

COVID-19 in Newborns and Care**Yenidoğanda COVID-19 ve Bakım**Yeter ÇUVADAR¹ Ayşe ÇUVADAR²**ABSTRACT**

The new type of Coronavirus (COVID-19), which is spread all over the world from Wuhan city of China, is one of the biggest threats in the world in recent years. Although COVID-19 infects individuals of all age groups, both its transmission and spread rate and mortality are high. Newborns; the immune system is immature, although unproven maternal vertical transition is in high risk group due to the possibility of perinatal contact through stool and urine during vaginal deliveries and close contact with the asymptotically infected mother after birth. It is of great importance that the midwife / nurse, who spends the most time with the patient during the pandemic period, constantly improves themselves and updates their knowledge. This review article is planned to make recommendations for midwives / nurses to take appropriate approach to COVID-19 suspected and definitive diagnosed neonates.

Key Words: COVID-19, Newborn, Midwifery, Nursing

ÖZ

Çin'in Wuhan kentinden tüm dünyaya yayılan yeni tip Koronavirüs (COVID-19), son yıllarda dünyanın yaşadığı en büyük tehditlerinden biridir. COVID-19 tüm yaş gruplarından bireyleri enfekte etmekle beraber, hem bulaşma hem de yayılma oranı ve ölüm oranı yüksektir. Yenidoğanlar; bağışıklık sistemi olgunlaşmamış, ancak vajinal doğumlar sırasında dışkı ve idrar yoluyla perinatal temas olasılığı ve doğumdan sonra asemptomatik olarak enfekte anne ile yakın temas nedeniyle kanıtlanmamış maternal dikey geçiş yüksek risk grubunda yer almaktadır. Pandemi sürecinde hasta ile en fazla vakit geçiren ebe / hemşirenin sürekli kendini geliştirmesi ve bilgilerini güncellemesi büyük önem taşımaktadır. Bu derleme makalesi, ebe/ hemşirelere COVID-19 şüpheli ve kesin tanı konmuş yenidoğanlara uygun yaklaşımı benimsemeleri için önerilerde bulunmak üzere planlanmıştır.

Anahtar Kelimeler: COVID-19, Yenidoğan, Ebelik, Hemşirelik

Introduction

The first case of COVID-19 was officially detected by the World Health Organization (WHO) in a traveler visiting the Wuhan province of China in Washington state (1), and in March 2020, WHO made an assessment that COVID-19 could be considered an epidemic (2). Many studies from the day of the epidemic to the present COVID-19 was examined in adults, but study data on the clinical features of the outbreak in newborns are not sufficient (3). The epidemic raised the question of whether the SARS-CoV-2 can be transmitted from pregnant

woman to the fetus by the method of transmission called vertical transmission. This question makes the epidemic not only an important public health problem but also an obstetric management problem affecting mother and newborn health (4). There is no evidence yet that SARSCoV- 2 can be transplacentally transmitted from mother to newborn. However, different age groups are known to be sensitive to SARS-CoV-2. Treatment and care strategies for newborns diagnosed with COVID-19 are based on adult

Geliş Tarihi/Recieved:11-12-2020 **Kabul Tarihi/Accepted:**23-01-2021 **Çevrimiçi Yayın Tarihi/Avialible Online**

Date:15.01.2021

¹Gedik Üniversitesi / MYO / Öğretim Görevlisi, e-mail:Yetercuvadar1@outlook.com, ORCID: 0000-0001-2345-6789

²Sağlık Bilimleri Üniversitesi / Ebelik Doktora Öğrencisi e-mail:aysecuvadar@hotmail.com, ORCID: 0000-0002-7917-0576

Sorumlu yazar/Correspondence: Ayşe Çuvadar, e-mail: aysecuvadar@hotmail.com

Cite this article as: Çuvadar Y, Çuvadar A. COVID-19 in Newborns and Care. J Health Pro Res 2021;3(1):39-42

experience, which is a major challenge (5).

Effect on Fetus

Mothers who are positive for the COVID-19 test with available data do not have a higher risk of abortion or preterm labor, and the infection is unlikely to cause congenital anomalies (6). Few cases of intrauterine infection confirmed so far (7). However; pregnancy itself causes some changes in the immune system (6; 8) and especially in the 3rd trimester of pregnancy, the response to viral infections in general can be serious in COVID-19 as it can cause serious symptoms and indirectly affect the fetus (6). This suggests that having COVID-19 infection during pregnancy may still have an impact on any fetal stress, potential preterm delivery and respiratory distress, due to insufficient data available (7). Considering the data obtained from previous coronavirus outbreaks; It can be said that the infection may have a negative effect on pregnant women and their fetuses with the rate of entry into high intensive care unit and 35% mortality rate (9).

