

Obstetric Outcomes in Covid-19 Pandemic: Single Center Experience at Tertiary Level Institute

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Abstract

Background: There has been increased severity and susceptibility in pregnant females with previous viral illness outbreaks. The data of pregnancy outcomes with COVID-19 are lacking and available in few small number series. The objective of this study was to report the maternal and perinatal outcomes of COVID-19 during pregnancy. Methodology: Retrospective records of 185 pregnant women with laboratory confirmed COVID-19 disease in single center were reviewed from 1 st May to 31 st July 2020 and descriptive analysis of outcomes was done. Results: There were 185 laboratory confirmed COVID-19 pregnant females in this study with mean age of 27.3+ 5.33 years. The majority presented in third trimester with no sign and symptoms of disease activity (66

Index terms— COVID-19, outcomes, delivery, pregnancy.

1 Introduction

? Since the first reports of cases from Wuhan, a city in the Hubei, Province of China, more than 20 million cases of COVID-19 have been reported (1). The emerging COVID-19 pandemic is caused by severe acute respiratory syndrome coronavirus 2 (SARS CoV-2). This has led to turmoil in healthcare conduct. There is evolving understanding and hence, upcoming protocols with progressing pandemic. ? Pregnant females are at a heightened risk of contracting viral lower respiratory tract infections due to altered physiology with elevated diaphragm, increased oxygen consumption and mucosal edema of respiratory tract making them relatively intolerant to hypoxic environment. There are also alterations in immune response with pregnancy which may contribute further to this increased vulnerability (2,3). It has been reported that viral pneumonia in pregnant women is associated with an increased risk of preterm birth, foetal growth restriction (FGR), and perinatal mortality (4).

2 Material and Methods

We retrospectively reviewed the clinical records of 185 pregnant women with laboratory confirmed COVID-19 admitted in our center. The epidemiology, outcomes and challenges faced were analyzed. The impact of COVID 19 in ante and peri-partum period, neonatal and maternal sequelae of this disease were addressed in this study. Age (years) (Mean + SD)

3 III.

4 Results

5 a) Clinical characteristics

? <20 ? 20-25 ? 25-30 ? 30-35 ? >35 27.3 + ? 5
5.33? 75 ? 57 ? 37 ? 11

Gestational age at admission (weeks)? <14 ? 14-27 ? 28-36 ? 37-40 ? >40 ? ? 9 ? 5 ? 43 ? 105 ? 23 Parity -
? Primi-gravida ? Multi-gravida ? ? 75 ? 110

Symptoms -? Fatigue ? Fever ? Cough ? Myalgia ? Diarrhea ? Sore throat ? Dyspnea ? Asymptomatic ?
30 ? 25 ? 20 ? 20 ? 9 ? 5 ? 3 ? 66 Comorbidities - ? Hypertensive disorders ? Gestational diabetes mellitus

? Severe anemia ? Hypothyroidism ? Bronchial asthma ? Pulmonary Tuberculosis ? ? 20 ? 14 ? 9 ? 5 ? 4 ?
 2 Treatment Received - ? Antibiotic therapy ? Antiviral therapy ? Use of corticosteroid Number of Patients ?
 160 ? 3 ? 3 ICU admission - ? Non-invasive ventilation ? Invasive mechanical ventilation ? 3 ? 1 ? 2

Hospital Stay (days) Mode of delivery-? Cesarean delivery ? Vaginal delivery ? Not delivered ? 47 ? 124 ? 14
 Indication of cesarean delivery -? COVID-19 pneumonia ? Previous cesarean delivery ? Mal-presentation ?
 Cephalo-pelvic disproportion ? Placenta Previa ? Failure to progress ? Pre-eclampsia ? Others ? Fetal distress
 ? None ? 28 ? 5 ? 4 ? 3 ? 2 ? 2 ? 2 ? 1

Gestational age at delivery ? 9 cases presented before 14 weeks of gestation of which 2 cases were complicated
 with complete spontaneous abortion, 2 cases with ruptured ectopic and 1 case with missed abortion. ? The
 remaining 4 patients were discharged and kept on follow up. They have crossed 20 weeks of gestation with
 normal fetal growth and no anomaly observed in morphology scan. 5 patients with gestational age at presentation
 between 14 -27 weeks were discharged after an uneventful hospital stay and are maintaining fine at follow up.

? 43 cases presented between 28-37 weeks of gestation of which 30 cases had pre-term delivery and remaining
 13 cases were delivered at term. Of the 30 cases who underwent pre-term delivery, 20 cases had PPROM. ? 124
 cases were subjected to vaginal delivery while 47 cases required cesarean section with majority (59.57%, 28/47)
 due to previous LSCS. The other indications for cesarean section are mentioned in Table ?? IV.

