International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Begum KN et al. Int J Reprod Contracept Obstet Gynecol. 2024 Feb;13(2):303-306
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20240161

Original Research Article

Obstetric perinatal outcomes in COVID-19-positive pregnant women

Kazi Nazma Begum[1]*, Farjana Akther[2], Sumaiya Bushra[3]

[1]Department of Obstetrics and Gynecology, Mugda Medical College, Dhaka, Bangladesh
[2]Department of Radiology and Imaging, National Institute of Mental Health and Hospital, Dhaka, Bangladesh
[3]Green Life Medical College, Dhaka, Bangladesh

Received: 10 January 2024
Accepted: 29 January 2024

***Correspondence:**
Dr. Kazi Nazma Begum,
E-mail: kazin8720@gmail.com

ABSTRACT

Background: In December 2019, a novel coronavirus disease (COVID-19) emerged in Wuhan, China, with an incredible infection rate. The vertical transmission of COVID-19 is uncertain. Pregnant females are considered a high-risk group for the prevention and control of various communicable diseases. This study aimed to assess the obstetric perinatal outcomes in Covid-19 positive pregnant women.
Methods: This was a descriptive cross-sectional study and was conducted in the department of Obstetrics and Gynaecology, Mugda Medical College, Dhaka, Bangladesh from 26 March 2021 to 21 July 2022. A total of 94 pregnant women diagnosed as COVID-19 patients by RT-PCR tests were enrolled in this study as the study subjects purposively. Data were analysed by using MS Office tools.
Results: In the study, 23% of participants experienced lower abdominal pain as a pregnancy symptom, with 11%, 4%, and 9% reporting premature rupture of membranes, decreased fetal movement, and antepartum haemorrhage, respectively. Among the participants, 45% had vaginal deliveries, 15% had assisted vaginal deliveries, and 40% underwent lower uterine caesarean sections. Notably, 11% required ICU admission. The study recorded maternal and neonatal mortality rates of 2% and 4%, respectively, and 9% of babies needed incubation. The average APGAR score (5 minutes) was 6.8±0.2, and the mean birth weight was 2.5±0.3.
Conclusions: Lower abdominal pain and premature rupture of membranes (PROM) may be considered some major pregnancy symptoms for COVID-19-positive pregnant women. For such cases, proper facilities for LUCS, ICU and incubation are needed.

Keywords: Demographic, Clinical, Covid-19, Pregnant, Obstetrics, Pain

INTRODUCTION

Coronavirus disease 2019 (COVID-19) caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) has infected millions of people since the first day of its emergence, putting countries under intense economic, social as well as psychological pressure.[1,2] Among the susceptible group population, pregnant mothers are very vulnerable to coronavirus infection because of physiological alterations in the circulatory and immunological parameters.[3] During the pregnancy period, in pregnant women physiological changes occur like the height of the diaphragm, a decrease in the residual functional capacity of the lung and changes in the cellular immunity that may lead to increased vulnerability to any viral infection.[4] In a previous study, it was reported that pregnant mothers do not have a higher risk of COVID-19 infection but are at higher risk of any severe disease if infected than any nonpregnant female and the risk of preterm birth is higher in babies born to COVID-19 infected females.[1] COVID-19 infection during pregnancy period can lead to stillbirth as well as preterm birth.[3,4] Approximately two-thirds of pregnant mothers with COVID-19 are asymptomatic, mild cold or flu-like

symptoms are the most common among symptomatic.[5] In recent times, severe sickness among pregnant females in the antenatal period has been reported in previous studies. Ellington et al, reported that approximately one-third of pregnant mothers were hospitalized compared with non-pregnant women.[4] On the other hand, in another study they reported a higher risk of complications and decompensation in the later trimesters of the pregnancy in such cases.[5] Yu et al. reported that women receiving obstetrical care were asymptomatic; however, they developed symptoms within 2 to 3 days of their postpartum and the majority of the infections were mild.[6] Another recent study, reported a lack of evidence for vertical transmission of COVID-19 in the pregnancy period.[7] The Centers for Disease Control and Prevention reported that there is a paucity of data about the effects of coronavirus on pregnancy and neonatal outcomes.[8] Some emerging information already obtained from researchers supports the efficacy of the COVID-19 vaccine during pregnancy. Shook et al. (2022a) compared some individuals who were fully vaccinated with those who were infected with the virus between 20- and 32 weeks gestation and they reported individuals and fetal umbilical cords were tested after birth; vaccinated cases had higher antibody levels.[9] On the other hand, infants whose mothers were vaccinated before childbirth had significantly higher levels of immunoglobulin G antibodies.[10]

The objective of this current study was to assess the obstetric perinatal outcomes in Covid-19 positive pregnant women.

