



Correspondence

Dr Meena Thapa,
Department of Obstetrics
and Gynecology,
Kathmandu Medical
College, Kathmandu,
Nepal

Email:

meenathapa513@hotmail.com

Phone: +977-9851060052

Received: 17 Aug 2022

Accepted: 1 Dec 2022

Citation: Thapa M.
Karki D, Maharjan S,
Lama LD. Clinical and
Demographic Profile of
Covid-19 Infected
Pregnant Women admitted
in Obstetric Ward. *Nep J
Obstet Gynecol.*
2022;17(35):58-63. DOI:
<https://doi.org/10.3126/njog.v17i2.52378>

Clinical and Demographic Profile of Covid-19 Infected Pregnant Women admitted in Obstetric Ward

Meena Thapa. Dilasha Karki, Sujata Maharjan, Lakpa Dolma Lama

Kathmandu Medical College, Kathmandu, Nepal

ABSTRACT

Aims: To evaluate the severity of the infection among pregnant women in an urban area of Nepal during the first surge in COVID-19 cases in Nepal in the year 2020.

Methods: This is a retrospective and descriptive study carried out at Department of Obstetrics and Gynecology in Kathmandu Medical College, Kathmandu, Nepal, from August 2020 to January 2021. All the Covid infected pregnant women admitted in Obstetric ward for various presenting symptoms were included.

Results: Among 52 Covid-19 positive pregnant women admitted for various obstetrical and medical complaints, 90.38% were asymptomatic at the time of admission. Those who were symptomatic (9.61%) had mild form of infection. Majority of infected women were admitted in the month of October and November with most common presentation being women in labour (48.07 %).

Conclusions: Pregnant women with SARS Covid-19 infection has no greater threat to their health.

Keywords: Covid-19, pregnancy, symptoms

INTRODUCTION

COVID-19 infection, a worldwide pandemic is an ongoing battle between the health care workers and the virus. Since it affects all age groups, has easy communicability and symptoms vary from mild asymptomatic form to severe form leading to system failure and death, it has been a herculean challenge to fight this constant battle. Patients with low immunity seem to have severe symptoms compared to their counterparts with good immunity. According to World Health Organization (WHO) and Center for Disease Control (CDC) pregnant women are more likely to be severely affected by some respiratory infections including SARS-Cov-19 with significantly higher rates of intensive care unit (ICU) admission, mechanical ventilation, extracorporeal membrane oxygenation and death. Pregnant women who are older, overweight, and those having pre-existing medical conditions seem to have an increased risk of developing severe Covid-19.¹ Severe Covid-19 infection has

also been associated with some obstetrics complications like prelabour rupture of membrane, fetal distress and preterm birth, but till date no vertical transmission of infection to fetus has seen.^{2,3}

The first case in Nepal was confirmed on 23rd January 2020 when a 31-year-old student, who had returned to Kathmandu from Wuhan on 9th January, tested positive for the disease. A country-wide lockdown came into effect on 24th March 2020 and ended on 21 July 2020 and a surge of cases was noted in the next six months. National data regarding the incidence of COVID-19 in pregnancy wasn't available however, in a study conducted in Wuhan from December 2019 to March 2020, pregnant patients constituted 0.24% of all hospital admissions attributed to COVID-19 cases.⁴

This study was aimed at evaluating the severity of the infection among pregnant women in an urban area of Nepal during the first surge in COVID-19 cases in Nepal in the year 2020.

METHODS

The study was a retrospective descriptive study conducted in the Department of Obstetrics and Gynecology at Kathmandu Medical College, Kathmandu, Nepal. Ethical approval was taken from the Institutional Review Committee (IRC), Kathmandu Medical College. The identity of cases and their data were kept confidential and were used for research purpose only. After the onset of pandemic, all pregnant ladies admitted to the ward were tested for COVID-19. Oropharyngeal and nasal swabs were taken and sent for RT-PCR in the hospital laboratory. Relevant data were collected by reviewing charts of pregnant ladies who were positive for the infection

admitted between August 2020 to January 2021. Patients were then classified into various categories of severity as defined by World Health Organization (WHO).

