



EFFECT OF COVID-19 ON PREGNANT WOMEN AND NEWBORN OUTCOME

Gynaecology

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ABSTRACT

The Novel Corona virus is currently the most challenging health emergency all over the world. It has become the major health concern in present day situation. In such a pandemic, study on effect of covid infection on pregnancy outcome has become very important. So the objective of this study is to study the effect of COVID 19 on pregnancy and newborn outcome.

Methods : A retrospective observational study done in the department of Obstetrics and Gynaecology, S.M.G.S Hospital GMC Jammu. A total of 140 pregnant patients who were admitted in the hospital were taken for the study from May 2020 to August 2020. All these patients were divided into 2 groups. Group A included 70 patients who were tested COVID positive and Group B included 70 patients who were tested COVID negative. In all the patients, complete history, clinical examination was done. Data regarding any pregnancy complication such as abortion, ectopic pregnancy, preterm delivery, maternal mortality, mode of delivery i.e. LSCS or vaginal delivery, baby birth weight, apgar score, newborn requiring NICU admissions were collected and analysed.

Results : Most of the patients with COVID infection had not shown any association with maternal complication. There were more no. of LSCS in COVID infected patients. There were more no. of low birth weight babies born to COVID 19 infected mothers.

Conclusion: There is no effect of COVID 19 infection on maternal outcome. There is association of COVID 19 infection in pregnant women with low birth weight babies. However further studies are required as the data is very less in our study. There was no evidence of vertical transmission of COVID 19 infection. All patients discharged without any major complications.

KEYWORDS

COVID 19, pregnancy, mortality, morbidity, newborn

INTRODUCTION :

The Novel coronavirus is currently the most challenging health emergency in the world. The World Health Organization declared the outbreak of COVID-19 on 30 January 2020.

The causative agent for COVID-19 is a new strain of coronavirus named as SARS-CoV-2 which was first discovered in humans in Wuhan, China in 2019. The first case of COVID-19 in India was reported on 30 January 2020¹. It is an infectious respiratory disease caused by the new coronavirus SARS-CoV-2, emerged as the sixth public health emergency of international concern^{2,3}.

COVID-19 mainly involves the respiratory system, where its involvement can cause a wide range of symptoms from a common cold to severe respiratory distress⁴.

As of April 21, 2020, COVID-19 has reached all the world, with about 180,000 deaths of a total of more than 2 million confirmed cases. Moreover, it seems there is an underestimation in the mortality rate of this infectious disease. Studies estimate the real mortality rate of patients due to covid infection to be about 6% in China, rising to about 15% in other countries⁵. Therefore, COVID-19 is in general, a life-threatening condition. Particularly those patients who are older and with pre-existing comorbidity are more at risk of severe infection and mortality.

The effect of COVID-19 infection on pregnancy is not completely known because of the lack of reliable data⁶. Based on studies of similar infections such as SARS and MERS, it is suggested that pregnant women are at an increased risk of severe infection^{7,8} but findings from studies to date show that clinical characteristics of COVID-19 pneumonia in pregnant women were similar to those reported from non-pregnant adults^{9,10}. There are no data suggesting an increased risk of miscarriage or pregnancy loss due to COVID-19 and studies with SARS and MERS do not demonstrate a relationship between infection and miscarriage or second trimester loss¹¹. It is still unclear whether conditions such as diabetes, cardiac failure, hypercoagulability or hypertension that when during pregnancy might represent additional risk factors for pregnant women as they do for non-pregnant women. Current studies on the susceptibility of pregnant women to infection by COVID-19 are still in initial phase. Although transmission of the virus to the fetus or baby during delivery or pregnancy has not been proven, the presence of antibodies has already been identified, namely, specific IgG for viruses in neonatal serum samples¹².

METHODS :

A retrospective observational study done in the department of Obstetrics and Gynaecology at tertiary care hospital, S.M.G.S Hospital GMC Jammu.

A total of 140 patients were taken for the study. Women who presented with labour pains or abortion, diagnosed with ectopic pregnancy were included in the study, from May 2020 to August 2020. All these patients were divided into 2 groups. Group A included 70 patients who were tested COVID positive and Group B included 70 patients who were tested COVID negative. A complete history of patients including past medical, surgical, obstetric, family history were taken then clinical examination done under complete self precaution in PPE kit. All antenatal patients were tested for COVID infection by rapid test or by RT-PCR. Patients who came in emergency were tested by rapid test and other patients were tested by RT-PCR. COVID positive patients were isolated in Covid dedicated wards. After the delivery, babies of COVID infected mothers were also tested for COVID infections. Data regarding Baby weight, apgar score, NICU admission were collected.

OBJECTIVES :

1. To study the maternal morbidity and mortality due to Covid infection in pregnant patients.
2. To study the neonatal outcome due to covid 19 infection in pregnant patients.

RESULT :

A total of 140 patients were taken which were divided into Group A and Group B. Group A contains 70 patients who were tested COVID positive and Group B contains 70 patients who were COVID negative. All cases of COVID infection were community acquired. No one gave history of contact with COVID positive patient. Most COVID positive patients were asymptomatics only few had mild cough as symptom.

Table 1. Age distribution

Most of the patients were found in the age group of 21 to 25 in both the groups.

AGE GROUP	COVID positive	COVID negative	P value
<20	10	8	0.61
21 to 25	35	40	0.07
26 to 30	16	12	0.39
>30	9	10	0.80

Table 2. Parity distribution

Parity	COVID positive	COVID negative	P value
Primiparous	45	40	0.38
Multiparous	25	30	0.38

Majority of the patients were primiparous in both covid positive and covid negative patients.

