

Breastfeeding and Contraceptive Methods in Women With Severe Acute Respiratory Syndrome Coronavirus- 2 (SARS-COV-2) Infection in Peripartum Period

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Abstract

Objective: This study aimed to assess the exclusive breastfeeding and contraceptive methods among women delivering within 1-week of a positive test for severe acute respiratory syndrome coronavirus- 2 (SARS-CoV-2) infection.

Materials and methods: In this study, 106 women with SARS-CoV-2 infection who were either asymptomatic or had mild disease were included. They were admitted for maternity care at a tertiary center between May to September 2020. The data was collected during their hospital stay and subsequently by telephonic or in-person interviews at 4-6 weeks and 8-10 weeks postpartum for contraceptive use, breastfeeding and use of facemask and hand-hygiene.

Results: Sixty-three (59.4%) women had vaginal delivery and 43 (40.6%) required cesarean-section. Only one of the 98 newborns who were tested for SARS-CoV-2 turned out positive. Initiation of breastfeeding was delayed by an average of three days due to preparing the Reverse transcription polymerase chain reaction (RT-PCR) report. Exclusive breastfeeding was practiced by 69% and mixed feeding by 26%. Pre breastfeeding hand hygiene and facemask use declined after discharge (100% to 53.75% at 8-10 weeks postpartum). Out of 106, 86 (81%) women used no contraception at 8-10 weeks postpartum, continued with post-placental-IUD in 8/106 (7.5%) and tubal-sterilization during cesarean in 8/106 (7.5%) cases. Only 4/106 (4%) adopted alternative methods like barrier contraception.

Conclusion: The practice of exclusive breastfeeding remains unchanged among women who suffered from SARS-CoV-2 infection in the peripartum period while uptake of postpartum contraception was minimal except for the women who opted for long term contraceptive methods in the immediate postpartum period.

Keywords: Breastfeeding; SARS-CoV-2; Contraception

Introduction

Breast milk is important for the health of the

newborns due to its nutritional and immune-protective value. Breastfeeding is a complete food for the newborn and is vital for mother-child bonding (1). Breastfeeding is the single most simplistic way of preventing infant mortality and preventing morbidity

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from various non communicable diseases like asthma and cardiovascular diseases in future (2,3). Despite such huge benefits of breastfeeding, there are obstacles in the way of enhancing breastfeeding among mothers. A new obstacle nowadays is severe acute respiratory syndrome coronavirus-2 infection (SARS-CoV-2), where there is hesitation about breastfeeding due to transmission of the infection to their newborn via breast milk or droplets. Due to concerns about transmitting this infection, some Chinese experts suggested avoidance of breast feeding to minimize direct contact of newborns with their COVID-positive mothers. It was advised to feed expressed breast milk to the babies (4,5). However, the Royal College of Obstetricians and Gynecologists (RCOG) advised that separation of mother from neonate was not required unless the mother has poor health conditions (6).

Since April 2020, our tertiary care institution was designated for the management of SARS-CoV-2 infected COVID pregnant women. Due to the conflicting opinions by various societies regarding breast feeding practices, a consensus decision was taken at our center not to advise against breastfeeding to the SARS-CoV-2 infection.

Postpartum contraception is another important aspect of maternal care. In a systematic meta analysis, Dev et al. showed despite desires to delay future pregnancy in the postpartum period, many women in the studies reviewed did not use any contraceptive method (58.8%) or used methods that provided short-term coverage with higher chances of failure (51–96%) (7). In the pandemic situation, non-essential health care such as family planning services were disrupted. Not much is known about the usage of postpartum contraceptive methods among women who are SARS-CoV-2 positive in peripartum period.

This study evaluated the breastfeeding and contraceptive methods among women who had SARS-CoV-2 infection in peripartum period. The information generated would help provide future reference for the health care of the newborn of COVID positive women who breast-feed their baby and also identify optimal strategies for family planning services in pandemic situation.

Materials and methods

This was a prospective observational study conducted in the Department of Obstetrics and Gynecology in Maulana Azad Medical College and associated Lok Nayak hospital, New Delhi. The inclusion criteria in

the study were all women who either delivered or presented in the immediate postpartum period between May and September 2020. These women were detected to be COVID positive by Reverse transcription polymerase chain reaction (RT-PCR) within the week preceding delivery. The exclusion criteria were the conditions where breastfeeding was contraindicated as HIV infection and mothers who opted for top feed, those who could not be contacted for follow-up after discharge. Women who were critically sick and those with stillbirth were also excluded.

The baseline data were collected during the hospital stay using a questionnaire. Their newborns were tested for SARS-CoV-2 infection by RT-PCR within 24-hours of birth before initiating breastfeeding. All women were educated regarding hand and respiratory hygiene practices by the managing obstetrics team as well as the neonatology team. The mothers received coronavirus disease treatment according to the severity of disease and hospital protocols.