- Asymptomatic or pre-symptomatic Infection: Individuals who test positive for SARS-CoV-2 using a virologic test (i.e., a nucleic acid amplification test [NAAT] or an antigen test) but who have no symptoms that are consistent with COVID-19.
- Mild Illness: Individuals who have any of the various signs and symptoms of COVID-19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste and smell) but who do not have shortness of breath, dyspnea, or abnormal chest imaging.
- Moderate Illness: Individuals who show evidence of lower respiratory disease during clinical assessment or imaging and who have an oxygen saturation (SpO₂) ≥94% on room air at sea level.
- Severe Illness: Individuals who have SpO₂ <94% on room air at sea level, a ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO₂/FiO₂) <300 mm Hg, a respiratory rate >30 breaths/min, or lung infiltrates >50%.
- Critical Illness: Individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.⁵

RESULTS

A total of 52 pregnant women who were admitted in our ward were found to be COVID-19 positive during the period of our study. The number of COVID positive cases admitted were zero, five (9.61%), twenty (28.46%), seventeen (32.69%), nine (17.31%) and one (1.92%) in August, September, October, November, December and January respectively. A peak in the cases was seen in the months of October and November.

Among the admitted cases, two (3.84%) were less than 20 years of age, 39 (75%) were between 20 to 30 years of age, 11(21.15%) were between 30 to 40 years and none of the cases were over 40 years of age. Among the cases, half (26,50%) were primigravda and half were multigravida.

The cause of admission for the cases were labour pain in 25 (48.07%) patients, rupture of membranes in 7 (13.46%) patients, obstetric complications in 7 (13.46%) cases namely, intrauterine fetal growth restriction (IUGR), oligohydramnios, antepartum hemorrhage with placenta praevia, obstetric cholestasis, threatened abortion. Six (11.53%) patients were admitted for medical complications of pregnancy among which three cases had hypertensive disease of pregnancy, two cases had gestational diabetes mellitus and one had bronchial asthma. Only five patients were admitted for planned delivery among which four (7.69%) were planned for induction of labour and one (1.92%) was admitted for elective Cesarean Section and two (3.8%) of our cases were admitted with the complaint of decreased fetal movement. [Table-1]

Table-1: Reason for admission

Complaints at Admission	Number	%
Labour pain	25	48.07%
Rupture of membranes	7	13.46%
<i>Obstetric complications:</i>	7	13.46%
IUGR	2	3.84%
Oligohydramnios	2	3.84%
Placenta praevia	1	1.92%
Obstetric cholestasis	1	1.92%
Threatened abortion	1	1.92%
<i>Medical disorders:</i>	6	11.53%
Hypertensive disorders	3	5.76%
GDM	2	3.84%
Bronchial asthma	1	1.92%
PROM	4	7.69%
Decreased fetal movement	2	3.84%
For elective CS	1	1.92%

Among the 52 cases, 5 (9.61%) patients were found to be symptomatic with mild symptoms and the rest, that is, 47 (90.38%)

patients did not have any symptoms of COVID-19 infection (Figure 1).

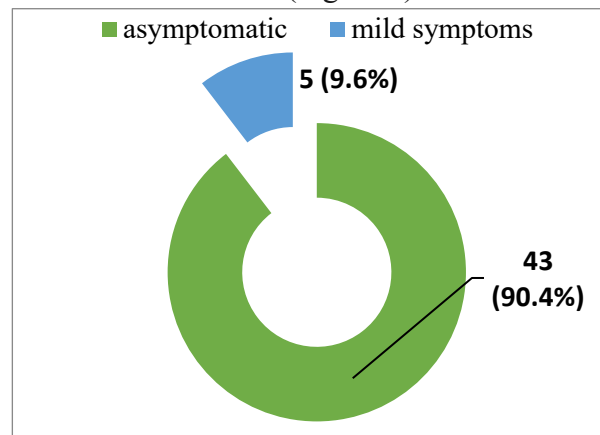


Figure-1: Clinical severity of COVID-19 infection

Among the symptomatic cases, 1 (1.92%) patient, who was a known case of bronchial asthma, presented with features of shortness of breath and was treated with antibiotics and mucolytics, two (3.84%) cases had presented with labour pain and cough, one (1.92%) case who was admitted for induction of labour had fever and was treated with antibiotics and antipyretics and one (1.92%) patient admitted with complains of per vaginal leaking had cough and runny nose.

