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Impact of Covid- 19 during Pregnancy and Childbirth: A Case Report

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Abstract

Covid-19 is a viral disease which is affecting the Respiratory tract. Maternal systems involve multiple changes including the developing fetus during pregnancy until childbirth. The overall risk of COVID-19 to pregnancy women is moderate. However, Women who are pregnant with comorbidities are at increased risk of COVID-19 which includes, hospitalization and ICU care or ventilator care. Pregnancy women with covid-19 are likely to deliver prematurely also at risk for stillbirth and pregnancy loss, the major treatment currently available for the treatment of this disease is symptomatic. Although Vaccination plays a major role, the side effects related to vaccination gives fear to the pregnant women and still under research study. A case of 35-year-old multigravida who was hospitalized for the treatment of COVID-19 with comorbidities. She was presented with the symptoms of fever, cough, chest pain requires oxygen supplementation along with other modes of treatment.

Key Words:

COVID 19, Pregnancy, Childbirth, Impact.

INTRODUCTION

Covid-19 (Coronavirus disease 2019) is caused by the novel coronavirus 2 or SARS-CoV-2) which causes severe respiratory syndrome. During the year, March 2020, COVID 19 outbreak became a pandemic. By the beginning of the year 2021, More than 90 Million cases were confirmed globally. But the pattern of COVID-19 infection during pregnancy and childbirth varies and there is involvement of both mother and the fetus. There are various physiological changes that occur during pregnancy especially immune system, circulatory and respiratory system which thereby reduce the fight of the pregnant women body to hypoxia and it worsens the symptoms when they infected with the virus makes the women more vulnerable to the disease.

Incidence and Risk Factors:

The mortality of the overall populations is more or equal to 2.6%, it was as high as 37% among pregnant women. Thereby the risk of complications associated with COVID-19 infection during pregnancy and childbirth is at the higher rate. The rate of hospital admissions were four times likely than the general population. Wong et al, reported that 50% of pregnant women who developed SARS COV-19 required ICU care, out of which 33% required mechanical ventilation and the mortality rate was as high as 25% among the during pregnancy and childbirth. Currently studies related to impact of COVID-19 during pregnancy and childbirth showed that most of the women were hospitalized during the infection with associated co-morbidities.

Maternal, fetal and neonatal outcomes

Pregnant women have previously been at increased risk of severe maternal and neonatal morbidity and mortality from the infections and the severity of the disease is more prominent during the second and third trimester. Risks factor include obesity, grater than 35years and having preexisting comorbidities. Along with that Women from Black, Asian background demonstrated higher risk due to health inequalities, socioeconomic factors, Vit-D deficiency. Pregnant women who are infected severely, are at increased risk for -preterm birth and the resean for the preterm birth is iatrogenic.

Clinical Signs and Symptoms:

The infection is categorized as below according to the National Institutes of health Organization Categorization of COVID-19 severity as below

Asymptomatic: patients do not develop any signs and symptoms but positive for SARS Cov-2.

Mild: Patients develop signs and symptoms like fever, cough, sore throat, Malaise, headache, no shortness of breath, dyspnea or abnormal chest x -ray.

Moderate: patient have clinical or imaging findings suggestive of lower respiratory disease but maintaining oxygen saturation above 93% on room air.

Severe: Patients respiratory rate is above 30/min, oxygen saturation is below or equal to 93% PaO2/FiO2 <300 and/or pneumonic infiltrates involving more than 50% of the lung.

Critical: Patients suffer respiratory failure, septic shock and or multiple organ dysfunction, probably due to cytokine storm.

Investigations

1. History collection

Demographic data,
Past medical and obstetric history,

2. physical examination results,
3. laboratory investigation results,
4. chest radiographs

To determine the severity of pneumonia, a chest radiograph is necessary. Each lung was divided into upper, middle, and lower zones, A zone was given a score depending on the presence or absence of opacities. The images were also classified as exhibiting ground glass opacities, reticular patterns, or consolidations. The lower lung zone extends from the costophrenic sulcus to the inferior hilar markings; the middle zone from the inferior hilar markings to the superior hilar markings; and the upper zone from the superior hilar markings to the apices.

Treatment Protocol:

Based on the severity of the diseases and thorough assessment of the patient patients will be treatment as below. Patient will be considered as cured after two negative PCR swabs. The drugs and treatment regimens used in the treatment during pregnancy and childbirth with COVID-19 Infection.