Ways of Transmission

Infection can be transmitted to children of all ages, including newborns and young children (7). It is thought that the early maternal-fetal interface could not pass from mother to fetus through COVID-19 transplacental vertical transmission (3,7,10). due to the very low expression of ACE2 receptors in almost all cell types (3). But intrauterine conduction should never be ignored (8). However, during vaginal delivery, active pushing when wearing a mask can be difficult for the mother, and infection to the newborn can be transmitted through droplets or feces during childbirth. Also, the newborn may become infected if it remains in close contact with the infected mother, that is, if isolation cannot be achieved (3).

Diagnosis

Whether there is an transmission to the newborn; RT - PCR tests should be performed on maternal cervical secretion, maternal rectal swab, breast milk, amniotic fluid, newborn throat swabs and newborn rectal swab. Maternal and neonatal serum samples should be used to test immunoglobulin G (IgG) and immunoglobulin M (IgM) antibodies (5). However, when the viral load is not high enough, the detection rate of existing methods is limited and false negative results may occur.

In this case, although the results of nucleic acid detection of cord blood and placenta are negative, it does not support the diagnosis of intrauterine conduction, but the possibility of vertical intrauterine conduction of SARS-CoV-2 should not be excluded(8) Performing chest x-ray, lung and abdominal ultrasonography will also strengthen the diagnosis (11).

The Course of the Disease

SARS-CoV-2 is thought to have a strong transmission capacity in special populations (newborn, child) (5). Neonatal infection may start insidiously and progress with nonspecific findings and there is no special clinical finding for newborns, especially premature children (11). The Chinese Perinatal and Neonatal Management Working Committee published a guideline for the prevention and control of the 2019 new COVID19 epidemic, based on previous studies on SARS-CoV and MERS-CoV, where recent studies on COVID-19 were systematically reviewed (8). First in the guide; COVID-19 shows mild symptoms in the newborn, but has a higher risk of transmission and spread rate than SARS; (3) secondly; studies have shown that there are no transplacental vertical conduction transmissions, except for a few premature neonates, and clinical signs associated with maternal infection in the newborn (12,13). In positive newborns, dyspnea, vomiting, cough and fever were detected symptomatically. It was explained that the vital signs of these newborns were stable and their symptoms were mild. Unlike adults, dyspnea is not seen in newborns (3). However, in a planned study; It has been shown that COVID-19 may have negative effects in newborns and death may accompany problems such as fetal distress, preterm labor, respiratory distress, thrombocytopenia, and liver dysfunction (13). In a case report; The case developed thrombocytopenia, leukocytosis and coagulopathy. Asphyxia and sepsis have been observed in newborns who have had the most severe disease to date (10).

Treatment

Symptomatic and supportive therapy; it is the main treatment method for patients with SARS-CoV-2 infection, including oxygenation, liquid electrolyte balance and acid-base balance (5). No drug trials or tests have been identified in newborns. Most of the publications that commented on treatment mentioned supportive

therapy such as oxygen therapy and antibiotics for bacterial infections. In severe cases, antiviral therapy has been recommended. However, data on COVID-19 newborn activity are missing (7). Newborn treatment does not usually require pharmacological treatment; no dose has been reported in cases requiring antiviral or antibacterial therapy (3). For newborns with severe acute respiratory distress syndrome, high-dose surfactant, inhaled nitric oxide and high-frequency oscillatory ventilation (HFOV) have been described as effective (3,10). In more severe cases, continuous renal replacement therapy and extracorporeal membrane oxygenation (ECMO) have been recommended. For these newborns, treatment and care should be performed by a multidisciplinary team of neonatal intensive care specialists, pulmonologists, radiologists, infection specialists, and midwives / nurses (3). In treatment, it is very important to screen pregnant women and strict infection control measures, separate isolation of infected mothers and babies and close monitoring of newborns at risk of COVID-19 (10).

Midwifery and Nursing Management

Firstly; suspicious babies should be isolated in a separate room from babies diagnosed with COVID-19 and should receive care by midwives / nurses, both wearing personal protective equipment. Newborns with COVID-19 should be placed in negative pressure rooms (5) In order to prevent neonatal transmission, the newborn should be isolated separately from the mother (5,14,15). Neonatal newborns and preterm newborns of symptomatic or asymptomatic mothers diagnosed with COVID-19 should be isolated in the neonatal intensive care unit (6). In addition, visitor restrictions should be made for newborns diagnosed with COVID-19 (5). In the neonatal intensive care unit, midwives / nurses should take droplet and contact isolation measures while giving care to the newborn (6). Suspicious or definitive diagnosed babies are followed in incubator, open beds are not recommended. Tools used in patient care should be kept special for the patient (11). Delayed cord clamping, mother-baby contact and breastfeeding are not recommended in newborns (3). But given the benefits of breast milk; the mother should be encouraged to milk, provide the necessary training and feed the baby with breast milk

