

Review Article

Newborn Care During COVID-19 Pandemic

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Abstract

Background: World has changed tremendously with COVID-19. Every aspect of human life is affected by COVID-19. Pregnant mothers and their newborns are also at risk of COVID-19.

Objective: The objectives of this study were to review and discuss on various important issues regarding essential and immediate newborn care & resuscitation of newborn during delivery in the perspective of COVID-19, timing of testing of newborn for Covid-19, if newborn is positive of Covid-19 what measures should be taken and breast feeding the newborn of Covid-19 positive mother etc.

Methods: The study is designed on the basis of secondary information from different recent studies and guideline. For this, the internet has been used as source of information.

Results: Results of different recent studies and WHO & national guidelines are that the routine care of newborn is not different from national guideline, additional measures for infection prevention and control should be taken by both health service provider and caregiver or mother. Newborn should be tested for COVID-19 routinely if mother is suspected or confirmed Covid-19 positive. If testing is not available suspected newborn should be managed as Covid-19 positive case. Till date Covid-19 virus is not detected in breast milk or transmitted through breast milk. So, multiple benefits of breast feeding substantially outweigh the potential risks of transmission and illness associated with COVID-19. In the community transmission phase, all newborns coming to SCANU should be considered as COVID-19 suspected neonate and should assess before admission to SCANU. Mother or caregiver should be counseled about post-natal follow up and also for danger signs.

Conclusion: As we are in the intermediate stage of corona virus outbreak the available information be changed according to further studies. The main attempt of this study is to summarize the literature about update care of newborn during COVID-19 pandemic.

Keywords: Newborn care, COVID-19 pandemic

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INTRODUCTION

The outbreak of SARS-CoV-2 is the worst healthcare emergency of world in this century, and its impact on neonates is still largely unknown. Coronavirus disease-2019 (COVID-19), which started in Wuhan, China, in December 2019¹ and was declared a worldwide pandemic on March 11, 2020.² Neonatal COVID-19 accounts for a small percentage of newborns and is often milder than that in adults; however, it can progress to severe disease in some cases of newborns. Newborn infants deserve more concern due to their immature immune system and the possibility of mother to infant transmission, so the neonate could be a vulnerable source of spreading the disease.

There are some key facts regarding Covid-19 in newborns. These are: till date, there is no evidence of an increased risk of miscarriage or teratogenicity or preterm birth or in-utero (vertical) transmission of the COVID-19 or transmission through breast milk. But babies born to mothers with COVID-19 can potentially become infected through droplet exposure^{3,4}. Hence, infection prevention and control measures should be taken by both mother or care giver and health care provider.

METHODS

The study is designed on the basis of secondary information from different recent studies and guideline. For this, the internet has been used as source of information. An exploratory search is done from the relevant search engine like PubMed, Medline and Google scholar. The search terms were: newborn,

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care, Covid-19. Studies were searched by titles and/or abstracts. In addition, lists of references were also scrutinized to find relevant published article. All the results of different recent studies and WHO guideline were compiled.

RESULTS AND DISCUSSION

A. Essential and Immediate newborn care in the context of COVID-19

The existing national guideline should be followed regarding the technical content of essential and immediate care of newborn. Additional measures will be taken in the context of COVID-19. With appropriate IPC measures skin to skin care and Kangaroo Mother Care (where indicated) can be initiated immediately after birth of newborn.^{1,2} Breastfeeding should be initiated within one hour after birth with appropriate IPC measures. Because, currently available data suggest that prolonged skin-to-skin contact and early and exclusive breastfeeding are still the best strategies for reducing morbidity and mortality for both the mother with COVID-19 and her baby, in tandem with rigorous infection prevention and control measures.^{5,6} Application of 7.1% chlorhexidine for umbilical cord care is a must. Bathing is delayed. It should be given 72 hours after birth. If possible BCG immunization is given just after birth. Regular routine cleaning of all surfaces that the mother has had contact should be ensured with appropriate disinfectant.^{7,8}

B. Breast Feeding in the perspective of COVID-19:

At present, data are not sufficient to conclude vertical transmission of COVID-19 through breastfeeding⁹⁻¹¹. In infants, the risk of COVID-19 infection is low, even in the few cases of confirmed COVID-19 infection in young children, most have experienced only mild or asymptomatic illness while the consequences of not breastfeeding and separation between mother and child can be significant. At this point it appears that COVID-19 in infants and children represents a much lower threat to survival and health than other infections, rather breastfeeding is protective against due to its inherent content of Ig A and Lactoferrin that protect from many infectious agents^{12,13}.