6 Discussion

? This study reports observations of 185 pregnant females who were laboratory confirmed COVID-19 cases.
 The predominant symptom was observed to be fatigue in 16.22 % (30/185) which was different from the past
 studies that reported fever as the commonest manifestation (9)(10)(11). ? The fatigue may also be present
 as manifestation of routine pregnancy and therefore could have been confounding with results. They were
 asymptomatic in 35.68 % cases and were detected in routine testing done prior to hospital admission. In majority
 of these there was history of residence in containment zones or hotspots or contact with COVID-19 cases. This
 entails the high index of suspicion that needs to be kept with emphasis on history and routine screening of
 all before hospital admission to effectively curtail the spread to other patients and healthcare personnel. ?
 3 patients (1.62%) required ICU care with 2 of them requiring ventilatory support and one on noninvasive
 ventilation, however, they recovered and were transferred back to the ward. One of them had pre-term delivery
 and rest 2 delivered at term with no adverse foetal outcome. This suggests that effective oxygenation and critical
 care did not worsen the neonatal outcomes, although, the less number of these patients limit us in conclusively
 authenticating this observation. The ICU admission rates are similar to the study by Huntley et al which quoted
 3 % cases requiring ICU care (12). ? The laboratory parameters showed lymphocytopenia in 34.81 % and
 leukopenia in 21.62% which suggests that lymphocytes were reduced even in patients with normal leucocyte
 count which has also been demonstrated in other studies with striking differences. A study of 393 hospitalized
 patients in New York revealed lymphocytopenia in 90 % whilst leukopenia in approximately 15 % only (13).
 CRP elevations have been associated with inflammation and COVID-19 disease process in cytokine storm states.
 These were elevated in 45.95% patients in this study corroborating the other studies in this regard. In other
 studies, CRP elevations have been found as high as 67 % with COVID-19. (8,9,10) ? The Chest X-ray showed
 abnormal findings predominantly consisting of ground glass opacities or patchy infiltrates in lung fields in 32.43%
 cases (60/185). CT scan was not done in this study in majority of patients. ? The rates of spontaneous abortion
 was observed to be 23.08 % cases (3/13, 13 cases presented at or before 20 weeks of gestational age). This rate
 has been found to be 12.5 % in the study by Yan et al comprising of 116 patients (14).

? The rate of pre-term delivery was noted to be 17.54% (30/171). Of these 30 patients, 20 (66.67%) had
 PPROM. The overall incidence of PPROM was 11.70% (20/171) which was higher than the study by Yan et al
 who observed 6.1 % incidence of PPROM (14).

? Wong et al in their study of 12 pregnant females infected with SARS-CoV reported 3 cases of maternal
 demise, more than 50 % of those who presented before 12 weeks were complicated with spontaneous abortion,
 80 % females presenting after 24 weeks had pre-term delivery and ongoing pregnancies were complicated with
 Intra-uterine growth restriction (15). This study, however, concludes reassuring data with COVID-19. V.

7 Limitations

This study entails a single centre experience with limited patient subset. The non-carrying out of routine neonatal
 testing due to logistic and economic issues prevents in ascertaining vertical transmission risk. CT scan which has
 become an indispensable modality was not used in this study due to institutional logistic issues. This study also
 has the limitation in concluding vaginal mode of delivery and breastfeeding confer an additional risk of vertical
 transmission of COVID-19.

VI.

8 Conclusion

This study concludes that presently there is no evidence that pregnant women with COVID-19 are more prone
 to experience severe pneumonia than nonpregnant patients. The study suggests that one mode of delivery is
 not superior over the other as far as risk associated with COVID-19 disease. The risks of pregnancy related

101 complications are not significantly increased due to COVID-19. The ongoing research and data collection may
 102 answer the questions in relation to the risk of congenital infection, intrapartum management, and vertical
 transmission.¹

1

? 185 consecutive laboratory confirmed COVID-19
 affected pregnant females were included in this
 study with a mean age of 27.3 +

5.33 years.
 Ma-
 jor-
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were in gestational ages of 37-40 weeks (56.76%,
 105/185).

? There was history of residence in containment zone
 in 110 cases (59.46%), 12.97% cases had contact

Figure 1: Table 1 :

2

Figure 2: Table 2 :

? >37 weeks

Number

? 141

? < 37 weeks

? 30

? Associated with PPRM

? 20

d) Clinical Outcome In Neonates

Figure 3:

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