S. N	Name of the drug	Dose	Duration
1.	Hydroxychloroquine	Two loading doses of 400 mg followed by 200 mg twice daily	7-14 days
2	Chloroquine base	300 mg (base) twice daily	5-7 days
3	Lopinavir-Ritonavir (200mg/50mg)	400mg/100mg twice daily	5-7 days (maximum 14 days)
4	Favipiravir	Two loading doses of 1600 mg over 1 day followed by 600 mg twice daily	5-7 days
5	Tocilizumab	4-8 mg/kg (max 400 mg) followed by a second dose after 8-12 hours, and then a third dose 8-12 hours later	3 doses within 24 hours
6	Pegylated interferon	180 mcg, maximum of 2 doses 1 week apart	2 doses within one week
7	Low Molecular Weight Heparin (LMWH) [Prophylactic]	According to Body weight: 50-90kg: 40mg once daily. 91-130kg: 60mg once daily. 131-170kg: 80mg once daily.	Till clinical improvement
8	Low Molecular Weight Heparin (LMWH)-Therapeutic in critical Covid-19 pneumonia patients	50-90kg: 40mg twice daily 91-130kg: 60mg twice daily 131-170kg: 80mg twice daily	Till clinical improvement
9	Methylprednisolone	0.5-1 mg/kg in 2 divided doses	3 days in Non-ICU & 5-7 days in ICU patients.

CASE REPORT

A 35-year-old multigravida admitted through the emergency department at 36 weeks of gestation with complaints of fever, cough, running rose, sore throat, breathing difficulty, headache for 2 days and tested positive for Novel Coronavirus in a private clinic and referred to the hospital by an ambulance. She was a known case of Insulin dependent diabetes mellites on treatment with Glucophage and insulin.

She had two cesareans one in 2015 and another in 2019. She is also on multivitamins and aspirin. On admission, Chest X-ray show consolidations and her C-reactive protein and D-dimer were significantly higher. There are obvious changes in the lactate dehydrogenase and ferritin and her WBC count was higher and no significant changes found in the hemoglobin count. There is significant raise in the level of PTT throughout her hospitalization. She is known diabetic and known hypothyroidism and required non-invasive oxygen support due to pneumonia.

She was treated with Hydroxychloroquine and Lopinavir/Ritonavir since favipiravir is contraindicated during pregnancy. She also was treated with LMWH and broad-spectrum antibiotics.

At 37 weeks she delivered a baby girl with the birth weight of 2.8kg with APGAR score of 8 at 1 minutes and 9 at 5 minutes by an emergency cesarean section in view of the uncontrolled DM and fetal distress. The neonate was negative at birth, tested positive at 36 hours, and was negative on day 3. Neonate remained asymptomatic throughout. The neonatal outcome was comparably good even it was required to be admitted to the neonatal ICU for monitoring of general health.

DISCUSSION

The case study has offered certain insights in relation COVID-19. It is proved that there is a strong association between exposure to COVID-19 and the pregnancy and childbirth outcome especially in the last trimester. Pregnant women were the most vulnerable group and the effect of COVID-19 is more among them if are presented with associated medical conditions. But More comparison and

study are required to analyze the effect Covid-19 infection at different gestational periodswhich will allow to assess the pregnancy outcomes. However, it is a case study representing single patient Furthermore, laboratory confirmation of whether patient with severe illness suffered from a cytokine storm were not measured. the management of patients in this case study was limited after 36 weeks of gestations and delivered within a week after admission. Finally, follow up patients to observe the long-term effects of Covid-19 on both mother and baby, as patients were admitted during the late trimester and follow up was done in primary health centers.

CONCLUSION

Pregnant women with comorbidities are more prone for Covid-19 symptoms such as fever, cough, sore throat, and shortness of breath but they ran a much more severe course of illness. They also need more high dependency care, ICU admissions and suffered more complications of Covid-19 infection, such as risk for miscarriage and preterm deliveries. Pregnancy with Covid-19 infection, could, therefore, be categorized as high-risk pregnancy and requires management by an obstetric and medical multidisciplinary team.

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Information on Data Collection:

The datasets generated and/or analyzed during the current study are not publicly available due as the constitute part of the confidential patients records. All the information collected were kept confidential and information written here is the anonymized summary of the patient findings

Ethics approval and consent to participate

Verbal consent was taken from the patient

Conflict of Interest

None of the authors of this documents has a conflict of interest to declare.

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