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10. BÖLÜM / CHAPTER 10

Coronavirus Disease 2019 (COVID-19) During Pregnancy and Breastfeeding

Gebelik ve Emzirme Döneminde Coronavirüs Hastalığı 2019 (COVID-19)

Tanju Demirören[1], Rukset Attar[1]

[1]Department of Obstetrics and Gynecology, Yeditepe University Medical School, Istanbul, Turkey
e-mail: rattar@yeditepe.edu.tr
ORCID: T.D. 0000-0003-4922-0920; R.A. 0000-0001-8770-9562

ABSTRACT

We aimed to review the present data about Coronavirus Disease 2019 which is also called COVID-19, during the pregnancy and breastfeeding. We have reviewed publications on COVID-19 during pregnancy and breastfeeding period up untill 31 July, 2020. COVID-19 was called a pandemic disease by the World Health Organization (WHO) because of its rapid spread around the world within months. This disease is highly contagious and there is no definitive treatment and prevention from this fatal virus infection. All of these facts caused major concerns about COVID-19 during breastfeeding and pregnancy as there are more than 100 million pregnant women around the world. Expecting mothers and their babies are at risk for COVID-19. There may be increased abortion, preterm delivery, preeclampsia when women have COVID-19 during their pregnancy. Also, the risk of cesarean delivery increases. Their babies are at risk of stillbirth, neonatal death and intensive care unit stay. There is no definitive data about vertical transmission of the virus. There is also no common opinion among health providers about breastfeeding for women with COVID-19. Current management of expectant mothers with suspected or diagnosed COVID-19 is the same as women who are not pregnant. Present data about breastfeeding of women with COVID-19 is controversial.
Keywords: COVID-19, pregnancy, breastfeeding, delivery, newborn babies

ÖZ

Dünya Sağlık Örgütü (DSÖ) aylar içinde çok hızlı bir şekilde dünya'da yayıldığı için COVID-19'u pandemi (küresel salgın) olarak adlandırdı. Hastalık çok bulaşıcı olup şu an için kesin tedavisi yoktur ve bu öldürücü virüs hastalığından kesin korunma yöntemi henüz mevcut değildir. Dünya üzerinde 100 milyondan daha fazla gebe kadın olması nedeniyle bütün bu gerçekler gebelik ve emzirme dönemindeki kadınlarda COVID-19 ile ilgili oldukça endişe uyandırdı. Anne adayları ve onların bebekleri COVID-19 için risk altındadırlar. Gebelik sırasında COVID-19'a yakalandıklarında düşük, erken doğum, preeklampsi riski artabilir. Ayrıca sezeryan ile doğum riski de artmaktadır. Bebeklerinde ölü doğum, yenidoğan ölümü ve yoğun bakıma girme riskleri vardır. Virüsün vertikal geçişi ile ilgili kesin bilgi yoktur. Sağlıkçılar arasında COVID-19'lu emziren kadınların emzirmesi ile ilgili görüş birliği yoktur. COVID-19 şüphesi olan veya tanı alan anne adaylarına mevcut yaklaşım gebe olmayan kadınlarla aynı olmakla birlikte COVID-19'lu kadınların emzirmesiyle ilgili mevcut bilgiler çelişkilidir.
Anahtar Kelimeler: COVID-19, gebelik, emzirme, doğum, yenidoğan bebekler

INTRODUCTION

In December 2019, Center for Disease Control and Prevention of China (China CDC) along with health authorities of Wuhan City reported a pneumonia outbreak in Wuhan City due to an unknown virus which was later identified as coronavirus in January 2019 (1,2).

The World Health Organization (WHO) named this new coronavirus as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) and the disease as Coronavirus Disease 2019 (COVID-19) (3). On March 11, the WHO named Coronavirus Disease 2019 as a pandemic disease because of its rapid spread within months.

There were two other outbreaks of coronavirus in the past. These were caused by Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and The Middle East Respiratory Syndrome Coronavirus (MERS-CoV). The transmission of these infections were via respiratory droplets and contact. It is the same for COVID-19 infection and the median incubation period is 5 days, ranging from 2–14 days.

R_o value which is also referred to as the reproduction number indicates how contagious and infectious a disease is. R_o values for COVID-19, 2-3; for SARS, 2-5 and for MERS, <1 (4). Case fatality rate for COVID-19 is 3.8% for SARS 9.6% and for MERS 34.4% (5).

As of July 31, 2020, COVID-19 had been confirmed in around 210 countries or territories. According to WHO Coronavirus disease (COVID-2019) situation report-193, the number of infected people was 17106007 people, and the death number was around 668910 (www.who.int). According to the Turkish Ministry of Health's reports, the number of total confirmed cases was 230873 and total deaths were 5691 as of 31 July 2020 (https://hsgm.saglik.gov.tr).

