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Research Article

Breastfeeding in Postpartum Women Infected with COVID-19

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ABSTRACT

The emergency severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection; and now known as COVID-19 has now spread throughout the world with important consequences is the management of pregnancy, maternal and child health, and mother-child contact. Breastfeeding is a natural event for mothers who have given birth. Breastfeeding will improve the health and well-being of both mother and baby and reduce the risk of neonatal infection and other pathogenic causes that might result in serious illness. To date, there is no evidence to confirm the vertical transmission of COVID-19 from an infected pregnant fetus. It is known that respiratory droplets during breastfeeding or when in close contact with a baby an infected mother can transmit the COVID-19 virus to infants. Therefore, women who are ensured COVID-19 must comply with standard precautionary procedures for contact with breastfeeding. Breast milk is a natural food for babies. Breast milk does not only contain nutrients, such as protein, lipids, carbohydrates, minerals, vitamins, and other elements that are very important to meet the nutritional needs of infants and ensure they can grow and develop normally. Breast milk also contains many components related to immunity. Some of these compounds provide passive protection which in the digestive tract, respiratory tract, prevents pathogenic bacteria and thus can protect breastfed infants from invasive infections in infants. Many studies show that transmission of the 2019 novel coronavirus (2019-nCoV) infection is not through breast milk, but there are fears of transmission to infants while breastfeeding. So it needs to be considered by looking at various factors and needs special protocols so that the mother and baby stay healthy.

Keywords: Breastfeeding, COVID-19, Human Milk, 2019 Novel Coronavirus.

INTRODUCTION

In December 2019 in Wuhan, Hubei province in China there was a Coronavirus 2 (SARS-CoV-2) outbreak, which was a severe acute respiratory infection, and then spread throughout China and surrounding countries. On 12 February 2020, WHO officially announced that the disease caused by the SARS-CoV-2 was referred to as COVID-19. [1]

The novel Coronavirus 2019 is genetically distinct from the coronavirus of Severe Acute Respiratory Syndrome (SARS-CoV) and Middle Eastern Distress Syndrome (MERS-CoV). [2,3] The main route of COVID-19 transmission is through respiratory droplets, and can also be transmitted

by physical contact. There have been studies that report that 2019-nCoV can be transmitted via the fecal-oral route. [4]

The 2019-nCoV infection causes a potential danger for newborns who have immature immunity [5,6]. Premature babies are often born to pregnant women with SARS infection, and based on similarities between 2019-nCoV and SARS, management of intrapartum and postpartum labor can be carried out similar to that in SARS. Thus, obstetricians and pediatrics must be a team to work together to evaluate the condition of the mother and fetus to determine the best time, method and place for delivery [7]. For example, a special delivery room or

operating room (recommended negative pressure room) can be prepared together with an isolation protection device, minimize maternal and fetal morbidity and mortality.

The possibility of a 2019-nCoV vertical transmission from mother to baby cannot be ruled out. Infants should not be breastfed from mothers who are confirmed or suspected 2019-nCoV. If the mother is suspected or diagnosed negative for 2019-nCoV the baby must be breastfed. Milk donors can be used after screening for 2019-nCoV, because the virus can be excreted into milk during the incubation period.

Breastfeeding Policy and Management for babies of Covid-19 infected mothers varies greatly depending on the health organization of each country or other organization in the world. [8]

BREASTFEEDING MATTER

Breastfeeding is a biological necessity for all mammals living on this earth, including humans. Breastfeeding is very important to get high-quality nutrition optimally, for health and survival. WHO and the United Nations Children's Fund (UNICEF) recommend that breastfeeding begin the first hour after birth, continued exclusively for the first 6 months of life, and then be given safe and adequate complementary food, up to 2 years or more. [9]

Direct physical contact between mother and baby's skin and the initiation of early breastfeeding in the first hour after the baby is born is highly recommended. The first milk that comes out is called Colostrum which is very important for babies. This is not without reason because the colostrum released in the first hour is a type of breast milk that is rich in protein, fat,

vitamins, minerals, antioxidants, and immunoglobulins so that it will improve the quality of life and neonatal and child development. The presence of immunoglobulin in breast milk will prevent the entry of germs into the baby's body. The risk of death in the first 28 days of life is 33% higher for newborns who start breastfeeding 2–23 hours after birth, and more than twice as high for those who start 1 day or longer after birth, compared to newborns who immediately breastfeed early. [9,10].