Table 3. Distribution of Gestational age at delivery

Gestational age	COVID positive	COVID negative	P value
>37	54	48	0.23
34.1 to 36.6	9	16	0.12
<34	5	4	0.73

Most of the patients had delivery at term.

Table 4. Associated Comorbidities

Comorbidities	COVID positive	COVID negative	P value
Diabetes	3	14	0.29
Hypertension	9	24	0.91
Preeclampsia/eclampsia	0	3	
Hypothyroidism	8	15	0.39
Others	4	6	0.36

Total no of comorbidities in both group were 28 in COVID positive patients and 38 in COVID negative patients and major comorbidities were hypertension and hypothyroidism.

Table 5. Mode of delivery

Mode of delivery	COVID positive	COVID negative	P value
Vaginal	32	38	0.30
Instrumental	1	2	0.55
LSCS	35	28	0.22

Covid positive patients had more no. of Caesarean sections than covid negative patients.

Table 6. Maternal complications

Complications	COVID positive	COVID negative	P value
Abortion	2	4	0.48
Ectopic	2	3	0.78
APH/PPH	6	5	0.39
Maternal death	0	0	

Main maternal complications noticed during the study were APH/PPH. There was no case of maternal death in both the groups.

Table 7. Neonatal outcome

Apgar score	COVID positive	COVID negative	P value
7-10	67	65	0.31
4-6	1	3	0.31
3-0	0	0	
Weight at birth (in kg)			
>3	25	35	0.08
2.5-2.9	19	23	0.45
1.5-1.9	18	7	0.01
<1.5	6	3	0.30
Neonatal complication			
IUFD	1	2	0.83
Baby in NICU	4	6	0.83

More no. of babies with birth weight between 1.5-1.9 seen in COVID positive mothers as compared to COVID negative mothers and this difference were found to be statistically significant.

DISCUSSION:

The current study involved total no. of 140 pregnant patients which were divided into two groups. Group A included 70 pregnant patients who were tested COVID positive and Group B included 70 pregnant patients who were COVID negative. Most of the patients were in the age group of 21 to 26 years in both the groups. Both the groups had maximum no. primiparous women. In our study mean age of gestational age was 38 weeks. Most of the patients with COVID positive test had mild symptoms so no treatment was given in any of the patients. The UKOSS study also found that median gestational age

at birth was 38 weeks and that 27% of women studied had preterm births. Out of these, interventions were given in most (47%) of the patients because of risk to the mother's health and in 15% because of risk to the foetus.

In our study it was found that presence of comorbidities had no association with severity of the COVID 19 infection in pregnant patients. In our study, more number of patients were delivered by LSCS in COVID positive group (51.47%) as compared to COVID negative group (41.17%) but difference was not statistically significant, ($p > 0.05$). LSCS was done for obstetric indications like non-progress of labour, foetal distress etc. but not because of COVID 19 infection in the pregnant woman.

Several other studies have also reported that most women with COVID infection underwent LSCS^{14,15,16,17,18}.

Studies had reported that pregnant women were at increased risk of infection with H1N1 influenza and SARS-CoV, and were also associated with poorer clinical outcomes, including the need for mechanical ventilation, organ dysfunction, ICU admission, and death, in comparison with reproductive-aged non-pregnant women^{19,20,21}. However, in our study, we found no association between COVID 19 infection and adverse pregnancy outcomes (including severity of disease). Similar results were also reported in a recently published case series²².

As far as newborns are concerned, majority of neonates were born with a normal Apgar score at 1 min (7-10) with birth weight >3kg in both groups of patients. However there were more no. of low birth weight babies i.e. between 1.5-1.9 kg born to COVID 19 infected mothers than the babies born to COVID 19 negative mothers and this difference were found to be statistically significant. However further studies are required to see the effect of COVID infection on baby birth weight.

A recent review assessed 38 pregnant women and their newborns in China, and no evidence for vertical transmission was identified²³. Moreover, it is important to note that till date all evidences for no vertical transmission is based upon the late stages of pregnancy. It is still unclear whether intrauterine vertical transmission could happen during the first or second trimester.

More recent small-scale findings indicate that vertical transmission may be possible. One infant girl born to a mother with COVID-19 had elevated IgM levels two hours after birth, suggesting that she had been infected in utero and supporting the possibility of vertical transmission in some cases²⁴. In our study there was no clinical evidence of COVID 19 infection in newborns of COVID positive mothers, which indicated that there was no vertical transmission of infection. All newborns were tested negative.

Another study enrolled 16 pregnant women with COVID-19 and 45 pregnant women without infection in their third trimester. The results did not indicate any increased risk of perinatal complications in the SARS-CoV-2 infected women, including the occurrence of severe preeclampsia, premature rupture of the membrane, fetal distress, meconium-stained amniotic fluid, premature delivery, neonatal asphyxia, and postpartum hemorrhage²⁵. Similar findings were present in our study also.

The RCOG advised in early April 2020 that because pregnancy is a hypercoagulable state and that people admitted to hospital with COVID-19 are also hypercoagulable, infection with COVID-19 could increase the risk of venous thromboembolism and that this risk could be compounded by reduced mobility due to self-isolating²⁷.

CONCLUSION:

Our study showed that there is no effect of COVID 19 infection on maternal outcome however there were more no. of low birth weight babies born to COVID infected mothers. However more data is required to see this association. There was no evidence of vertical transmission of COVID 19 infection. Due to the limited data it is still not clear therefore further study should be done regarding the potential for vertical transmission. Most of the patients showed no major complication at the time of discharge. The relatively higher rate of caesarean sections would reflect the existence of indications for a caesarean section.

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