The symptoms vary from one patient to another. Some patients may be asymptomatic while others may have severe infection and even may die. Fever, fatigue and dry cough are common symptoms. Nasal congestion, anosmia/hyposmia and rhinorrhea are rare. Sore throat, and myalgia are also rare symptoms (6). Fever and respiratory symptoms appear 3–7 days after contact. Palpitation, diarrhea, and headache precedes respiratory symptoms. The clinical spectrumof SARS-CoV-2 infection ranges from asymptomatic to severe disease.

Several complications of COVID-19 have been described. These are; acute respiratory distress syndrome (ARDS), arrhythmias, acute cardiac injury, shock, thromboembolic complications, including pulmonary embolism and acute stroke, Guillain-Barré syndrome, a multisystem inflammatory syndrome with clinical features similar to those of Kawasaki disease and toxic shock syndrome, and laboratory evidence of an excessive inflammatory reaction which resembles cytokine storm (6-12). Although secondary infections seem not to be common complications of COVID-19, a review of nine studies showed that the rate of bacterial or fungal coinfections including respiratory infections and bacteremia was 8% (13). Recovery time is around 2 weeks for mild infections. It is about 3-6 weeks for severe disease.

Women with fever, cough and dyspnea, severe lower respiratory tract illness, myalgias, diarrhea, and abnormalities of smell or taste are suspected of infection.

COVID-19 risk increases if the patient has been to high risk areas, has come in close contact (stayed within six feet (about two meters) of an individual with COVID-19 for more than 15 minutes) or has come in contact with people diagnosed or suspected with COVID-19 in the past 14 days without

personal protective equipment (PPE). It also increases when there is direct contact with infectious secretions without wearing PPE.

Transmission of this infection from one person to another is via respiratory droplets during coughing, sneezing or talking. It can be transmitted when there are mucous membranes contaminated directly. Infection can be also transmitted by touching eyes, nose, or mouth after touching an infected surface. SARS-CoV-2 has been detected in stool, blood, eye excretions as well as in semen. However, their importance in transmission is not clear (14-16). There are several articles which show SARS-CoV-2 RNA in stool specimens, even after viral RNA vanishes from upper respiratory systems (16). Rarely, live viruses can be cultured from stool (17). Fecal-oral transmission has not been clinically described, yet. According to the WHO China joint report, this route is not in transmission of COVID-19 (18).

Virus RNA was found in blood (19-21). However, respiratory viruses are usually not transmitted via blood. Also, transmission of SARS-CoV-2, MERS-CoV and SARS-CoV via transfusion has not been reported yet. There is also no evidence that SARS-CoV-2 can be transmitted through contact with non-mucous membrane sites such as abraded skin.

The experiences with MERS-CoV and SARS-CoV pandemics showed that pregnant women and their babies are prone to poor outcomes. Also, this disease is highly contagious and there is no definitive treatment and prevention from this fatal virus infection. All of these facts cause major concerns about COVID-19 during breastfeeding and pregnancy.

Clinical and Research Effects

Pregnant women are prone to infections due to the physiological and mechanical changes, and alterations in cell mediated immunity during pregnancy. Immaturity of the innate and adaptive immune systems of the newborns cause babies to be susceptible to infections (22).

Current management and delivery mode of expectant mothers with suspected COVID-19 is the same as women who are not pregnant.

COVID-19 and Pregnancy

As the COVID-19 infection spread, prevention and treatment during pregnancy and breastfeeding became a major concern as previous experiences with SARS-CoV and MERS-CoV caused poor outcomes and higher mortality rate in pregnant women (22). There are more than 100 million pregnant women around the world. 145 million births occur around the world each year and 400.000 babies are born everyday (23). Expectant mothers and their babies are at risk of COVID-19. It was shown that there may be an increased risk of abortion, preterm delivery, preeclampsia when women have COVID-19 during their pregnancy (24). Also, the risk of cesarean delivery increases. Their newborns are at risk of stillbirth, neonatal death and intensive care unit stay.

During SARS-CoV and MERS-CoV pandemics, expectant mothers were more commonly admitted to intensive care units and mortality rates were higher. However, current data shows that the rate of intensive care unit admissions of expectant mothers who have COVID-19 pneumonia is the same as the population who are not pregnant.

Clinical manifestations of the disease are the same as patients who are not pregnant, ranging from mild to severe disease and respiratory failure. It is important to keep in mind that patients may be asymptomatic on admission for an obstetric indication and may be SARS-CoV-2-positive on universal screening and develop symptoms during their delivery and postpartum period. In a systematic review

including 295 pregnant patients, 4.7 percent of the patients were admitted to an intensive care unit (ICU) (25).

The United States experience from New York City including 43 pregnant patients with confirmed COVID-19 showed that the disease course was mild in 37 (86%), severe in 4 (9.3%), and critical in 2 (4.7%) (26).

The WHO-China Joint Mission Report including 147 pregnant patients and another report of 118 pregnant patients in Wuhan showed that the illness was severe in 8% and critical in 1% (18). These percentages are the same as the ones for nonpregnant women at reproductive-ages.

