



# Breast Feeding in Suspected or Confirmed Cases of COVID 19—a New Perspective

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## Abstract

The encounter with the rampant novel Corona virus infection has led the healthcare system across the world to update and modify its tools to fight this pandemic. Pregnancy, childbirth and breast feeding are a set of special situations to be dealt in women afflicted with Covid-19. Currently there is no universal consensus on managing the issue of breast feeding with rooming-in of the neonates in women with suspected or confirmed Covid-19. Literature is still evolving with contradictory guidelines from various authorities across the globe. This review intends to analyse the available evidence on managing breast feeding in such women and to derive a practically plausible approach in handling such situations.

**Keywords** Breast feeding with Covid-19 · Neonatal Covid-19 · Vertical transmission of Covid-19

## Introduction

Covid-19 is an infectious disease caused by the beta corona virus SARS-COV-2. It belongs to the previously known virulent group of SARS and MERS viruses and hence the name SARS-COV-2. Health care has been on a daily basis updating its knowledge in dealing with this novel pandemic. Pregnancy with SARS-COV-2 is a special situation to be well balanced between the woman and the foetus. Breast feeding and caring for the baby is a sensitive issue to be dealt with in women who are suspected to be or confirmed to have a corona virus infection. This review intends to compile the latest available evidence about handling breast feeding issues in this special situation.

With no prior experience of this novel infection, literature has contradictory statements regarding breast feeding and rooming-in of neonates in mothers with suspected or known SARS-COV-2. Relevance of social distancing which is the corner stone for infection prevention; in this special situation of mother and child bonding needs evaluation. There has been no universal consensus on this issue. As the data are still evolving, this review aims to analyse the

existing available evidence to arrive at a practical approach in managing breast feeding and rooming-in issues in such situations.

The results of electronic search through Google scholar and Pubmed on breast feeding in Covid-19 in English language were considered, including the guidelines by renowned authorities.

## Transmission of the Virus from the Mother to the Child

Infections in the pregnant women generally imply risk to both the mother and baby. Vertical transmission of the SARS-COV-2 is under evaluation. Previously studied SARS or MERS virus which belong to the same family as the SARS-COV-2 did not show any evidence of in utero transmission [1].

Initial reports from China of case series of pregnant women with Covid-19 found no evidence of the virus in the amniotic fluid, cord blood as well as the neonatal throat swabs [2–4]. Retrospective study of three placentae of women with Covid-19 tested negative for the virus [5]. On February 6, 2020 there was a report of the throat swab of a neonate born by caesarean section being positive for Covid-19. Since the swab was taken at 30 h of age, the possibility of postnatal transmission rather than intrauterine was considered [6].

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On the 15th of March 2020, London reported that a neonate born to a woman with Covid pneumonia was found positive, whose swab was taken within few minutes after delivery [7]. With this the possibility of intrauterine transmission cannot be ruled out. On 26th March, Dong et al. reported a term infant of a mother with Covid 19 pneumonia. The newborn was positive for virus-specific Ig G and Ig M antibodies in his blood. Counterintuitively he was asymptomatic up to 3 weeks following birth and his nasopharyngeal swab was negative for SARS-COV-2 [8]. Mother's vaginal secretions also tested negative for the virus, although it was a caesarean delivery. High levels of IgM at 2 h of age, which don't cross the placental barrier, suggest intrauterine infection. Zeng et al. reported two neonates with high levels of IgM and IgG antibodies in their blood [9]. Addressing this issue, Kimberly et al. commented that IgM assays are prone to false positives and false negatives along with other testing challenges and hence alone cannot substantiate for intrauterine infection [10]. They also suggested that since viral nucleic acid had been seen in blood samples of COVID affected patients, possibility of intrauterine transfer cannot be dismissed [11].

Unlike the above cases where delivery was through caesarean section, there is one reported case from Australia on 15th of April 2020, on Covid-19 mother having delivered through vaginal route. The neonate was cared for with the necessary precautions by the mother and father, who was also positive for the virus. The new born was negative for the virus and was asymptomatic [12].

