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Original Research Article

Antenatal care during the COVID-19 pandemic

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ABSTRACT

Background: COVID-19 pandemic has affected the daily living globally. It has added to the stress of day to day life. COVID-19 is associated with severe disease in high-risk population groups with increased mortality risk. COVID-19 and its impact on pregnancy needs extensive research. Early research data does not suggest any increased risk in the pregnant population and Vertical transmission is yet to be confirmed. As of now no standard protocol is available for management of COVID-19. Social distancing is the best possible mechanism available to protect patients and health care personnel from COVID-19. The aim of this study is to know the effectiveness of protocol based Antenatal care during COVID-19 pandemic.

Methods: This study was conducted at the Antenatal clinic. A total of 40 antenatal cases who satisfied inclusion and exclusion criteria were selected for the above study. They were assessed at the antenatal clinic following a modified protocol.

Results: Majority of the pregnant women in the study group were primigravidas and belonged to the age group of 21-25 years. They were called for Antenatal check-ups as per the protocol specifically modified taking into consideration the COVID-19 pandemic. 80% of the deliveries in present study were normal delivery and only in obstetric emergencies LSCS was performed.

Conclusions: Antenatal care in COVID-19 pandemic is challenging yet essential. Following a protocol based approach is the key to management of Antenatal care amidst the pandemic. It is cost-effective and has an easy learning curve.

Keywords: Antenatal, Delivery, Pandemic, Protocol

INTRODUCTION

Today COVID-19, has gripped the world in the form of a grave pandemic. More than 1,000,000 individuals have been infected globally, with the numbers increasing on a daily basis.

The severity of illness ranges from a mild flu like illness to morbid pneumonia. As per the data available the incubation period ranges from 2 to 14 days.¹ Advanced age groups those older than 50 years, comorbidities such as COPD, chronic respiratory illness, heart disease and

diabetes are associated with more severe and morbid COVID-19 infection.² Available data shows that the 80% of cases are mild, 14% develop severe disease and critical illness in 6% of general population.³

The modes of spread include respiratory droplets and through fomites. Flu like illness in form of fever, cough, generalized weakness, headaches, and gastrointestinal symptoms are common symptoms associated with COVID19 infection.⁴ Laboratory parameters typically show leukopenia, lymphopenia and thrombocytopenia in few cases.

Severe infection can cause pneumonia with ARDS-like critical illness.^{5,6} COVID19 can even affect the heart causing viral myocarditis even in patients without any underlying cardiac pathology.⁷ The median time interval from onset of symptoms to ICU admission is 10 days.⁸

Mortality rates vary and is multifactorial in range, of 0.6 and 4% as per latest data.^{8,9} Mortality is higher among the high-risk population groups as high as 6% in hypertension, 7.3% in diabetes, and 6.3% in chronic respiratory illnesses.^{7,10}

Till date, specific treatment or vaccine for the COVID19 virus is lacking. Symptomatic treatment in mild cases and supportive care in severe cases is the standard care as of now. Recent studies show hydroxychloroquine and azithromycin to decrease viral burden, but only in mild infections.^{11,12}

COVID-19 and its impact on pregnancy needs extensive research. Early research data does not suggest any increased risk in the pregnant population and Vertical transmission is yet to be confirmed. As of now no standard protocol is available for management of COVID-19. Social distancing is the best possible mechanism available to protect patients and health care personnel from COVID-19. The aim of this study is know the effectiveness of protocol based Antenatal care during COVID-19 pandemic.

METHODS

This prospective study was conducted in the Department of Obstetrics and Gynecology, Naval Hospital Sandhani. The study was carried out between March2020 - July2020. From the antenatal clinic, 40 women who satisfied the following inclusion and exclusion criteria were admitted to the study.

Inclusion criteria

All pregnant women. Women willing to come for antenatal checkups as per the protocol

Exclusion criteria

Maternal complications such as diabetes, renal disease, hypertension and other medical disorders. Bad obstetric history.

Methodology

From the antenatal clinic, 40 women who satisfied the inclusion and exclusion criteria were admitted to the study. At the first visit, a detailed history regarding her present pregnancy was recorded along with a detailed past obstetric history and family history. All pregnant women who participated in the study were examined at regular intervals of as per the COVID19 specific protocol.

As per this protocol, ANC visits were scheduled as follows;

1. First visit at 8-9 weeks of gestation.
2. Second visit at 13-14 weeks of gestation.
3. Third visit at 20-24 weeks of gestation.
4. Fourth visit at 32-34 weeks of gestation.
5. Fifth visit at 37-38 weeks of gestation.

During such visits, antenatal check-up was carried out following the prescribed standard norms including Maternal weight, general as well obstetric examination, blood investigations and foetal growth profile along with additional COVID-19 social distancing measures. At every such visit, Pregnant mothers were counselled about the importance of staying indoors, self-monitoring and following the social distancing measures along with the routine ANC measures. A helpline number was provided to the expectant mothers for telephonic consultation in the interim period before the next scheduled check-up as per the COVID-19 specific protocol.

Statistical analysis

The statistical analysis of the data thus collected is done by observational method of data analysis and computed in results respectively.

Antenatal care considerations during this COVID-19 pandemic

Outpatient care

At this moment, the best strategy against COVID-19 appears to be Prevention. Social distancing measures have proven to be effective in breaking the chain of COVID transmission.

This has been supported by the apex organizations worldwide including CDC and ACOG. Most importantly unnecessary travel, social gatherings are to be avoided .Same was counselled to all the pregnant mothers during their protocol based scheduled visit to the ANC clinic.

In Addition to this regular sanitization of frequently touched surfaces like stools, tables, mobiles and knobs was carried out with sodium hypochlorite solution and hand sanitizer for personal hygiene along with N95 mask and Face shield while examining the patients.