METHODS

This was a descriptive cross-sectional study and was conducted in the department of Obstetrics & Gynaecology, Mugda Medical College, Dhaka, Bangladesh from 26 March 2021 to 21 July 2022. A total of 94 pregnant women diagnosed as COVID-19 patients by RT-PCR tests were enrolled in this study as the study subjects. In the sample selection process, a convenient purposive sampling technic was applied. Properly written consent was taken from all the participants before data collection. The whole study was conducted following the principles of human research specified in the Helsinki Declaration and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR).[11,12] As per the inclusion criteria of this study, only RT-PCR-confirmed pregnant women with COVID-19 infection were enrolled in this study as the study subjects. On the other hand, according to the exclusion criteria of this study, patients without pregnancy were excluded. For assessing the newborn baby's status APGAR score at 5 minutes was used. All the demographic and clinical information of the participants and newborn babies was recorded.

All data were processed, analyzed and disseminated by using the MS Excel program.

RESULTS

In this study, 47% of participants were from 21-30 years, 40% were from 31-40 years, 6% were from 31-40 years and the rest 6% were from the 41-50 years age group. In the majority (51%) of our participants, the BMI was 18.5-24.9 and in one-third (34%) of the participants it was 25-29.9. We observed that one-third of the cases (34%) were with 2nd gravida, 30% were with 3rd gravida 19% were with primigravida and 11% were with 4th gravida and the rest 6% were with multi gravida. Among the total participants, about half of the patients (45%) were nulliparous, 32% were primiparous and 23% were multiparous. In our study, we found that 96% of patients were with cough, 91% were with fever, 13% were with breathlessness, 9% were with sore throat, 4% were with fatigue and 4% were with diarrhoea. In analysing the pregnancy complications among the study participants, we found that about one-fourth of our participants (23%) were with lower abdominal pain. Besides, 11%, 4% and 9% were with PROM less foetal movement and antepartum haemorrhage respectively. In about half of the participants (45%) vaginal delivery, in 15% of participants assisted vaginal delivery and in 40% of participants, LUCS was performed. In analysing the delivery outcomes, we observed that in 11% of cases, ICU admission was needed. Maternal death and baby's death were 2% and 4% respectively; for 9% of babies, incubation was used. The mean ±SD APGAR score (At 5 min) was 6.8±0.2 and the mean ±SD birth weight was 2.5±0.3.

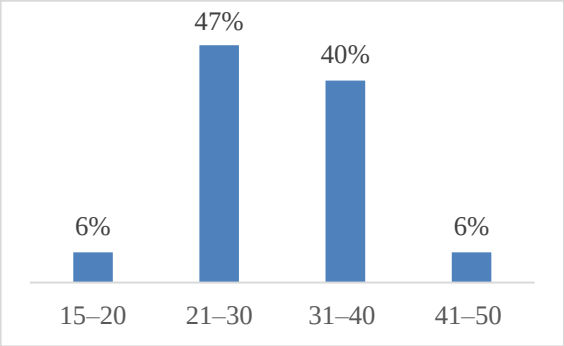

Figure 1: Age distribution of participants (N=94).

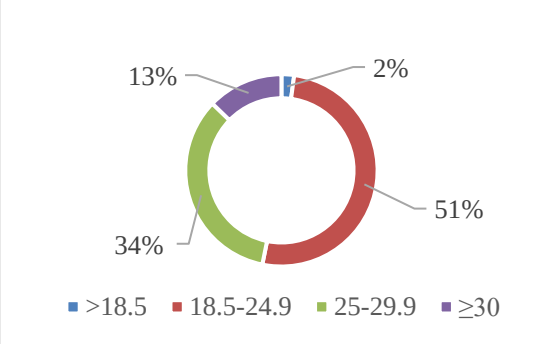

Figure 2: BMI distribution of participants.

Table 1: Distribution of gravida type.

Gravida	n	%
Primigravida	18	19%
2nd gravida	32	34%
3rd gravida	28	30%
4rth gravida	10	11%
Multi gravida	6	6%

Table 2: Distribution of parity.