Out of all the pregnant ladies admitted, 48 patients (92.31%) delivered before discharge among which 43 (82.69%) cases delivered at term and five (9.61%) deliveries were preterm.

None of the patients required supplementary oxygen or ICU admission nor did they have any complications of COVID-19 or pregnancy.

For the duration of the study, that is, from 1st August 2020 to January 31st, 2021, a total of 2,51,188 cases of COVID-19 were recorded in Nepal among which 91,962 (36.61%) were females. This monthly distribution of our cases was found to mimic that of the national distribution of the cases with majority of the cases occurring during October and November.⁶ [Figure-2]

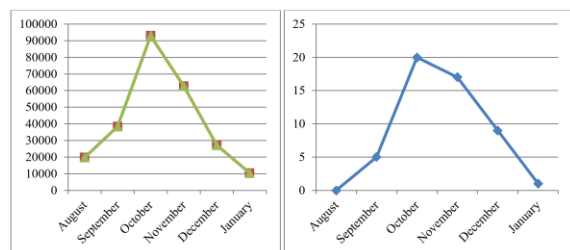


Figure-2: Monthly distribution of cases in the national level (left)⁶ Vs. the number of positive cases admitted in our ward (right)

DISCUSSION

According to the findings of this study, majority of the pregnant ladies who tested positive for COVID-19 remained asymptomatic (43, 90.38%) and the few that were symptomatic only showed mild symptoms (5, 9.61%). There were no cases requiring oxygen supplementation or ICU care and no deaths noted among the study population.

Similar findings were noted in a study conducted in Wuhan from December 2019 to March 2020, among 118 pregnant women diagnosed with COVID-19, 109 women (92%) had mild disease, and 9 (8%) had severe disease (hypoxemia), 1 of whom received noninvasive mechanical ventilation (critical disease).⁴

However, in a study conducted by Berry et al in the University of Texas between March and July 2020 in which among the 91 women who had tested positive for SARS-CoV-2 upon admission to the labor and delivery unit, majority of the women, that is, 61.5% were asymptomatic, 34.1% were symptomatic, and 4.4% required oxygen support and maternal characteristics including age, body mass index (BMI), and presence of co-morbid conditions did not appear to influence severity of SARS-CoV-2 infection.⁷

Also in contradiction to our study are the findings of a multicenter study conducted in Italy from February to March 2020 by Savasi

et al, in which among the 77 patients included, 84% were symptomatic on admission, 14(18%) of whom had severe disease, 11 patients underwent urgent delivery for respiratory compromise (16%), 6 were admitted to the ICU (8%), 1 woman received extracorporeal membrane oxygenation; no deaths occurred. Increased pregestational BMI and abnormal heart and respiratory rates on admission were associated with severe disease.⁸

In November 2020, the Centers for Disease Control and Prevention (CDC) released surveillance data on outcomes in approximately 400,000 reproductive-aged women with symptomatic, laboratory-confirmed COVID-19. After adjusting for age, race/ethnicity, and underlying medical conditions, pregnant women had significantly higher rates of intensive care unit (ICU) admission, mechanical ventilation, extracorporeal membrane oxygenation and death. Maternal factors that were associated with severe disease included increased maternal age a high body mass index any pre-existing maternal comorbidity, including chronic hypertension and diabetes, pre-eclampsia, and pre-existing diabetes.^{5,9-14} The worsening prognosis of COVID -19 in pregnancy has been attributed to cytokine storm, was more likely in pregnancy. In a review paper, where researchers had reviewed 17 previous reports that included over 840,000 women, of which included approximately 46,000 pregnant women with COVID-19, it was found that pregnant women were more likely to experience adverse outcomes of COVID-19 as compared to non-pregnant women as 14% of pregnant women with COVID-19 had unregulated high cytokine levels as compared to 3% of non-pregnant women increasing the odds of development of severe disease in the former group by 2.5.¹⁵

According to Jha et al who conducted a study in the Armed Police Hospital in Nepal from December 2020 to January 2021, more than half 57.1% (95%CI: 52.42-61.51) of the patients of the general non-pregnant population admitted with COVID-19 had a mild infection, whereas 16.7% (95%CI: 7.4-24.6%) had severe/critical illness.¹⁶ Such discrepancies between the general and gravid population maybe attributed to the fact that the reason for admission for the general population was COVID related symptoms whereas for our pregnant population, the main reason for admission was obstetric causes and COVID infection was an incidental finding.

