

Fetomaternal outcome of pregnancy with COVID-19

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Abstract

Objective: To study the Feto maternal outcome of Covid-19 in Pregnancy.

Methodology: This is a retrospective study done on 53 pregnant patients who tested positive for SARS-CoV-2 and were delivered in D. Y. Patil Hospital, Kolhapur from April 2020 to July 2020. Maternal and fetal characteristics and the outcome of Covid-19 infection in pregnancy was studied.

Results: Among the 53 patients, 49 patients (92%) were asymptomatic. Remaining presented with fever, sore throat, cough. 69% were primigravida and 30% were multigravida. 66% underwent LSCS while 28% were delivered normally. In majority, LSCS was done for oligohydramnios and fetal distress. All the patients were discharged after negative swab report and no maternal death was reported. About 32% of neonates required NICU admission for hyperbilirubinemia, pneumonia and sepsis. There was no neonatal death and none of the neonates turned out to be positive for covid-19.

Conclusion: The severity of SARS-CoV-2 was seen to be mild to moderate in pregnant women. Majority of the women infected with coronavirus disease were asymptomatic. The risk of vertical transmission to the neonate was also found to be low. Oligohydramnios and fetal distress were commonly seen in the patients, pointing towards the lack of antenatal follow up visits due to restricted mobility in the covid era.

Keywords: Covid-19, pregnancy, SARS-CoV-2, pneumonia

Introduction

The World Health Organization (WHO) declared Covid-19 disease as a global pandemic on March 11, 2020^[1, 2]. The Corona viruses are enveloped RNA viruses that are distributed widely among humans, mammals, and birds. They cause respiratory, hepatic, neurologic and enteric diseases^[9]. They are a large family of viruses among which seven affect the human. Four are common and cause mild illness in the upper respiratory tract, nose and lungs and they are 229E, OC43, NL63, HKU^[3]. The remaining three cause more severe illness and they are SARS-CoV:

which led to SARS epidemic in 2002 to 2003, MERS-CoV: which caused outbreak of MERS in 2012 and SARS-CoV-2 which led to the Covid-19 pandemic^[4].

Since the identification of first case in Wuhan-China in December 2019, the virus has spread to almost every country of the world till now^[4]. Majority of infections with SARS-CoV-2 cause a mild infection, with wide spectrum of complications like Pneumonia, ARDS,

Cardiac failure, Sepsis and Septic shock in the vulnerable group. It has a Case Fatality Rate (CFR) of 6.4%, more than MERS and SARS combined^[2, 14].

Pregnant women are more susceptible to SARS-CoV-2 due to various physiological conditions like elevation of diaphragm, decrease residual functional lung capacity, increase oxygen consumption, edema of mucosal membrane of respiratory tract and alterations in cell mediated immunity^[5, 21]. Till date the studies pertaining to effect of SARS-CoV-2 infection in pregnant women are confined to only the developed countries. There are very few studies undertaken in developing countries of the world^[5, 11].

India, comes in the category of developing country, where there is a need of extensive study regarding the maternal and fetal outcome of Covid-19 in pregnancy. There are very few reports of any study done in western part of India regarding the outcome of SARS-CoV-19 in pregnant women^[5]. As the Covid-19 disease affects the maternal and fetal outcome of pregnant women, we have designed this study of pregnant women with Covid-19.

Materials and Methods

This is a retrospective study done at Dr. D.Y. Patil Hospital from April, 2020 to July 2020. All the pregnant women who tested positive for RTPCR-Covid-19 and their neonates were included in the study. Total 53 admitted pregnant patients in whom RNA of SARS-CoV-2 was detected by RT PCR and their neonates were included in the study.

Combined nasopharyngeal and oropharyngeal swabs were collected. The sample was transferred to Molecular Biology Laboratory at Dr. D.Y. Patil Hospital, Kolhapur in a three-layered packed container ensuring cold chain and processed further.

At the time of admission, all pregnant women were screened for COVID-19 related symptoms like fever, cough, dyspnoea, anosmia, dysgeusia. Nasopharyngeal and oropharyngeal swab for RT-PCR Covid-19 was sent of all the admitted pregnant women.

Those who tested positive for SARS-CoV-2 were included in our study. They were enquired further about maternal characters like age, gestational age in weeks, parity, mode of delivery LSCS or vaginal delivery. Obstetric complications like PIH, GDM, Anaemia (Hb < 10), Abortion, Oligohydramnios, APH, PPH, ICU admissions and maternal death were further enquired. Perinatal outcome like IUGR, Meconium stained liquor, birth asphyxia, IUD, Still birth and Neonatal outcome like birth weight, APGAR score, neonates with covid-19 positive, NICU admission, Neonatal asphyxia, neonatal death were noted.

Results

We did a retrospective study on 53 pregnant patients who tested positive for SARS CoV-2 and were delivered in our hospital. Maternal and fetal characteristics and the outcome of Covid-19 infection in pregnancy was studied. The mean age was 24 years, with 90% of cases between 21 to 30 years of age. Among 53 cases, majority of them 49 (92%) were asymptomatic, whereas only 4 (7%) patients presented with fever, cough, sore throat and myalgia. 37 (69%) were primigravida, while 16 (30%) were multigravida. Regarding the mode of delivery, 35 (66%) underwent LSCS and 15 (28%) were delivered normally. Among 35 patients of LSCS, Caesarean delivery was indicated for fetal distress in 8 (22%) and oligohydramnios in 8 (22%), previous caesarean delivery in 6 (17%), CPD in 6 (17%), severe preeclampsia 3 (8%), Eclampsia in 2 (5.7%), IUGR with Doppler changes 2 (5.7%). Majority of patients 47 were delivered at term after 37 weeks, whereas 3 were preterm deliveries and 3 abortions. Among obstetric

complications, oligohydramnios was seen in 5 (9.4%), PIH in 5 (9.4%), anaemia in 4 (7.5%), GDM in 3 (5.6%) and PPH in 2 (3.7%). All patients were given antiviral, antibacterial, multivitamin like zinc, vitamin C. Corticosteroids were required in 10. ICU admissions were 3, and not a single maternal death was reported. All patients were discharged after negative swab report.