Parity	n	%
Nulliparous	42	45%
Primiparous	30	32%
Multiparous	22	23%

Table 3: COVID-19 symptoms distribution.

Symptoms	n	%
Cough	90	96%
Fever	86	91%
Breathlessness	13	13%
Sore throat	8	9%
Fatigue	4	4%
Diarrhoea	4	4%

Table 4: Pregnancy complications.

Complications	n	%
Lower abdominal pain	22	23%
PROM	19	11%
Less foetal movement	4	4%
Antepartum haemorrhage	8	9%

Table 5: Distribution of delivery mode.

Mode	n	%
Vaginal delivery	42	45%
Assisted vaginal delivery	14	15%
LUCS	38	40%

Table 6: Delivery outcomes distribution.

Characteristics	n (%)/Mean ±SD	
ICU admission	10	11%
Maternal death	2	2%
Birth weight (Kg)	2.5±0.3	
Incubations	8	9%
APGAR score (5 min)	6.8±0.2	
Baby's death	4	4%

DISCUSSION

This study aimed to assess the obstetric perinatal outcomes in COVID-19-positive pregnant women. In this current study, we observed that one-third of the patients (34%) were with 2nd gravida, 30% were with 3rd gravida 19%were with primigravida, and 11% 4th gravida and 6% were with multi gravida. In a study, it was reported that since typical pregnancy symptoms may overlap with COVID-19 manifestations like shortness of breath, nasal congestion, fatigue, or nausea and vomiting, physicians should be more discerning and thorough in evaluating the gravida status during a pandemic like COVID.[13] Among the total of our participants, about half of the patients (45%) were nulliparous, 32% were primiparous, and 23% were multiparous. A previously conducted study noted that the most frequent symptoms in pregnant COVID-19-positive cases were cough in 65%, fever in 57%, shortness of breath in 47%, sore throat in 22%, anosmia in 16%, and headache in 15%.[14] In our study, we found that 96% were with fever and 91% were with cough, 13% were with breathlessness, 9% were with sore throat, 4% were with fatigue and 4% were with diarrhoea. In analysing the pregnancy complications among the study participants, we found that about one-fourth of our participants (23%) were with lower abdominal pain. Besides, 11% 4% and 9% were with PROM less foetal movement and antepartum haemorrhage respectively. In a study, premature delivery and PROM before 37 weeks of pregnancy were found in 21.2% and 1.6% of cases respectively.[15] In about half of our participants (45%) vaginal delivery, in 15% of cases assisted vaginal delivery and in 40% of cases, LUCS was performed. The rate of cesarean delivery was very high in a study in the active-infection group of COVID-19, reaching 26.19%, and nearly half of these procedures (40.9%) were performed for non-elective indications.[16] In analyzing the delivery outcomes among the participants, we found that 2% of participants were dead, 9% of babies taken to incubation facilities, and 4% of babies died. Besides, the baby's mean ± SD weight was 2.5±0.3 and the mean ±SD APGAR score (5 m) of babies was 6.8±0.2. Although the risk of adverse birth increased with increasing age, those events were not substantially higher among older women overall.[17] A long-term nationwide survey performed by the US Centers for Disease Control and Prevention on pregnant mothers with COVID-19 found that among pregnant women with SARSCoV-2 infection, the percentage of preterm live births in 2020 was only slightly higher among that population than in the general population in 2019.[18] Another nationwide study conducted on pregnant women reported that COVID-19 only marginally increased the risk of preterm birth and stillbirth.[19] All the findings of this current study may be helpful in further similar studies.

Limitation of the study

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION

As per the findings of this current study, we can conclude that Lower abdominal pain and premature rupture of