Current data states that childbearing does not increase the risk of COVID-19 and does not worsen its clinical outcome when compared with nonpregnant women at the same age (27). Also more than 90% of expectant mothers with COVID-19 recover without undergoing delivery.

Mothers with confirmed COVID-19

A meta-analysis showed a greater risk for abortion, preterm delivery, preeclampsia, and sectio delivery, especially in persons who are hospitalized with pneumonia (24). The complications in their offspring were risk for stillbirth, neonatal death and ICU admission.

At present, there are published guidelines on the management of COVID-19 during pregnancy and delivery (28-31). The American College of Obstetricians and Gynecologists (ACOG) has developed algorithms to evaluate pregnant outpatients who are suspected of or diagnosed with COVID-19 (32). General algorithms and guidelines for screening, testing and management of pregnant patients not only as an outpatient but also on the Labor and Delivery Unit during the COVID-19 pandemic are currently available (23,32,33). The mode of delivery is decided on the basis of expectant mother's general health and obstetric indications.

There are also major concerns about transmission of the virus to the babies during pregnancy and breastfeeding. Carosso et al. reported a possible vertical transmission during vaginal birth of a woman whose rectal and stool swabs were positive (34). Yet, there is no definitive data about vertical transmission of the virus.

Currently, it is recommended to choose the delivery mode according to obstetric indication for expectant mothers with COVID-19 (35).

COVID-19 and Breastfeeding

Currently, there is no common opinion among health providers about breastfeeding for infected mothers. The National Health Commission of China proposed to place newborn babies of mothers suspected of or diagnosed with COVID-19 in separate places for 2 weeks or longer and not to breastfeed because the risk of infection is high (36). They also suggested breastfeeding only for mothers who are SARS-CoV-2 negative.

On the other hand, the CDC and the WHO propose that the decision to breastfeed or not be left with the parents and healthcare providers (37,38). They also advise to take preventive measures to prevent contaminating the newborn before breastfeeding. These measures are; covering the face with a mask, cleaning hands and breasts with soap and water. Mother may want to expel milk. In that case, she has to be warned that she has to strictly follow disinfection rules for using milk expelling instruments. Drugs may be excreted into mother's milk and may cause adverse effects in babies (39).

Up until now, there is not any data about the presence of the virus in the patient mother's milk. Recently, a meta-analysis including eight studies which investigated the presence of viral RNA in the mother's milk of expectant mothers with COVID-19 after 28 weeks of gestation was published (40). These studies included pregnant women with symptoms and signs of COVID-19 (36,37,41-46). Most of the women delivered by section (91.7%). Two of the newborns had low birthweight (< 2.500 g). As soon as the babies were delivered, samples were taken from the upper respiratory system of the babies and from placental tissues to examine the presence of SARS-CoV-2 by real time polymerase chain reaction (RT-PCR) test. The test results were negative. The mothers' milk was also examined for the presence of the virus and there was no evidence of the virus again (40).

Current data about breastfeeding of infected women is limited and controversial. The WHO recommends mothers to breastfeed their babies exclusively for the first 6 months after birth and continue breastfeeding until the child is 2 years of age and beyond, if possible. It is important to note that breastfeeding plays a role in preventing childhood illnesses and has a positive effect on mother to infant interaction (40). Information regarding the importance of breastfeeding and appropriate hygiene and safety practices while breastfeeding should be given to women suspected of or diagnosed with COVID-19 (47).

CONCLUSION

As the COVID-19 infection spreads, prevention and treatment during pregnancy and breastfeeding became a major concern as previous experiences with SARS-CoV and MERS-CoV showed that pregnant women had poor outcomes. During these two pandemics, pregnant women were more commonly admitted to intensive care units and had higher mortality rates. However, current data shows that the rate of intensive care unit admissions of expectant mothers with COVID-19 pneumonia is the same as in the population who are not pregnant. Current data on COVID-19 in expectant mothers suggest that pregnancy and delivery do not increase the risk of infection and do not worsen the infection compared with nonpregnant women of the same age.

Clinical manifestations in pregnant women are the same as in women who are not expecting a baby, ranging from mild symptoms to severe disease and respiratory failure.

It was shown that there may be an increased risk of abortion, preterm delivery, preeclampsia when women have COVID-19 during their pregnancy (24). Also, the risk of cesarean delivery increases. Their newborns are at risk of stillbirth, neonatal death and intensive care unit stay.

Current practice for expectant mothers with suspected or diagnosed COVID-19 is the same as for women who are not pregnant. The mode of delivery is decided on the basis of the expectant mother's general health and obstetric indications. At present, general algorithms and guidelines for screening, testing and management of pregnant patients not only as an outpatient but also on the Labor and Delivery Unit during the COVID-19 Pandemic are available.

There are also major concerns about transmission of the virus to the babies during pregnancy and breastfeeding. There is no definitive data about vertical transmission of the virus.

Currently, there is no common opinion among health providers about breastfeeding for women with COVID-19. The CDC and WHO propose that the decision to breastfeed or not be left with the parents and healthcare providers.

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