Following discharge from the hospital, these women were contacted twice that was at 4-6 weeks and 8-10 weeks postpartum. Most of the contact was made through telephonic interviews. However, in-person interviews were also carried out for subjects visiting the hospital. The information regarding maternal and newborn health, breastfeeding status, and contraceptive use were recorded. The Institutional Ethical Committee approved the study protocol before the study began. All participants gave written informed consent for the study.

Statistical Analysis: A descriptive analysis was performed on maternal characteristics and care factors using SPSS version 20.0 software. Approximately normally distributed data were expressed as mean (\pm SD) and skewed data were expressed as median (IQR). Categorical variables were expressed in frequencies and a percentage. The sample size was calculated using the confidence level of 95%, margin of error 5%, keeping prevalence of breastfeeding and contraceptive methods in postpartum as 50% and assuming admission at the rate of 30 patients/month, sample size came around 105.

Results

A total of 150 women positive for COVID-19 were initially included in the study. 106 of them completed the follow-up at 4-6 weeks and 8-10 weeks postpartum. The majority of the subjects (77.3%) belonged to 21-30 years of age (Table 1).

Table 1: Baseline characteristics of women included in the study

Variable	Number (Percentage)
Age (years)	
≤20	3 (2.8)
21-25	42 (39.62)
26-30	40 (37.73)
31-35	15 (14.15)
≥36	6 (5.66)
Parity(P)	
P1	42 (39.62)
P2	37 (34.90)
P3	25 (23.58)
≥4	2 (1.88)
Education level	
Professional	6 (5.66)
Postgraduate	5 (4.71)
Graduate	30 (28.30)
Secondary schooling	44 (41.50)
Primary schooling	12 (11.32)
Illiterate	9 (8.49%)
Mode of Delivery	
Vaginal delivery	63 (59.43)
Cesarean section	43 (40.56)

Preexisting morbidities like hypertension and asthma were present in 18% of them. Antepartum, intrapartum and postpartum complications were observed in 31.1% (n = 33), 0.94% (n = 1) and 4.7% (n = 5) subjects respectively (Table 2). 63/106 (59.4%) subjects delivered vaginally and 43/106 (40.6%) delivered by cesarean section. All deliveries were conducted under proper infection control measure for COVID-19.

Table 2: List of pregnancy complications observed in women suffering with SARS CoV-2 infection in peripartum period

Pregnancy complication	Number (Percentage)
Antepartum	33 (31.13)
Severe Anemia-4	
Gestational hypertension-9	
Gestational diabetes mellitus-9	
Fetal growth restriction-6	
Placenta previa-2	
Intrapartum	1 (0.94)
Postpartum hemorrhage-1	
Postpartum	5 (4.7)
Cesarean section wound sepsis-4	
Vulval hemtoma-1	

There was one twin delivery and 93/107 (86.9%)

babies were term (>37 weeks), 98/107 babies could be tested for COVID-19 and only one of them had COVID-19 positive RT-PCR. Neonatal complications were observed in 17.7% of the newborns and 14% (n = 15) required to stay in neonatal intensive care unit for more than one week. 3.7% (n=4) required phototherapy for neonatal jaundice.

Only 48% of the women initiated breastfeeding within the 24-hours of childbirth (Table 3). When breastfeeding practices were assessed at 4-6 weeks and 8-10 weeks postpartum, exclusive breastfeeding was practiced by approximately 68%. The most common reason for mixed or formula milk feeding was reported as inadequate breast milk output. Gastrointestinal symptoms like constipation and diarrhea were reported among babies who received formula milk or mixed feeding.

Table 3: Prevalence of breastfeeding observed in study group

Variable	Number (Percentage)
Time interval between childbirth and initiation of breastfeeding	
<24hrs	51 (48.11)
1-10 days	47 (44.34)
10-30 days	4 (3.77)
≥31 days	1 (0.9)
Type of milk fed at 8-weeks follow up	
Breast milk	73 (68.86)
Formula milk	5 (4.7)
Cow/buffalo milk	1 (0.9)
Mixed	27 (25.47)

All women were compliant with hand and respiratory hygiene practices during the hospital stay. However, only 53.8% of them were compliant for these hygiene measures at 8-10 week of follow-up.

COVID-19 related respiratory symptoms were not reported in any of the babies or mothers till 8-10 weeks of follow-up. The baby who had tested positive for COVID-19 was also doing well at 8-10 weeks follow-up. Two women complained of excessive generalized weakness on follow-up and one of them was diagnosed with hypothyroidism. Mandatory newborn immunizations were received by 95% of the babies by 8-10 weeks follow-up, though the timing of doses got delayed in several cases.

Return of menstruation was reported by 12/106 women (11.32%) at 4-6 weeks and by 35/106 (33%) women at 8-10 weeks of follow-up after delivery. Only 19% of women were using postpartum

contraception at 8-10 weeks of follow-up. Most of them had received post-placental intrauterine contraceptive devices (7.5%) or tubal sterilization (7.5%) at the time of cesarean. (Table 4) None of the women became pregnant again in the follow up period.