The benefits of breastfeeding and nurturing mother-infant interaction to prevent infection and promote health and development are especially important when health and other community services are themselves disrupted or limited like in Covid-10 or emergency situation. Adherence to infection

prevention and control measures is essential to prevent contact transmission between COVID-19 suspected or confirmed mothers and their newborns and young infants.

Based on available evidence, WHO recommendations on the initiation and continued breastfeeding of infants and young children also apply to mothers with suspected or confirmed COVID-19. COVID-19 has not been detected in the breast milk of any mother with confirmed/suspected COVID-19 and there is no evidence so far that the virus is transmitted through breastfeeding.^{1,2,10,11}

Breastfeeding and skin-to-skin contact significantly reduce the risk of death in newborns and young infants and provide immediate and lifelong health and developmental advantages. Breastfeeding also reduces the risk of breast and ovarian cancer for the mother. The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with COVID-19.^{10,14}

Breastfeeding – if done within the first hour of life, exclusively for the first 6 months and until age 2 – has the greatest potential impact on child survival of all preventive health interventions. Thankfully, data indicate that COVID-19 is not found in breast milk, and all women are encouraged to breastfeed. However, those with suspected or known COVID-19 infection should do so while taking precautions, such as wearing a mask and washing their hands before and after touching their baby. If a mother isn't well enough to breastfeed,

she should try to express her breast milk in a safe way.

B1. Appropriate IPC (Infection prevention & control) measures taken by COVID-19 positive or suspected mother during breast feeding

Mothers should follow appropriate IPC measure during breast feeding and newborn care.

Mother should wash hands frequently with soap and water or use 70% alcohol-based hand rub before touching the baby. She should wear a face mask while breastfeeding and providing skin to skin care or kangaroo mother care. If a medical mask is unavailable, mother is advised to sneeze or cough into a tissue and immediately dispose of it & wash hands. Chest should be washed if she has been coughing on it. Breast does not need to be washed before every feeding. Mother should regularly clean and disinfect surfaces that she has touched.^{1,2,7,8,10}

Breastfeeding mothers and COVID-19

If you are sick with COVID-19 or think you might have it, follow these steps when breastfeeding:

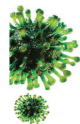
-  Use a medical mask when near your child
-  Wash your hands thoroughly with soap or sanitizer before and after contact with your child
-  Routinely clean and disinfect any surfaces you touch

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#COVID19
#CORONAVIRUS

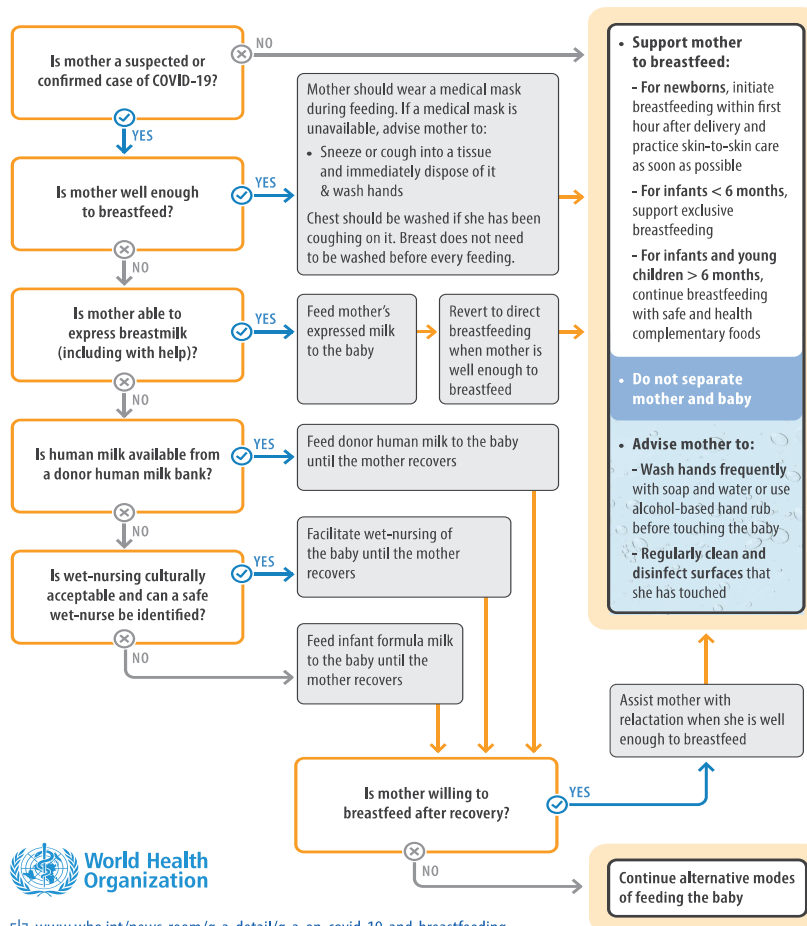
B2. Breastfeeding if the mother is COVID positive and critically ill:

Mother is encouraged and allowed to initiate breastfeeding as soon as she can even if she was unable to initiate during the first hour. The baby is fed with expressed breast milk if the mother-baby are temporarily separated (shifted to SCANU or otherwise indicated to the mother). A non-infected family member can be engaged in expressing breast milk. Appropriate IPC measures should be ensured while expressing breast milk (hand washing with soap and water, or 70% alcohol-based hand sanitizer and wearing a face mask). A non-infected caregiver will feed the breast milk to the baby with proper hand washing and wearing a face mask. Mother may need help with re-lactation when she is well enough to breastfeed.^{1,9}



DECISION TREE

for breastfeeding in context of COVID-19:
Guidance for **health care and community settings**



B3. Breast Feeding of suspected or positive COVID-19 neonate:5-8

1. The COVID 19 positive or suspected neonate should be fed expressed breast milk by the non-infected mother or caregiver
2. Non- infected family member should support to express milk. The caregiver will wash the hand with soap water or 70% alcohol-based hand sanitizer and wear a mask while expressing breast milk.

C. Newborn Resuscitation: Newborn resuscitation/ HBB (Helping babies Breathe) service should continue as per the national SOP¹. But precaution should be taken by Service providers with appropriate IPC measure for airborne, contact and droplet transmission.

IPC FOR SERVICE PROVIDERS

1. All doctors, midwives and nurses managing COVID 19 suspected or positive newborn during bag-mask ventilation, intubation, tracheal suctioning, nasal canula oxygen, continuous positive airway pressure and/or positive pressure ventilation of any type, must wear gown, gloves, N95 respiratory mask with eye protection, or air-purifying respirator (powered air-purifying respiratory (PAPR) or government supplied level-3 PPE.
2. During routine management of newborn and during feeding, the nurse must wear gown, gloves, standard procedural mask and eye protection (either face shield or goggles).

D. Testing of Newborn for COVID-19:

Testing should be done first after 24 -48 hours of age as early test may have negative result. For infants who are positive on their initial testing, follow-up testing of combined throat/nasopharynxial specimen should be done at 48-72-hour intervals until two consecutive negative tests. If testing facility is not available, treat the suspected neonate as COVID-19 positive and manage accordingly.^{1,2}

Positive test results: but infant has no symptoms of COVID-19,

1. Frequent outpatient follow-up (either by phone, telemedicine, or Face to Face) should be planned up to 14 days after birth.
2. Precautions are needed to prevent household spread from infant to caregivers; following use of

standard procedural masks, gloves and hand hygiene in the home environment.

Negative test results:

- Newborn can be discharged to the care of a healthy caregiver.
- The mother or the caregiver with persons under investigation (PUIs) for COVID-19 should maintain a 3-feet distance and use a mask and practice hand hygiene when directly caring for the infant until either
 - a) she has been afebrile for 72 hours without use of antipyretics
 - b) at least 14 days have passed since her symptoms first appeared; or she has negative results from a COVID-19 test from at least two consecutive specimens collected 24 or more hours apart.

If baby cannot be tested:

1. Treat the baby as COVID-19 positive for the 14-day period of observation.
2. Mother should still maintain precautions^{1,2,5,6}.