The presence of the Covid-19 pandemic causing problems in the implementation of breastfeeding from mothers infected with Covid-19 for babies born. Does breastfeeding continue with certain protocols or is it not allowed to give breastfeeding mothers. Special consideration is needed to make this decision for maternal and neonatal health.

IMMUNOLOGIC FACTORS IN HUMAN MILK

The content of immunological factors found in mother's milk can compensate for the immune system in the preterm infant. Feeding premature babies with breast milk not only provides protection from pathogenic bacteria but ensures that the baby gets an optimal source of nutrition in the short term, and also helps ensure the development of a healthy immune response in the long term.

Breastmilk has been recognized and has complete and strong immunological properties to prevent infants from being exposed to infections. As explained in Table 1, protective immunological factors are found in breast milk to ward off deficiencies of the innate immune system in premature babies and contribute to the development of an overall immune function. [11]

Table 1: Protective Immunologic factors found in human milk mitigate Characteristics of immature innate immunity

Characteristics of Innate Immunity in the Preterm Infant	Protective Immunologic Factors Found in Human Milk
Lack of maternal antibodies transferred via the placenta during late pregnancy	Immunoglobulins: Secretory IgA, IgG
Inadequate extracellular elimination of bacterial infections	Cytokines: IL-6, IL-8, TNF- α , TGF β 1 and TGF β 2
Reduced pattern-recognition receptor (PRR) and tight junction (TJ) function contributing to inappropriate inflammation	Growth Factors: EGF, TGF- α and TGF- β
Aberrant intestinal colonization	Microbiologic Factors: Lactoferrin, Human Milk Oligosaccharides, Probiotic Bacteria

Premature babies have an immature immune response that is very vulnerable to infectious

diseases. It is known that breastmilk has a unique composition of bioactive factors that can

overcome immature immune responses and thus can prevent inflammatory bowel diseases such as Necrotizing enterocolitis (NEC) in the short term, resulting in optimal growth and neurodevelopment in the long term.. NEC remains the most dangerous digestive disease in premature babies. It often occurs in the second to the third week of life in premature babies. The mechanism underlying NEC is multifactorial and is still poorly understood. The only excellent protection strategy from NEC is breastfeeding [12,13]. Premature babies who are breastfed have been shown to have a lower risk of up to ten times the risk of lower NEC when compared to babies given formula [14]

INTERNATIONAL SOCIETY OF ULTRASOUND IN OBSTETRICS AND GYNECOLOGY (ISUOG) RECOMMENDATION

Currently, about the safety of breastfeeding postpartum mothers with COVID-19, there is not enough evidence, so support for mothers is needed. If the mother is seriously ill or critically ill, separation seems to be the best choice, while continuing to try to milk to maintain milk production. If possible, it can be considered that the mother and her family coordinate with the health service provider. Patients without symptoms or with mild symptoms, breastfeeding is allowed, and colocation (rooming-in). [15]

CHINA RECOMMENDS BABY ISOLATION

According to their experience in clinical management in pregnant women and newborns with COVID-19, Tongji Hospital, in Wuhan, China, has revised the proposed guidelines for the care of these patients. [16] Guidelines addressing mother-to-child transmission, management of postpartum fever, neonatal isolation, and breastfeeding.