Data available are of antenatal infections in the third trimester and hence effects of SARS-COV-2 on the early pregnancy similar to other teratogenic viruses like cytomegalovirus, Zika virus is still to be explored. Considering the above studies with small sample size currently we have no evidence confirming intrauterine viral transmission nor can the possibility be disregarded.

## Transmission Through Breast Milk

None of the studies on the breast milk of women infected with Covid-19 till date have found the virus in the breast milk [2, 3, 13–16]. The case of neonatal IgM positive reported by Dong also was negative for the virus in the mother's breast milk [8]. The International Society for Research in Human Milk and lactation (ISRHML) [17] is yet to conclude on the reliability of virus testing in human milk. Thorough investigation of collection of samples, optimisation of the analytical methods, and viability of the virus in human milk are some issues that ISRHML still needs to sought out.

## Neonatal Covid-19

Newborns and infants are at low risk of COVID-19 infection. Among the few cases of confirmed COVID-19 infection, most have experienced asymptomatic [13–15] or mild illness with nonspecific symptoms like temperature instability, respiratory distress, GI symptoms and hypotension. In the study by Zhu et al. 9 out of 10 neonates born to Covid-19 positive mothers were symptomatic and few had serious complications [2]. However, all were tested negative for the virus in the nasopharyngeal swabs. Zeng et al. reported a clinical course worse than the previous studies, but none of the 3 infants with positive throat swabs died. All neonates recovered with their repeat swab testing being negative for the virus [18]. Kam et al. reported an asymptomatic neonate with high viral loads [19].

De Rose et al. in their review on clinical features of infants up to 6 months of life analysed that out of 69 mothers with confirmed SARS-COV-2, 5 infants tested positive for the virus. These were the only cases reported in literature till the end of April 2020. They summarised that all neonates were hospitalised, but none required intensive care [20]. However, they had not included the first three reported newborns with COVID-19 since they were described in Chinese. All the three neonates had mild symptoms [21].

From the above literature, we can presume that neonatal Covid-19 runs a benign course.

## Literature Discouraging Breast Feeding in Covid-19

Chinese expert consensus recommends against breast feeding until the suspected or confirmed Covid-19 mother turns negative for the virus. Also, breast feeding is allowed if the breast milk tests negative for the virus. They considered the possibility of virus in the milk during the incubation period and hence considered donor milk after screening for the virus rather than expressed breast milk of the mother [22].

Favre et al. from Switzerland suggested to avoid direct breast feeding as sucking at the breast presumably might increase the risk of SARS-CoV-2 transmission via aerosol due to the intimate contact during feeds [23].

Italian society of neonatology suggests to assess the compatibility of breastfeeding with drugs that may be administered to women with COVID-19 on a case-by-case basis [24].

## What do we Know About Breast Milk?

It is the best source of nutrition to the baby. In all socio-economic settings, breastfeeding improves survival and provides lifelong health and development advantages to newborns and infants. Breastfeeding also reduces the risk of breast and

ovarian cancer for the mother. Breast milk is a potentially important source of antibody protection for the infants of mothers with COVID-19. When and how the antibodies to SARS-COV-2 are produced and its transfer to the neonate is yet to be answered [17].

## Literature Supporting Breast Feeding

The benefits of breast feeding outweigh the risks of transmission and morbidity of Covid-19 in neonates. This is the emphasis by the WHO, UNICEF, FOGSI and RCOG, which vouch for breast feeding in cases of suspected or confirmed Covid-19.

## Alternatives to Breast Feeding

CDC recommends the use of expressed breast milk during the temporary separation of the neonate, which has to be fed by uninfected caregivers to the baby. Expressing milk should be done by using a dedicated breast pump and with appropriate hygienic precautions. SIN and EUPNS recommend the use of fresh expressed breast milk without pasteurisation to feed the separated neonates [24].

WHO recommends to support an unwell mother to feed expressed breast milk to her neonate. The above recommendations are intended to derive at least the partial benefits of breast milk rather than no breast feeding.

EUPNS and SIN suggest that in cases of severe maternal infection, expressing breast milk should be avoided due to the mother's general conditions [24].

