

CORONAVIRUS DISEASE IN PREGNANCY AND THE FETOMATERNAL OUTCOME

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Abstract

Background: Covid 19 infection has been declared as a global emergency by WHO. It has shown some potential risks in pregnancy which is an immunocompromised physiological state. **Materials and Methods:** This is a prospective observational study on 100 pregnant women with Rtpcr confirmed covid 19infection from 1st August 2020 to 1st August 2021. **Results:** The most common presentation of covid 19 positive pregnant woman was prelabour rupture of membranes 61% (61/100 of which 53 were term PROM and 8 were preterm PROM). The incidence of preterm labour was 58% (58/100). Majority of the women were asymptomatic 90% (90 /100) while the rest presented with high grade fever 10%(10/100). There were 3 missed abortions and no IUD was observed. **Conclusion:** The risk of preterm prelabour rupture of membranes is increased in pregnant women affected with Covid19 infection.

INTRODUCTION

World Health Organization (WHO) has declared corona virus disease a public health emergency.^[1] Coronaviruses are enveloped RNA viruses that cause respiratory, neurologic, hepatic and enteric diseases in humans.^[2] The virus originated in bats and was transmitted to humans through some unknown intermediary animals in Wuhan, Hubei province, China in December 2019. The disease is transmitted by inhalation or contact with infected droplets and the incubation period ranges from 2 to 14 d. The symptoms are usually fever, cough, sore throat, breathlessness, fatigue, malaise among others. Diagnosis is made by detection of the virus in respiratory secretions by special molecular tests. Common laboratory findings include normal/ low white cell counts with elevated C-reactive protein (CRP). The computerized tomographic chest scan is usually abnormal even in those with no symptoms or mild disease. Management is based on supportive treatment, role of antiviral agents is yet to be established. Prevention includes home isolation of suspected cases and those with mild illnesses and strict infection control measures at hospitals that include contact and droplet precautions. Covid 19 infections have been reported in pregnant women also. Pregnancy is a known condition for increased risk of adverse fetomaternal outcomes from many viral infections. The altered physiological and immunological state of pregnancy increase the risks of severe respiratory diseases.^[3] Hence, there is a possibility that pregnant women infected with

COVID-19 may potentially develop more severe symptoms such as pneumonia and marked hypoxia. According to RCOG guidelines pregnant women have been included in the list of people at moderate risk as a precaution.^[4] amongst pregnant women, the highest risk of becoming severely unwell appears to be for those who are 28 weeks pregnant or beyond. Also people who have COVID-19 during pregnancy are also at increased risk for complications that can affect their pregnancy and developing baby.

Aims and Objectives

The purpose of this study was to describe the clinical manifestations and fetomaternal outcome of pregnant women infected with COVID-19 and thus provide guidance towards the management of COVID-19 infection in pregnancy. It also aimed to improve maternal and fetal wellbeing.

MATERIALS AND METHODS

The study was conducted in the department of obstetrics and gynaecology in collaboration with department of Anesthesiology SKIMS Soura Jammu and Kashmir India.

This is a prospective observational study done on a group one hundred pregnant women with Rtpcr confirmed covid 19 infection from 1st August 2020 to 1st August 2021.

Inclusion Criteria was a laboratory confirmed positive case of COVID-19 infection in pregnant women were included in this study. Exclusion Criteria was Covid19 negative pregnant cases, high risk pregnancies, pregnancies as a result of IVF.

Complete obstetric history, clinical symptoms, signs, specific obstetric condition, laboratory and radiologic investigations, treatment measures, complications and outcome data were collected. All laboratory investigations and radiologic assessments were performed according to the clinical care needs of the present pregnancy. Laboratory investigations included complete blood cell count (CBC), liver function test (LFT), renal function test (RFT), C-reactive protein (CRP), serum lactate dehydrogenase (LDH), thyroid function test (TFT) and HbA1C. Data on pregnancy and neonatal outcome, including gestational age at delivery, mode of delivery, indication for cesarean delivery, complications, neonatal birth weight and neonatal intensive care unit (NICU) admission were analyzed. The date of data cut-off for outcomes was August 2021.

Statistical Methods

Statistical project for social sciences ver.22 was used for data analysis .P value less than 0.05 was considered statistically significant.

RESULTS

The clinical findings which were frequently present during pregnancy included fever (10%), mild respiratory symptoms (20%) and signs of pneumonia (3%) whereas the rest of the pregnant women were asymptomatic (67%). The mode of delivery in most of the cases were C-section (73%). Mean gestational age at the time of delivery was found to be around 36weeks (58/100).Other maternal outcomes included preterm delivery (58%), PROM-prelabour rupture of membranes (61%) with (53%term prom and 8%preterm prom), miscarriages(3%), intrauterine deaths (1%).During cesarean section it was found that 20 women out of 100 had postpartum hemorrhage which was controlled by uterotonics alone. Most of their babies were asymptomatic (72%) however a few presented fever (17%) and TTN (11%). Low birth weight was seen in (64%). Average birth weight was between 1.9 to 2.3kgs with 2kg in 52 neonates. Percentage of neonatal ICU admissions was 11%. The risk of vertical transmission or via breast milk was estimated to be low. Mothers were allowed to breastfeed their babies with all precautions including wearing masks and hand washing.