Some possible modes of transmission of SARS-CoV-2 from mother to newborn include vertical transmission from mother to fetus, the transmission of close contacts, the transmission of droplets from family or visitors, and hospital-acquired infections. Newborns have the potential to be exposed to the virus. Although there is no conclusive evidence for vertical transmission of SARS-CoV-2 from mother to fetus, breastfeeding should not be done if the mother is infected with COVID-19. Mother and baby care in the same room (merger treatment) is permitted only if the mother has 2 negative real-time polymerase chain reaction (PCR) checks. [16,17]

THE ITALIAN NEONATOLOGY SOCIETY RECOMMENDATION

In contrast, the Italian Neonatology Society and approved by the European Union Neonatal & Perinatal Society recommend the management of lactation in mothers with COVID-19. [18] If a mother is positive or suspected for COVID-19 has no symptoms or has mild symptoms during labor, it is advisable to breastfeed at home but with infection control measures according to the protocol. Conversely, if a mother with severe COVID-19, the management of neonates or infants will be separated from the mother and given fresh breast milk, without the need for pasteurization, because it has been believed that breast milk does not contain COVID-19. Pasteurization reduces the immunological function of breast milk.[18,19]

If the mother is confirmed COVID-19, she can be treated in a room with her baby and breastfeeding can be done, but still taking into account ways to prevent disease. Mothers with COVID-19 who are breastfeeding or in direct physical contact with skin or kangaroo care, mothers should pay attention and carry out respiratory hygiene to avoid transmitting the virus to their babies: [19]

- a. The rooms must be isolated, family and friends visit not allowed. must be ensured within a safe two meters.
- b. The mothers should wear face masks when breastfeeding and during intimate contact with newborns baby.
- c. The mother must do hand hygiene before and after contact with the child.
- d. The surface must be completely clean and disinfectants should be given if exposed to symptomatic mothers. There is no need for mothers to use filtering facepiece level 2 (FFP2) or filtering facepiece (FFP3). If expressing milk with a manual or electric breast pump, the mother must wash her hands before touching the pump or any part of the bottle and clean the pump properly after use.

THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

The CDC states that "determining whether to separate known or suspected mothers of COVID-19 and their babies must be made on a case-by-case basis and be taken by joint decision between the mother and the hospital health team" and also requires consideration of many factors (clinical conditions of the mother and baby), the ability of hospital facilities to accommodate separation, the ability to maintain separation after discharge from the hospital, other risks and

benefits of temporary separation from mothers who are known or suspected of COVID-19 and their neonates.[20]

Breast milk is the best source of nutrition for babies. Until now it has not been established whether mothers with COVID-19 can transmit the virus through breast milk, but with limited data showing that this breast milk may not be a source of transmission. To choose to start or continue breastfeeding must be determined by the mother coordinating with the family and hospital health team. A mother with COVID-19 should be advised to take all precautions that can avoid spreading the virus to her baby, including hand hygiene and wearing a cloth mask that covers the face. [21]

WORLD HEALTH ORGANIZATION (WHO) RECOMMENDATION [22]

As long as they can take preventative action, WHO recommends that mothers with COVID-19 (or suspected COVID-19) can breastfeed their babies. [22,23]. It has long been believed that breast milk contains all the essential nutrients in the right proportions for healthy baby growth. By breastfeeding many benefits that can guarantee the health of mother and baby, besides that ASI is recognized as an ideal food for children in the first six months of life. contains a variety of antimicrobial substances, other anti-inflammatory components that function as immune tools to ensure the development and growth of infants. [22] Breast milk strengthens and energizes the body's defense mechanism against infectious agents and other pathogenic bacteria during breastfeeding. [23]

Many studies have shown that frequent breastfeeding besides making healthy babies can also delay the fertility of nursing mothers so that it can become a natural family planning method.

KK WOMEN'S AND CHILDREN'S HOSPITAL (KKH) IN SINGAPORE RECOMMENDATION

Society of Obstetrics and Gynecologists Canada (SOGC) in 2009 published management guidelines for obstetric patients with suspected or confirmed SARS, [24] Following are prevention steps taken by obstetricians and the health team at KKH, the largest maternity hospital in Singapore based on SOGC guidelines, the latest literature reviews, and various clinical practice guidelines.