Among 50 neonates, 17 (32%) required NICU admission, for hyper bilirubinemia 9 (53%), pneumonia 6 (35.2%), sepsis 4 (23.5%), respiratory distress 2 (11.7%). There was not a

single neonatal death. Perinatal complications were seen like meconium stained liquor 10 (18.8%), IUGR 6 (11.3%), low birth weight 3 (5.6%), birth asphyxia 4 (7.5%), IUD 3 (5.6%) and only 1 (1.8%) baby was still born. None of the neonates tested positive for SARS CoV-2. About 20 neonates were positive for Ig G antibodies to Covid-19.

Demographics and clinical characteristics of Covid-19 positive pregnant women

Maternal age	Number of Patients
< 20 years	2
21-30 years	48
>30 years	3
Parity	
Primigravida	37
Multigravida	16
Gestational age	
< 37 weeks	6
37-40 weeks	47
>40 weeks	0
Symptomatology	
Asymptomatic	49
Fever, Cough, sore throat	4

Pregnancy outcome, mode of delivery

Pregnancy Outcome	Number of Patients
1. Term	47
Preterm	3
Abortion	3
2. Mode of Delivery	
1. LSCS	35
Indication of LSCS	
1. Fetal Distress	8
2. Oligohydramnios	8
3. CPD	6
4. Previous LSCS with scar tenderness	6
5. Severe Preeclampsia	3
6. Eclampsia	2
7. IUGR with Doppler changes	2
2. FTVD	15
3. Obstetric outcome	
GDM	3
PIH	5
PPH	2
Anaemia	4
Oligohydramnios	5

Treatment and clinical outcome

Treatment given	Number of patients
1. Antibiotic	53
2. Antiviral	53
3. Multivitamins like zinc	53
4. Vitamin C	53
5. Use of corticosteroids	10
Clinical Outcome	
1. Remained in ward	50
2. ICU admission	3
3. Discharged after negative swab report	53
4. Maternal Death	0

Fetal and Neonatal outcome

	Number of Patients
1. IUGR	6
2. Meconium stained liquor	10
3. Still birth	1
4. IUD	3
5. Birth asphyxias	4
6. Low birth weight	3
7. Neonates Covid-19 positive	0
8. NICU Admission	17
9. Hyperbilirubinemia	9
10. Pneumonia	6
11. Sepsis	4
12. Respiratory Distress	2
13. Neonate Ig G positive	20
14. Neonate Deaths	0

Conclusion

In this study comprising of 53 Covid-19 positive pregnant females, the mean age of patients was 24 years. A relatively younger age group was similar to the Arora *et al.*, as it shows the concept of early marriage and conception prevalent in India^[1] About 92% of patients were asymptomatic at the time of admission, while only 7% had minor symptoms like fever, cough. As compared to other studies like Shah *et al.*, were 38% were asymptomatic, while 61% had fever. Ours being a referral centre, only mildly symptomatic Covid suspects were referred, can be attributed to this difference^[3].

Viral pneumonia in pregnant women is associated with increased risk of preterm birth, IUGR and perinatal mortality, by Madinger *et al.*^[2] It was seen from this study that IUGR in 11%, Low birth weight in 5% and meconium stained liquor in 18% of neonates, whereas there was a higher rate of Caesarean section, 66% most of which was due to fetal distress and oligohydramnios 22%. Majority of the patients were delivered at term, 88% only 5% were preterm and 5% abortions. This observation was similar to shah *et al.* that Covid-19 is not associated with increased risk of spontaneous preterm birth and abortions^[3,10].

There was an association of GDM with Covid-19 in studies done in China, U.S, France, Iran^[3]. This study found no such association as GDM was seen in only 5% of the Covid positive patients. This can be attributable to the high incidence of obesity and metabolic syndrome found in those countries compared to India^[3].

In this study, it was seen that the patients received antibiotics and antiviral therapy and

multivitamins like zinc and vitamin C. Only 18% patients required additional corticosteroids. 5% of patients were admitted to ICU. All were discharged after negative swab report and not a single maternal death was reported. This was similar to the study by Ayedet *al.*, who reported that majority of pregnant women infected with SARS CoV-2 had mild illness. This was a favourable outcome compared to the severity of cases reported from China. This can be attributed to early detection of cases of Covid-19 and timely treatment provided in our area. Newborns born to SARS-CoV-2 infected mothers were asymptomatic for Covid-19. All the neonates born to Covid-19 infected mothers were subjected to RTPCR test for Covid-19, none turned out to be positive. Thus, there was a very low risk of vertical transmission of SARS CoV -2 seen in this study, which is at par with other studies. (12,13,14,15,16,17). 32% babies were admitted to NICU and given top feed, rest 68% were given breast milk and rooming in was practised. Covid-19 positive mother was asked to wear mask, maintain strict hand hygiene before each feed and maintain a distance of 6 m when not feeding. None of the neonates contracted Covid-19 from the infected mother during the duration of study. Thus, Covid-19 is not known to infect neonate via breast milk^[15, 16]. 37% of new born were Covid-19 IgG positive.

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