Discussion

The present study revealed that at 8-10 weeks postpartum, exclusive breastfeeding was practiced by nearly 69% of women who were COVID-positive at the time of delivery. This rate of exclusive breastfeeding is similar to what has been reported from India before the pandemic (8). As per the hospital protocols followed during the study period, all newborns were tested for infection after birth and were separated from their mother till the results were obtained. This delay, under normal circumstances, is not desirable (9). Despite this delay, most of the women practiced exclusive breastfeeding and those who did not, attributed reduced milk production as the cause for mixed feeding and not the delay in initiation of breastfeeding. While all women practiced the recommended hand and respiratory hygiene measures during hospital stay, only half of them were following these precautions at 8-10 weeks after childbirth. None of the newborns developed any COVID-related respiratory symptoms till they were followed.

The study included COVID-positive women who were asymptomatic or had mild disease. None of them developed antepartum or peripartum maternal complications. The available literature documents that 95% of pregnant women with COVID-19 infection have a mild disease (10). The cesarean delivery rate was 40.6% among the studied subjects. The pre-pandemic cesarean delivery rate at our institution has been around 30%. An increase in cesarean deliveries has been observed in women positive for COVID-19, even though obstetric indications for the procedure remain unchanged (11,12). Preterm delivery occurred in 13% of the studied subjects, with half of them having no known cause or risk factor other than COVID-19 for preterm birth. This finding is similar to that reported by

Woodworth et al who found 12.9% preterm (<37 weeks) births among 3,912 live births among COVID-positive women (13).

Only one out of the 98 newborns subjected to RT-PCR for COVID-19 tested positive for infection. The newborns are considered to have vertical transmission if they test positive within 48-hours of birth that was conducted under proper infection control measures. Various studies from different parts of the world have reported similar findings. In a review on the subject by Sheth et al. 23 neonates of the 326 COVID-positive mothers were positive of which 10 were suspected to have got it through vertical transmission (14). Another review by Elshafeey et al. reported 4 RT-PCR positive cases among 256 newborns of COVID-positive women (12). Smith et al reported one indeterminate case of vertical transmission among newborns of 92 COVID-positive women (11). The neonate who tested positive was male. Studies have shown that proportion of male neonates affected with COVID-19 is more than that of female neonates (14).

Not much is known about the postpartum contraceptive practices among women who are COVID-positive at the time of delivery. Family planning services have been severely curtailed during the current pandemic. FIGO and other professional bodies recommend providing immediate contraceptive methods to postpartum women before they are discharged from the facility during the current pandemic (15,16). Makins and Arulkumaran had emphasized the need for promoting LARCs and postpartum copper IUD (PPIUD) for this purpose (17). The latter option is particularly suitable for low and middle-income countries (LMIC), given the low cost of this method. The results of the present study provide evidence for this recommendation. Even though the figures for use of postpartum contraception among Indian women are variable ranging from 32% to 65%, the study subjects reported a much lower use due to non-availability of family planning services at our center and other facilities in the city (18).

Table 4: Postpartum contraceptive methods used by women in the study group

Method of contraception	Use in immediate postpartum	Use at 4-6 weeks follow up n (%)	Use at 8-10 weeks follow up n (%)
None	90 (84.90)	90 (84.90)	86 (81.1)
Barrier	0	0	3 (2.8)
Copper IUD	8 (7.54)	8 (7.54)	9 (8.49)
Tubal sterilization	8 (7.54)	8 (7.54)	8 (7.54)

*IUD-intrauterine devices

When contacted at 8-10 weeks after childbirth, only 19% were using postpartum contraception, most of them (15%) were the ones who had opted for PPIUD or tubal sterilization after childbirth. Return of menstruation was reported by 33% at 8-weeks after childbirth. These women would particularly be prone to have unwanted pregnancies.

A reassuring finding of the study was that 95% of the newborns had received mandatory immunizations by 8- 10 weeks of follow-up. This was due to the functioning primary health centers and presence of designated health care workers in the community “accredited social health activist (ASHA)” who ensure immunization for all babies in their allocated area.

The strength of this study was inclusion of a homogenous population of COVID-positive parturient women. Their postpartum follow up was done as per a planned study design and predefined data points. To the best of our knowledge there are no available studies regarding postpartum contraception use and breastfeeding practices among women affected with COVID-19 at the time of childbirth. This study thus fills a knowledge gap.

The limitation of this study was the lack of the control group as our center was a fully COVID facility. Secondly, this study could be improved by combining serological findings of detecting virus in breast milk to rule out vertical transmission by breast milk.

Conclusion

Exclusive breastfeeding is practiced by a majority of women who are COVID-positive at the time of childbirth. Hand washing and respiratory hygiene practices by these mothers while breastfeeding is very important. Use of postpartum contraception is poor in the current pandemic.

Conflict of Interests

Authors have no conflict of interests.

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