Postpartum recommendation: [25]

1. Mothers who are infected or suspected of being COVID-19 are temporarily not allowed to breastfeed their babies until they recover or are confirmed not to be infected with COVID-19.

2. Mothers with COVID-19 and newborns must be treated separately to prevent neonatal transmission until the mother is completely healthy or confirmed not to be infected with COVID-19.
3. Permanent procedures are needed so that obstetricians, pediatricians, nurses and midwives, coordinate and work together to keep mothers and babies healthy.

A mother with Covid-19 separated from her baby will certainly have a negative impact on the health of her psychic mother because she cannot breastfeed, can inhibit the initial bonding and lactation formation. So that additional care is needed for them, to pay attention to the psychological health of these mothers, it is expected that health workers provide special attention and support that is quite appropriate as expected and needed.

MANAGEMENT OF COVID-19 IN NEONATUS ACCORDING TO THE INDONESIAN PEDIATRIC SOCIETY (26)

According to WHO until now there has been no evidence or complete report on vertical transmission of COVID-19 from mother to fetus as well as the existence of 2019 Novel Coronavirus in mother's milk COVID-19 which is confirmed.

Management of healthy babies born to mothers confirmed COVID-19:

- Healthy babies born to mothers confirmed COVID-19 included in the contact criteria closely high risk
- Infants are swabbed on days 1 and 14 for SARS-CoV-2 examination
- The baby is treated separately from the mother until the mother is declared cured by a doctor who cared for (by applicable criteria)
- Breast milk is still given to babies in the form of breast milk
- The breast pump is only used by the mother and the pump is cleaned after use
- The cleanliness of the equipment for breastfeeding must be considered
- Mental health and psychosocial support is provided for mothers and families
- Babies are closely monitored and need to be followed up until they go home.
- If the baby has symptoms, the baby is treated as suspected in a pressure isolation room negative. If not possible, the baby is treated in an isolation room (one room alone).

Care for healthy babies born to suspected mothers Covid-19:

- Healthy babies born to mothers with suspected Covid-19 are included in the criteria of close contact with low risk

- There is no need to swab the baby
- Babies treated separately from the mother until the results of the SARS-CoV-2 examination of the mother negative
- Breast milk is still given to babies in the form of breast milk
- The breast pump is only used by the mother and the pump is cleaned after use
- Cleaning of equipment for breastfeeding must be considered
- Babies are closely monitored and need to be followed up until coming home
- Mental health and psychosocial support are provided for mothers and families.

CONCLUSION

There is still little data on the risk of COVID-19 transmission during pregnancy and breastfeeding, whether pregnant women, infected by the new coronavirus, can transmit the infection to the fetus that crosses the placenta during pregnancy. In choosing whether a mother with an infection or suspected COVID-19 is breastfeeding her baby or not, is influenced by many factors. Different countries and health organizations have different policies. Until now, there is not enough evidence about the safety of breastfeeding, so the separation between mother and baby is needed. If the mother is seriously ill or critically ill, separating the mother and baby is the best choice while continuing to release milk to maintain milk production. Precautions must be taken when cleaning the breast pump. If the patient is asymptomatic, breastfeeding is permitted and can be treated together in the same room (also called rooming-in) can be considered. This policy can be coordinated jointly between patients, families and health care providers, to meet the necessary facilities.

What's important to note is that the virus can be transmitted through respiratory drops, breastfeeding mothers must wash their hands frequently with soap and wear a three-layer surgical mask before contact with the baby. If the separation of a mother with COVID-19 infection and her baby must be done, of course, it will interfere emotionally and can cause mental health disorders. So there needs to be good coordination between patients, families, obstetricians, pediatricians, and other officers to support so that mothers and their babies stay healthy.

CONTRIBUTION OF THE AUTHORS

All authors participated in the collection of information, its analysis, discussion, and writing the text of the script.

CONFLICTS OF INTEREST

The authors have no conflict of interest.

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