The other alternatives suggested by the WHO are donor milk, wet nursing, infant formula and re-lactation, which should be encouraged at any point of time when the mother is well enough to breastfeed.

## Recommended Hygienic Measures

A mother should implement appropriate recommended hygienic practices for the period that she is likely to be infective i.e. while symptomatic or through the 14 days after the start of symptoms, whichever is longer (WHO).

- Wash hands frequently with soap and water or use alcohol-based hand rub especially before touching the baby, touching the pump or bottle parts and clean all parts after each use.
- Wear a medical mask during any contact with the baby, including while feeding and breast feeding to continue if it is not possible, while CDC recommends a cloth mask.

- Replace medical masks as soon as they become damp and dispose them immediately. Masks should not be reused or touched in the front.
- Sneeze or cough into a tissue which has to be disposed immediately and hands washed again.
- Routinely clean and disinfect surfaces that mothers have touched.
- If a mother is confirmed/suspected to have COVID-19 has just coughed over her exposed breast or chest, then she should gently wash the breast with soap and warm water for at least 20 s prior to feeding. (WHO).

## Literature Suggesting Isolation of Infants

The Chinese Neonatal 2019-nCoV expert working Group has put forward that suspected and confirmed neonates should be treated in effective isolation and protective equipment and that suspected newborns and confirmed cases should be admitted into separate rooms, without any contact with the mother [25]. Li et al. suggest that all infants with suspected COVID-19 should be isolated and monitored despite being asymptomatic but does not comment on feeding of such isolated neonates. He recommends that all such neonates should be tested for SARS-COV-2 [26].

The CDC and ICMR (Indian Council of Medical research) recommends to consider temporary separation of the neonates from suspected or confirmed cases of SARS-COV-2 mothers. CDC further recommends to keep the infant at least 6 feet away from the mother separated by a curtain, if the mother wishes to room in or due to constraints in the healthcare set-up. And the mother has to comply with the hand and respiratory hygiene while caring for the new born.

The American Academy of Paediatrics (AAP), Academy of breastfeeding medicine (ABM), Society for maternal foetal medicine (SMFM) also recommend temporary isolation of the neonate separate from unaffected newborns.

SOGC, ACOG, Italian Society of Neonatology and Union of European neonatal and perinatal societies [24] put the onus on the family and the healthcare set-up on taking a suitable decision pertaining to neonatal isolation and breast feeding.

While the WHO, UNICEF, RCPCH (Royal College of Paediatrics and Child Health) and FOGSI (Federation of Obstetricians and Gynaecologists of India) recommend rooming-in of the mother with the practise of hygienic measures, unless the mother is too unwell or the neonatal condition mandates intensive care.

## New Perspective

Vertical transmission of SARS-COV-2 cannot be disregarded as yet with no strong evidence negating it. Albeit considering the possibility of vertical transmission, neonatal

Covid-19 seems to have a benign course as per the evidence available. The advantages of breast feeding far outweigh the presently known risks of SARS-COV-2 in the infants. Separation of the mother and baby raises issues of affordability and infrastructure logistics, for which most part of the world health care is as yet unprepared. Hence rooming-in of the baby with the mother reduces the burden on the family as well as the healthcare set-up. Breast feeding offers various benefits both to the mother and the new born including the presumption of the neonate receiving maternal antibodies against the virus. The mother can breast feed with strict adherence to hygienic measures. This saves on the practical issues associated with feeding of expressed breast milk. If the neonate gets afflicted with Covid-19, the incidence of which is reasonably less and having a mild course, monitoring can continue with the baby roomed in. Isolation of the neonate can be considered only if mother is severely ill to care for the baby or the infant per se needs intensive care.

## Conclusion

Mother baby rooming-in along with direct breast feeding is far beneficial in terms of health benefits and financial implications, in cases of suspected or confirmed SARS-COV-2 infection either in the mother or the neonate as of now.

However future research with larger sample size is warranted on confirmation of vertical transmission, effects of the SARS-COV-2 on early pregnancy and on transfer of antiviral antibodies through breast milk.

## Compliance with Ethical Standards

**Conflict of interest** There are no conflicts of interest.

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