during future pandemics [29].

A systematic review was conducted that synthesized the results of nine qualitative studies to identify women's experiences of pregnancy and antenatal care during the COVID-19 pandemic [17]. Five common areas of experience of pregnant women during care and receiving prenatal care services in hospitals during the COVID-19 pandemic were identified: 1) disruptions in the work of usual prenatal care services, 2) feelings of insecurity, 3) desire for sufficient support from the partner, 4) coping strategies and 5) trust in health care providers.

In Ukraine, there were no systematic studies of the impact of the pandemic on perinatal care and the course of pregnancy in uninfected women, only certain aspects of the problem were considered, mostly the impact of stress associated with the pandemic.

CONCLUSIONS

Outbreaks of infectious diseases pose significant challenges to health care facilities, including perinatal care systems.

Health services must develop plans to minimize the impact of both infections and appropriate restrictions on pregnant women, maintain the effectiveness of perinatal care in the face of outbreaks of dangerous quarantine infections, while continuing to provide both routine and emergency obstetric care.

At the same time, it is necessary to take into account measures to combat the spread of infections, using telemedicine tools if possible and limiting contact with patients, quick updating of recommendations as new information becomes available, taking into account the experience of other countries, timely informing and training medical personnel, informing the population with the involvement of mass media, a multidisciplinary approach to management of patients with the mandatory involvement of psychologists, wide vaccination coverage of all segments of the population, especially the most vulnerable, which include pregnant women, provision of medical care facilities with drugs, vaccines, necessary equipment and Internet supplies.

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РЕЗЮМЕ

ПЕРИНАТАЛЬНІ АСПЕКТИ МЕДИЧНОЇ ДОПОМОГИ ПРИ COVID-19

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Мета роботи: аналіз організації перинатальної допомоги в Україні під час пандемії COVID-19. **Матеріали та методи** Матеріалами дослідження слугувала законодавча база України із зазначеного питання, застосовували наступні методи дослідження: бібліосемантичний та метод структурно-логічного аналізу. **Результати.** В Україні організаційні заходи, більшість клінічних аспектів, зокрема визначення випадку, госпіталізації за клінічними критеріями, групи ризику розвитку ускладнень захворювання, надання неспецифічного лікування тощо врегульовані наказом МОЗ України від 28.03.2020 р. № 722 «Організація надання медичної допомоги хворим на коронавірусну хворобу (COVID-19)», та впроваджуються в закладах охорони здоров'я шляхом розробки клінічних маршрутів пацієнтів та локальних протоколів. Лікування коронавірусної хвороби та вакцинація вагітних регулюється загальними нормативними документами, окремі правові акти, щодо ведення вагітних і їх вакцинації не приймались. Мало дослідженим лишається вплив пандемії на перинатальний догляд і перебіг вагітності у неінфікованих жінок. **Висновки.** Служби охорони здоров'я повинні розробити плани мінімізації впливу як інфекцій, так і відповідних обмежень на вагітних жінок, збереження ефективності перинатального догляду в умовах спалахів небезпечних карантинних інфекцій, продовжуючи надавати як звичайну, так і невідкладну акушерську допомогу.

Ключові слова: пандемія, COVID-19, організація перинатальної допомоги, вагітні, новонароджені.