membranes (PROM)may be considered some major pregnancy symptoms for COVID-19-positive pregnant women. For such cases, proper facilities for LUCS, ICU and incubation are needed. For critical COVID cases ventilation facilities may be needed. For getting more specific results, we would like to recommend conducting similar studies in several places with larger-sized samples.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. McBride O, Murphy J, Shevlin M. Monitoring the psychological, social, and economic impact of the COVID-19 pandemic in the population: context, design and conduct of the longitudinal COVID-19 psychological research consortium (C19PRC) study. Int J Methods Psychiatr Res. 2021;30(1):e1861.
2. Singh S, Nair VG, Singh VV. Pregnancy-specific concerns and psychological impact of COVID-19 on antenatal women. Gynecol Obstet Reprod Med. 2021:1-6.
3. Schwartz DA. An analysis of 38 pregnant women with COVID-19, their newborn infants, and maternal-fetal transmission of SARS-CoV-2: Maternal coronavirus infections and pregnancy outcomes. Arch Pathol Lab Med. 2020;144(7):799-805
4. Arbabzadeh T, Noori N, Najafian A, Ghasemi M. Assessment of corona in pregnant women: Epidemiology, clinical signs, prevention and treatment. J Complement Med Res. 2020;11(3):118-30.
5. Badr DA, Mattern J, Carlin A, Cordier AG, Maillart E, El Hachem L, et al. Are clinical outcomes worse for pregnant women at≥ 20 weeks' gestation infected with coronavirus disease 2019? A multicenter case-control study with propensity score matching. Am J Obstet Gynecol. 2020;223(5):764-8.
6. Yu N, Li W, Kang Q, Xiong Z, Wang S, Lin X, et al. Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: A retrospective, single-center, descriptive study. Lancet Infect Dis. 2020;20(5):559-64.
7. Anand P, Yadav A, Debata P, Bachani S, Gupta N, Gera R. Clinical profile, viral load, management and outcome of neonates born to COVID-19 positive mothers: A tertiary care center experience from India. Eur J Pediatr. 2020;180(2):547-59.
8. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention Coronavirus Disease 2019 (COVID-19) 2020. United States: Centers for Disease Control and Prevention; 2020.
9. Shook LL, Atyeo CG, Yonker LM, Fasano A, Gray KJ, Alter G, Edlow AG. Durability of anti-spike antibodies in infants after maternal COVID-19 vaccination or natural infection. JAMA. 2022a;327(11):1087-9.
10. Holland, Cindra, Crystal Hammond, and Misty M. Richmond. "COVID-19 and pregnancy: risks and outcomes." Nursing for Women's Health 27.1. 2023:31-41.
11. World Medical Association. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. Bulletin of the World Health Organization. 2001;79(4):373-4.
12. Voigt, Paul, and Axel von dem Bussche. Enforcement and fines under the GDPR. The EU General Data Protection Regulation (GDPR). Springer, Cham, 2017;201-217.
13. Espiritu, Adrian I. Clinical Outcomes of COVID-19 Infection in Pregnant and Nonpregnant Women: Results from The Philippine CORONA Study. Vaccines. 2023;11(2):226.
14. Leal LF, Merckx J, Fell DB, Kuchenbecker R, Miranda AE, de Oliveira WK, et al. Characteristics and Outcomes of Pregnant Women with SARS-CoV-2 Infection and Other Severe Acute Respiratory Infections (SARI) in Brazil from January to November 2020. Braz J Infect Dis. 2021;25:101620.
15. Yan J, Guo J, Fan C, Juan J, Yu X, Li J, et al. Coronavirus disease 2019 in pregnant women: a report based on 116 cases Am J Obstet Gynecol, 2020;223(1):111.e1-111.e14.
16. Pierce-Williams RAM, Burd J, Felder L. The clinical course of severe and critical coronavirus disease 2019 in hospitalized pregnancies: a United States cohort study. Am J Obstet Gynecol MFM. 2020;2:100134.
17. Ackerman, Christina M. Clinical and pregnancy outcomes of coronavirus disease 2019 among hospitalized pregnant women in the United States." Open Forum Infectious Diseases. US: Oxford University Press; 2022;9(2).
18. Woodworth KR, Olsen EO, Neelam V. CDC COVID-19 Response Pregnancy and Infant Linked Outcomes Team; COVID-19 Pregnancy and Infant Linked Outcomes Team (PILOT). Birth and infant outcomes following laboratory-confirmed SARS-CoV-2 infection in pregnancy - SET-NET, 16 jurisdictions, March 29-October 14, 2020. MMWR Morb Mortal Wkly Rep. 2020;69:1635-40.
19. Jering KS, Claggett BL, Cunningham JW. Clinical characteristics and outcomes of hospitalized women giving birth with and without COVID-19. JAMA Intern Med. 2021;181:714-7.

Cite this article as: Begum KN, Akther F, Bushra S. Obstetric perinatal outcomes in COVID-19-positive pregnant women. Int J Reprod Contracept Obstet Gynecol 2024;13:303-6.