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Original Research Article

Study of symptomatology and presentations of COVID-19 in pregnancy at a tertiary care hospital

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ABSTRACT

Background: Objectives of this study were to study the incidence of SARS-CoV-19 positivity and the incidence of different signs and symptoms associated with COVID-19 in pregnancy and comparison of the same with studies done in different populations previously.

Methods: In this retrospective study, antepartum and postpartum parameters were integrated into the clinical records and total 205 ANC and PNC SARS-CoV-19 positive patients were evaluated for the signs and symptoms of COVID-19 over 2 months.

Results: In our study, of all patients tested SARS-CoV-19 positive only 14.65% were symptomatic and rest were incidentally tested positive on admission. Of the symptomatic patients 50% had breathlessness followed by fever (13.33%). 92% patients had mild disease; approximately 8% had moderate disease and 6 out of 205 patient needed ICU care.

Conclusions: The present study shows that 85.35% SARS-CoV-19 positive ANC and PNC patients were asymptomatic while only 14.65% symptomatic with breathlessness being the most common symptom at our institute.

Keywords: SARS-CoV-19 in pregnancy, COVID-19, Symptomatology in pregnancy

INTRODUCTION

Coronavirus disease 2019 is an emerging disease with a rapid increase in cases and deaths since its first identification in Wuhan, China, in December 2019. Corona virus disease19 (COVID-19) has become a global pandemic with 1,64,94,128 number of case worldwide while in India the total number of cases have been 2396637 and death due to COVID-19 being 66999 as on 13 August, 2020.¹ Its unparalleled speed of spread has left us all in a worldwide alarming situation. The causative agent is Severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). It's a single stranded RNA enveloped virus causing various degrees of illness ranging from common cold to pneumonia and acute

respiratory distress.² Importantly, viral respiratory illnesses, such as influenza, can easily develop during pregnancy, which means pregnant women may be more vulnerable to COVID-19 and require prioritized medical care. Although the risk of infection in pregnant woman is the same as that in general population but previous studies have indicated that SARS during gestation is linked with a high risk of spontaneous miscarriage, preterm birth and intrauterine growth restriction.³

As pregnancy is a state of immunosuppression and along with other physiological respiratory and immune changes, pregnant women might show more severe symptoms of COVID-19 infection. To date, studies in pregnant women with COVID-19 have indicated few

maternal and neonatal complications.⁴ The vertical transmission risk remains uncertain.⁵

The objective of this study was to study the incidence of SARS-CoV-19 positivity among pregnant women getting admitted for obstetric emergency and to study the symptomatology and clinical presentations of COVID-19 in these patients.

METHODS

This observational study has been conducted in the department of obstetrics and gynecology at Cama and Albless Hospital in Mumbai, spanning over 2 months from 1 May 2020 to 30 June 2020 with a sample size of 205 cases of COVID positive pregnant and postpartum women. Approval of ethical committee was taken.

Inclusion criteria

All pregnant women admitted at the hospital and testing positive for SARS-CoV-19 by RT-PCR. All postnatal patients who were diagnosed intrapartum or immediate postpartum as COVID positive and transferred to Cama hospital for COVID care.

Exclusion criteria

All those tested negative for SARS-CoV-19 and gynaecological patients and healthcare workers were excluded out of the study. All patients coming to OPD and Emergency care were first screened for symptoms of COVID-19 and divided into low and high risk of COVID with the help of a screening questionnaire measuring severity of symptoms, history of contact with confirmed or suspected cases of COVID-19 and community exposure. Thorough history was taken to trace contact with COVID patients, any symptoms suggestive of respiratory illness and signs eliciting respiratory compromise. All patients regardless of presence or absence of symptoms COVID-19 oropharyngeal or nasopharyngeal swab were taken and sent for RT-PCR testing. Diagnosis of COVID-19 is mainly based on computed tomography (CT) scans and reverse transcription polymerase chain reaction (RT-PCR). This test is routinely employed for the detection of viruses responsible for respiratory illnesses.⁶ In the RT-PCR technique, viral isolates are used as a primary substrate to perform an assay that identifies a specific virus and its gene sequence.⁷

All data was collected after taking due consent of the patients and their family members after taking ethical Committee approval and Microsoft Office Excel was used for analysis of the data.

RESULTS

Out of the 205 patients documented 107 were antenatal patients while 98 were postnatal patients transferred for

COVID care. Among the study population, there were 1 spontaneous abortion and 4 ectopic pregnancies. Out of the rest, 17 patients were post-dated on admission, 45 were full term, 27 patients from 32 weeks to 36 weeks and 6 days, 4 patients in the range of 28 to 32 weeks. Second trimester admissions were 4 and 7 in first trimester including abortion and ectopic gestation as mentioned in (Table 1). Out of all 205 patients 76 were nulliparous, and 96 of 107 (92.04%) had been infected with SARS-CoV-2 in the third trimester.

Table 1: Trimester wise incidence of SARS-CoV-19 positivity.