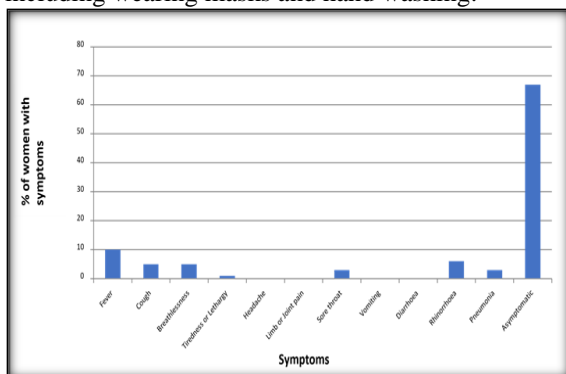


Figure 2: Percentage of covid positive pregnant women with symptoms

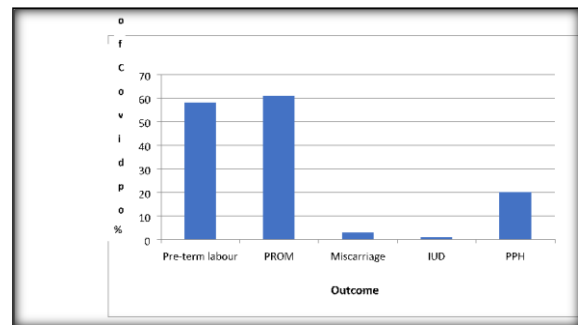


Figure 2: Maternal outcome of covid positive pregnant women

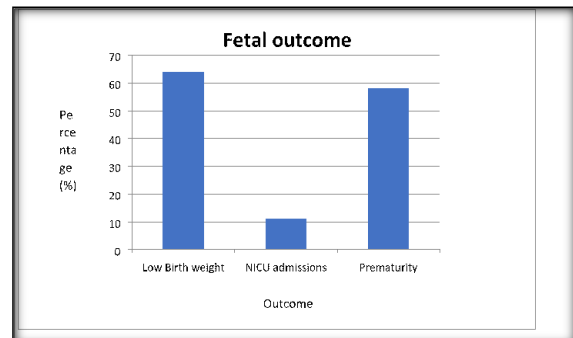


Figure 3: Fetal outcome of covid-19 infection in mother

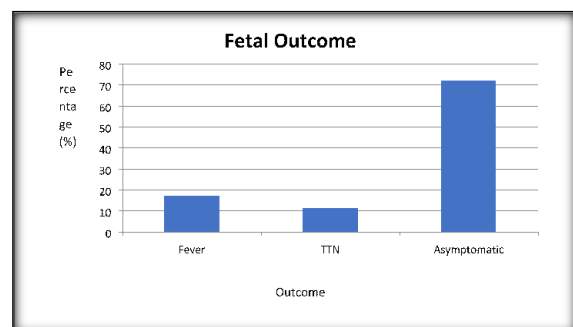


Figure 4: Symptoms in neonates born to covid positive mothers

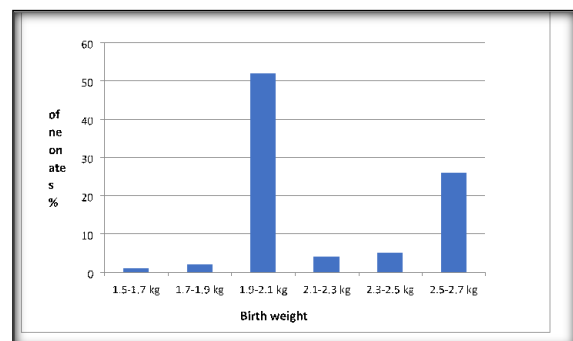


Figure 5: Percentage of low birth weight neonates

DISCUSSION

Pregnancy is a state of relative immunosuppression, caused by a change in the maternal immune system to prevent rejection of the fetus.^[5] It has been seen in our study that most of the pregnant women who tested positive were asymptomatic. They were

admitted in hospital because of pregnancy related issues. Every, one in fifteen pregnant women, tested positive during hospital stay. Among the symptomatic women majority had fever while the rest had mild respiratory symptoms like cough and cold.^[6] Rates of caesarean delivery were extremely high in COVID-19 patients 73%.^[7,8] The documented indications for these was mostly fetal distress (52%). Most of the covid 19 positive pregnant women had preterm deliveries 58% (occurring between 34 weeks and 36 weeks of gestation). It was seen that out of 100 pregnant women with covid 19 infection 61 had prelabour rupture of membranes and all of these gave history of spontaneous leaking of amniotic fluid at home. Term PROM was more common than preterm PROM. There were only 3 spontaneous first trimester miscarriages and one intrauterine fetal demise at 36 weeks of gestation.^[9,10,11,12]

The most common adverse fetal outcomes included low birth weight neonates and prematurity.^[13] Average birth weight was 2kgs ranging between 1.9 to 2.3 kgs. Most of the neonates were asymptomatic although 11% had TTN (transient tachypnea of newborn) and 17% developed fever. NICU admissions were found to be increased in preterm born to covid positive mothers.

Limitations: It was seen that majority of the pregnant women were asymptomatic. This decreased the probability of COVID-19 positive pregnant women of getting included in the study.^[14]

CONCLUSION

Pregnant women with COVID-19 infection may be at increased risk of adverse pregnancy and birth outcomes in the form of preterm labour, prelabour rupture of membranes and low birth weight neonates. Prematurity has its own early (infections, seizures) and long term consequences (neurodevelopmental delay) on neonates. It would be recommended from our study that the best management of covid 19 infections in pregnancy is its prevention and if the disease occurs in pregnancy then the symptomatic treatment gives best relief to a pregnant woman with mild disease. However those with severe disease need management at tertiary care hospitals.

We also recommended the use of prophylactic betamethasone/dexamethasone injections around 34 weeks of gestation to prevent the hazards of

prematurity since it was the major finding in our study.

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