E. Referral of symptomatic or sick newborn: If isolation intensive care is not available in the facility where symptomatic or sick newborn is born or referred with COVID 19 infections, the newborn should be immediately shifted to the designated closest hospital where such facilities are available. Complete safety and PPE policies and precautions must be followed during transport.^{1,2,6,7,8}

F. Sick Newborn Management in SCANU

In the community transmission phase, all newborns coming to SCANU should be considered as COVID-19 suspected neonate and should assess before admission to SCANU.^{1,2}

F1. Triage for COVID 19 before entering SCANU

Must ASK:

1. Infants born to mothers with suspected or confirmed COVID-19
2. With a known exposure to another suspected or confirmed COVID-19 patient
3. Newborns with symptoms of COVID-19

ASSESS

4. Newborns with signs of COVID-19 infection
- F2.** When the newborn is suspected as COVID 19 positive.

The newborn needs to be admitted to an area separate from unaffected infants. If no separate space, the newborn should be kept at least 6 feet away from other neonates or place them in air temperature controlled isolates until proved COVID negative. Thorough investigations are needed to be done with symptoms of COVID-19 infection for other common diseases that may have similar clinical problems.^{1,15-17}

F3. Visitation of newborn in SCANU

Visitor should be restricted to one visitor. Mothers with COVID-19 should not visit SCANU until all the following are met:

- (1) resolution of fever without the use of antipyretics for at least 72 hours and
- (2) improvement (but not full resolution) in respiratory symptoms, and
- (3) negative results of a SARS-CoV-2 test from at least two consecutive specimens collected e"24 hours apart or at least for 14 days after disappearance of symptom.

Other attendant with person under investigation (PUIs) should not visit infants until they are confirmed to be negative. Other attendant with symptoms of disease and are confirmed to have COVID-19 must also meet the requirements above before visiting infants in the neonatal intensive care unit. Mother or other attendant without COVID or not suspected can visit with proper PPE.^{1,2,16-18.}

F4. Infection Prevention and Control (IPC) in mothers' room

1. All mothers and accompanying attendant should be screened for COVID 19 –
 - a. Flue like symptoms (fever, headache, sore throat) in mother or other family members
 - b. Contact history of mother or family member with COVID patient.
2. If a mother with PUI, and no separate space is available, she should be placed at least 3 feet from other with mask and meticulous hand hygiene.^{1,2.}

F5. IPC in SCANU waiting space

1. Allowing minimum attendant in waiting space
2. Screening all attendant visitors before allowing in the waiting room (contact history with COVID patient, flue like symptoms)

3. Maintaining physical distancing during sitting (3 feet)
4. We must follow sneezing and coughing etiquette and dispose used tissue in a closed bin
5. Washing hand with soap and water for 20-40 seconds or with alcohol based hand sanitiser for 20-30 seconds and wear mask before entering SCANU

G. Counseling to COVID 19 positive mother:

1. Mother should keep distance of 6 feet until fully recovered from COVID 19.
2. All mothers with COVID-19 or who have recovered from COVID-19 should be counseled on safe infant feeding, and appropriate IPC measures to prevent COVID-19 virus transmission.^{1,2}
3. To monitor newborn for COVID-19 symptoms.

If the newborn has one or more of these signs or symptoms, they may have early symptoms of COVID-19 or another illness mother should contact healthcare professional.¹⁵⁻¹⁷

- Fever (a temperature of 100.4 or higher is considered an emergency)
- Lethargy (being overly tired or inactive)
- Runny nose
- Cough
- Vomiting
- Diarrhea
- Poor feeding
- Increased work of breathing or shallow breathing

H. Postnatal follow up

The first face-to-face PNC visit may be on the 6th week. Before this, we have to organize PNC contacts through telemedicine and other measures. The existing national guideline should be followed regarding the technical content of care. We should promote and encourage breastfeeding irrespective of the COVID-19 status of the mother and the newborn. We have to promote immediate long-acting

post-partum contraceptive services (PPIUD, PP Implant) with proper counseling and consent to avoid any unwanted pregnancies.^{15,16,17,18}

IPC measures in Outpatient Department management^{1,2,17,18}

1. Providing PNC services in separate PNC room dedicated for suspected or confirmed COVID-19 newborn

2. Restricting the accompanying person from entering the PNC room/area
3. Maintaining at least three feet of physical distancing
4. Wearing appropriate PPE at all times (face mask, hand gloves, goggles/face shield)
5. Washing hands before and after examining each patient
6. Conducting physical examinations respectfully but quickly to minimize exposure time
7. Cleaning surfaces that are coming in touch with the mother hours and mop the floor with 1% sodium hypochlorite solution in every 3-4 hours
8. Counseling the mother to avoid unnecessary contact with others and babies
9. Counsel about postnatal anxiety and depression
10. Instruct the mother to wash her clothes with detergent or disinfectant in water at 70 degrees for at least 25 minutes.

CONCLUSION

COVID-19 is novel to us. Its many things are still unknown to us. Researches are going on; hence, we should be updated time to time.

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