ANC	N
Postdated	17
Full term	48
32-37 weeks	27
28-32 weeks	4
Second trimester	4
First trimester	2
Ectopic gestation	4
Abortion	1
Total	107

Table 2: Parity and SARS-CoV-19 positivity.

Variables	N (%)
Nulliparous	76 (37.07)
Parous	129 (62.93)

Out of all the 205 patients 69 patients were high risk patients with known comorbidities such as hypo/hyperthyroidism, anemia, hypertension in pregnancy, gestational or overt diabetes or a high risk pregnancy. This number is of significance as it was suggested that the severity of infection may depend on the underlying health of the individual patients with pre-existing illnesses, such as diabetes and lung disease, as well as the elderly, being more prone to the rapid development of COVID-19.⁸ Overall, 33.66% had at least 1 coexisting illness; frequently reported illnesses included hypothyroidism, hypertension and anemia (Table 3).

It was seen from screening that only 16 of the 107 pregnant women were symptomatic with symptoms such as fever, cough, cold and breathlessness, 91 of 106 (85.04%) pregnant women were asymptomatic at admission (Table 4). Most PNC mothers admitted for COVID-19 care were asymptomatic and incidental SARS-CoV-19 positive. Among these patients all had a community exposure, defined as being located within a setting with a known outbreak and only 2 women had direct contact with a known infected person.

A total of 91 of 107 pregnant women (92%) had no to mild disease, and 9 (8%) had moderate disease (hypoxemia), although of the 205 patients 6 patients were

needed to be shifted to the ICU after persistent drop in saturation even on O2 support for breathlessness.

Table 3: Distribution of associated comorbidity/high risk factors among the study population.

Associated comorbidity/ high risk factor	N (%)
Thyroid abnormality	15 (21.74)
Hypertensive disorders in pregnancy	20 (28.98)
Anemia	12 (17.39)
Diabetes in pregnancy	2 (2.9)
APH	3 (4.35)
Twin gestation	3 (4.35)
IUFD	1 (1.45)
Tuberculosis	3 (4.35)
Bronchial asthma	2 (2.9)
Others	8 (11.59)

Table 4: Presenting signs and symptoms associated with COVID-19 among the study population.

Variables	N (%)
Signs	
Asymptomatic	175 (85.35)
symptomatic	30 (14.65)
Symptoms	
Fever	4 (13.33)
Cough	3 (10)
Cold	3 (10)
Breathlessness	15 (50)
Fatigue	1 (3.33)
Diarrhoea	0 (0)
Headache	2 (6.66)
Chest tightness	2 (6.66)

A total of 179 of 205 patients (87.31%) had delivered during the study period and had 180 births (1 set of twins). Out of these patients, 31.84% underwent a cesarean section; of which 2 were preterm LSCS. In none of the cases LSCS was performed because of concern about the effects of Covid-19 on the pregnancy and all were due to an obstetric indication or elective LSCS. 3 patients delivered vaginally after cesarean section. A total of 16 deliveries (8.9%) were premature. Exploratory laparotomy was performed in all 4 patients diagnosed with ectopic gestation.

DISCUSSION

A similar study was done in Wuhan, China from 8 December, 2019 to 20 March, 2020, where 118 pregnant women were studied with the median age of women being 30 years.^{8,9} Out of the study population 52% were nulliparous as compared to our study in which there was a disparity between the parity with 62.93% patients being parous. As per the study in Wuhan SARS-CoV-2 positivity was seen in majority in the third trimester

which constituted 64% of the study population similar to our study where it was 60.74% (65 out of 107). High detection rate of SARS-CoV-19 in the third trimester could be attributed to increased incidence of testing in this group as the patients reached near term. As per the study at Wuhan, 95% patients had symptoms with fever and cough being the most common symptoms (75% and 73% respectively) which was also consistent with the findings of meta analysis review by Matar et al while only 5% were asymptomatic and were screened only because of exposure to persons with confirmed or suspected COVID-19.^{1,8} Contrary to the above in our study it was seen that 85.35% patients tested positive for SARS-CoV-19 positive by RT-PCR were asymptomatic while only 14.63% were symptomatic in which breathlessness was the most common symptom (50%) followed by fever (13.33%). This contradiction in symptomatology could be attributed to generalized testing of all pregnant women reaching term regardless of presence or absence of symptoms. The findings here are suggestive of a high rate of SARS-CoV-19 positivity in asymptomatic pregnant women who can be a source in the community if not detected at the earliest. Hence, routine screening of all pregnant women is emphasized based on the above found results. In our study it was seen that 6 out of 205 patients (2.93%) eventually needed ICU admission while the rest were discharged with an uneventful course in the hospital.

CONCLUSION

In this study done at a tertiary care centre in Mumbai, it was seen that of the 205 patients only 14.65% patients were symptomatic at presentation or developed symptoms during their course in the hospital. Hence it can be safely said that approximately 85% of SARS-CoV-19 positive patients did not develop disease manifestations and were infected as a result of community exposure and could be potential silent sources for transmission of the causative agent. The above results hence highlight the need of proper screening and testing for SARS-CoV-19 regardless of presence or absence of signs and symptoms in all pregnant women as followed at our institution.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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