Inpatient care

Taking into consideration the asymptomatic carriers, all term patients were subjected to COVID-19 testing within 5 days of expected day of delivery.

In case of emergencies appropriate PPE was used for examination of the patient and for delivery too with minimal and dedicated personnel in such case scenarios.¹³

RESULTS

Age distribution of women who participated in this study is shown in the Table 1.

Table 1: Characteristics of the women in the study.

Age (years)	Total no. (%)
21-25	25 (62.5)
26-30	10 (25)
31-35	5 (12.5)
Total	40 (100)

From the above table it is seen that the maximum number of pregnant women belonged to the age group of 21-25 years. (62.5%) followed by the 26-30 yrs. age group (25%). As already discussed, advanced age is one of the most important risk factors for severe COVID19 infection. Innate immunity and Nutritional status plays an important role in protection against the infection.

The parity of the women who participated in this study is shown in the Table 2 below:

Table 2: Parity.

Parity	Total no. (%)
G1	30 (75)
G2	10 (25)
Total	40 (100)

From the above table it is seen that 75% of the pregnant women in the study group were primigravidas and 25% were second gravidas. They were called for Antenatal check-ups as per the protocol mentioned in materials and methods.

Similar such protocol has been adopted by study of Dotters-Katz, Hughes 14 mentioned in the table below-Table 3.

Table 3: Low-risk prenatal care visit schedule.

Gestational age (in weeks)	Proposed visit	Tests	Explanation
8-12	Viability ultrasound New to nurse visit New OB provider		
12		Aneuploidy screening without ultrasound genetic counselling	
18-20	Return OB provider	Anatomy ultrasound	
24-26	Telehealth visit return OB visit		Schedule 6 weeks from prior visit
28-30	Return OB provider visit	3 rd trimester laboratories TDAP vaccine	
32-34	Telehealth visit return OB visit		Schedule 4 weeks from prior visit
36	Return OB provider visit	GBS screen	
37 until delivery	7-12 days return OB provider visits		
Postpartum	Telehealth 1-week mood check		

Table 4: Modes of delivery.

Mode of delivery	Number (%)
Normal	12 (80)
LSCS	3 (20)
Total	15 (100)

Even ACOG has adopted triage protocol taking into consideration low risk and high risk antenatal population. It has incorporated the telemedicine and scheduling of visits as in present study.

Adopting such protocol is very important to avoid unnecessary exposure of pregnant mothers and health care workers taking into consideration the asymptomatic carriers. This methodology will definitely help to contain the transmission of COVID19 at a large scale.

In the present study, during the study period there were 15 deliveries as shown in Table 4.

As shown in the above table, 80% of the deliveries in present study were normal delivery and only in obstetric

emergencies LSCS was formed, only in 3 cases in present study. COVID 19 Infection or severe infection per say is not an indication for the delivery or for LSCS.^{15,16} Infection at term is not an indication for LSCS delivery. Standard aseptic precautions and prophylactic antibiotics was used in every case as per the recommendations along with Appropriate PPE and social distancing measures.¹⁷

“COVID-19 simulation” dry runs to practice donning and doffing, of PPEs was conducted on a regular basis to ensure the entire team is accustomed to the protocol especially in Obstetric emergencies.

DISCUSSION

As per the current data, there are no reported COVID19 cases in the first trimester. Its implications with respect to miscarriage and teratogen effects is yet to be explored. Even in the present study Pregnant women in first trimester during the study period had an uneventful course. These findings are supported by the study conducted by Alfaraj et al.¹⁸

There was no any case of spontaneous abortion noted in any of the pregnant women in present study. None of the cases presented with gross anomalies either. Study by Rasmussen et al, also found no any association between the virus exposure and spontaneous abortion.^{19,20}

Current Data shows no any increased risk of COVID-19 in pregnant women nor any evidence of serious infections.²¹⁻²⁴ This findings support our study results wherein none of the pregnant women contacted COVID-19 infection throughout the study period with zero Mortality as support by the available data.²¹⁻²⁴ However, the risk of exposure of health care workers to asymptomatic carriers exists and adds to stress on overwhelmed health care systems.²⁶⁻²⁷ This adds to importance of Specific protocol based Antenatal care management during the COVID-19 pandemic as followed in present study.

In the present study no any pregnant women in advanced Gestational ages developed adverse outcomes like preeclampsia, PPROM. This findings are supported by the latest data COVID-19 infection does not increase the risk of preeclampsia, associated adverse outcomes including PPROM.²³

As of today, there is no evidence of COVID19 vertical transmission. Recent studies suggest no evidence of virus in the amniotic fluid, mucus secretions, cord blood.^{23,24} These findings support our results wherein no adverse neonatal outcomes were seen irrespective of mode of delivery. Exclusive breast feeding was established in all cases. No data is available to support the transmission of COVID19 through breast milk.²³

In the present study majority of women delivered normally. LSCS was done only in cases of obstetrics

Emergencies with valid indication.COVID-19 infection is not an indication for delivery. Operative delivery should be reserved only for obstetric indications as in the present study.

CONCLUSION

COVID-19 has emerged as the worst pandemic of current era and has overwhelmed the health care systems globally, with health care workers at enhanced risk of contracting infection if specific protocols are not followed judiciously. Even though COVID-19 is not associated with adverse outcomes in pregnant women, it is still an obstetrician’s challenge worldwide. Following a protocol based approach is the key to effective management of Antenatal care amidst this pandemic. It is cost-effective and has an easy learning curve. This approach along with the social distancing measures and use of appropriate PPE offers the best protective mechanism against the COVID-19 as of today.

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Conflict of interest: None declared

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

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