(16,17,18). Nutrition method is decided according to the infection status of the mother (11). In case the infection of the mother progresses asymptotically, the breastfeeding process should be carried out in accordance with the hygiene rules and by taking the necessary isolation measures according to the evaluation of the midwife / nurse (18). Mothers and other family members should be trained in the milk supply, storage, protection and feeding of the mother to ensure the nutrition and maintenance of the newborn (6). Hemodynamically should be provided by maintaining the acid-base and liquid-electrolyte balance of the newborn, where nutritional interventions are applied. Airway patency of the newborn should be provided, respiratory and oxygen supplements should be provided when necessary (7). The midwife / nurse is responsible for monitoring the newborn and providing the appropriate position in order to prevent complications due to aspiration (19).

Conclusion

The COVID-19 pandemic poses a danger to all individuals, including newborns. The forms of approach in this outbreak change dynamically, with information learned from old outbreaks, as well as new information learned. Clinical data on COVID-19 infection in newborns is still limited and it is uncertain whether SARS-CoV-2 can pass through transplacental transmission and will be short- and long-term damage to the newborn. In the light of the data obtained so far; although newborns have mild disease compared to adults, they can transmit the infection. Midwives / nurses are also required to provide quality midwifery / nursing care to the newborn by constantly improving themselves and updating their knowledge during the pandemic process

References

1. Hageman JR. (2020) The Coronavirus Disease 2019 (COVID-19). *Pediatric Annals* 49(3): 99-100.
2. World Health Organization. WHO Director- General's remarks at the media briefing on 2019-nCoV on 11 February 2020. <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>. (Accessed Date: 10.05.2020)
3. Paraluppi V. et al. (2020) COVID-19 in newborns and in children: the state of the art.

Journal of Pediatric and Neonatal Individualized Medicine 9(1): e090138.

4. Schwartz DA. (2020) An Analysis of 38 Pregnant Women with COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2: Maternal Coronavirus Infections and Pregnancy Outcomes. College of American Pathologists. doi: 10.5858/arpa.2020-0901-SA

5. Xiong X. et al. (2020) Vaginal delivery report of a healthy neonate born to a convalescent mother with COVID-19. J Med Virol: 1-3.

6. Ortiz EI., Herrera E. & De La Torre A. (2020) Coronavirus (COVID-19) Infection in Pregnancy. Colombia Medica. <http://doi.org/10.25100/cm.v51i2.4271>

7. Ludvigsson JF. (2020) Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. Acta Paediatrica 109:1088–1095.

8. Wang L. et al. (2020) Working Committee on Perinatal and Neonatal Management for the Prevention and Control of the 2019 Novel Coronavirus Infection. Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition). Ann Transl Med 8(3):47.

9. Zaigham M. & Andersson O. (2020) Maternal and perinatal outcomes with COVID-19: A systematic review of 108 pregnancies. Acta Obstet Gynecol Scand 00:1–7.

10. Zeng L. et al. (2020) Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China. JAMA Pediatrics. doi:10.1001/jamapediatrics.2020.0878

11. Ovalı F. (2020) COVID-19 Infections in Newborns. Anatolian Clinical 25(1): 23-35.

12. Li N. et al. (2020) Maternal and neonatal outcomes of pregnant women with COVID-19 pneumonia: a case-control study. medRxiv preprint. 2020;2020:2020.03.10.20033605.

13. Zhu H. et al. (2020) Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. Transl Pediatr 9(1):51-60.

14. Chua MSQ., Lee JCS., Sulaiman S. & Tan HK. (2020) From the frontline of COVID-19—How prepared are we as obstetricians: a commentary. International Journal of Obstetrics and Gynaecology: 1471-528.

15. Wang S. et al. (2020) A case report of neonatal COVID-19 infection in China. Infectious Diseases Society of America.

16. Davanzo R. et al. (2020) Breastfeeding and Coronavirus Disease-2019. Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies. Maternal and Child Nutrition. doi:10.1111/mcn.13010.

17. Gokcay G. & Keskindemirci G. (2020) Breast Milk and COVID-19. Journal of Istanbul Medical Faculty. doi:0.26650/IUITFD.2020.0025.

18. World Health Organization. Coronavirus disease (COVID-19) outbreak 2020.

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. (Accepted Date: 15.04.2020)

19. Basara SG. & Kucuk S. (2020) Nurse in the care of the newborns with mechanical ventilation treatment: education and information level relationship. Acibadem University Journal of Health Sciences 11(2):330-336.