The discrepancies in the findings of our study in comparison to all these other studies may be attributable to our smaller sample size.

REFERENCES

1. WHO. Coronavirus disease (COVID-19): Pregnancy and childbirth. [online] 2020 [cited 2021 Jan 24]. Available from: <https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-pregnancy-and-childbirth>.
2. Akhtar H, Patel C, Abuelgasim E, Harky A. COVID-19 (SARS-CoV-2) infection in pregnancy: a systematic review. *Gynecol Obstet Invest.* 2020;85(4):295-306.
3. COVID-19 Treatment Guidelines Panel. Coronavirus Disease 2019 (COVID-19) Treatment Guidelines. National Institutes of Health. Available at <https://www.covid19treatmentguidelines.nih.gov/>. Accessed 10-01-2022.
4. Chen L, Li Q, Zheng D, Jiang H, Wei Y, Zou L, et al. Clinical characteristics of pregnant women with Covid-19 in Wuhan, China. *New Eng J Med.* 2020;382(25):e100.
5. COVID-19 Treatment Guidelines Panel. Coronavirus Disease 2019 (COVID-19) Treatment Guidelines. National Institutes of Health. Available at <https://www.covid19treatmentguidelines.nih.gov/>. [Accessed 10 January 2022]
6. Covid19.mohp.gov.np. 2022. CoVid19-Dashboard. [online] Available at: <https://covid19.mohp.gov.np/> [Accessed 10 December 2022].
7. Berry M, Wang A, Clark SM, Harirah HM, Jain S, Olson GL, et al. Clinical Stratification of Pregnant COVID-19 Patients based on Severity: A Single Academic Center Experience. *Am J Perinat.* 2021;38(05):515-22.
8. Savasi VM, Parisi F, Patanè L, Ferrazzi E, Frigerio L, Pellegrino A, et al. Clinical findings and disease severity in hospitalized pregnant women with coronavirus disease 2019 (COVID-19). *Obstet Gynecol.* 2020;136(2):252-8.
9. Metz TD, Clifton RG, Hughes BL, Sandoval G, Saade GR, Grobman WA, et al. Disease severity and perinatal outcomes of pregnant patients with coronavirus disease 2019 (COVID-19). *Obstet Gynecol.* 2021;137(4):571.
10. Zambrano LD, Ellington S, Strid P, Galang RR, Oduyebo T, Tong VT, et al. Update: characteristics of symptomatic women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status—United States, January 22–October 3, 2020. *Morbidity and Mortality Weekly Report.* 2020 Nov 6;69(44):1641.
11. Ko JY, DeSisto CL, Simeone RM, Ellington S, Galang RR, Oduyebo T, et al. Adverse pregnancy outcomes, maternal complications, and severe illness among US delivery hospitalizations with and without a

- COVID-19 diagnosis. *Clinical Infectious Diseases*. 2021 May 12.
12. Woodworth KR, Olsen EO, Neelam V, Lewis EL, Galang RR, Oduyebo T, et al. Birth and infant outcomes following laboratory-confirmed SARS-CoV-2 infection in pregnancy—SET-NET, 16 jurisdictions, March 29–October 14, 2020. *Morbidity and Mortality Weekly Report*. 2020;69(44):1635.
 13. Ellington S, Strid P, Tong VT, Woodworth K, Galang RR, Zambrano LD, et al. Characteristics of women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status—United States, January 22–June 7, 2020. *Morbidity and Mortality Weekly Report*. 2020;69(25):769.
 14. Allotey J, Stallings E, Bonet M, Yap M, Chatterjee S, Kew T, et al. Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: living systematic review and meta-analysis. *Br Med J*. 2020;370.
 15. Thomas, Liji. "Increased severity of COVID-19 in pregnancy". *News-Medical*. <https://www.news-medical.net/news/20210623/Increased-severity-of-COVID-19-in-pregnancy.aspx>. (accessed December 27, 2021).
 16. Jha RK, Shrestha A, Tamang B, Indu KC, Sah SK. Predisposing factors associated with the severity of the illness in adults with Covid-19 in Nepal. *medRxiv*. 2021 Jan 1.