



FETO-MATERNAL OUTCOMES IN PREGNANCY WITH COVID19 INFECTION: AN OBSERVATIONAL STUDY

Obstetrics & Gynaecology

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KEYWORDS

INTRODUCTION-

The corona virus disease 2019(COVID-19) caused by SARS-CoV-2 has been declared as a pandemic by WHO on March 11, 2020. The outbreak of corona virus disease 2019 pandemic has caused a global public health crisis.

The transmission is mainly by direct human to human contact and through respiratory droplets.

Most patients have asymptomatic or mild symptoms but few develop severe manifestations. The most frequent symptoms include fever, cough, myalgia/fatigue and shortness of breath. Less frequent symptoms are expectoration, headache, diarrhoea. Presence of pneumonia with bilateral infiltrates or consolidation areas is a common finding in most of the high grade symptomatic patients.

Despite there being little evidence of perinatal transmission, it is believed that SARS-CoV-2 has greater affinity for the angiotensin-converting enzyme 2 (ACE2) receptors. These receptors are present in a larger amount at maternal-foetal interface cells and villous and extra villous trophoblastic parts of placenta. Foetal heart, lungs and liver also expresses the receptors. The receptor expression varies throughout pregnancy such that the extra villous trophoblastic cells expression of receptor increases after 24 weeks in the same way as near term the receptors in the lungs increase.²

Pregnant women are at an increased risk due to physiological changes in their immune, cardiopulmonary and coagulation systems.³

SARS-CoV-1 and MERS known to adversely affect the pregnancy and were also found to be associated with severe maternal morbidity and mortality including renal failure, sepsis and DIC. The perinatal adverse effects included preterm deliveries, miscarriages, foetal growth restriction.⁴

The virus Infection in pregnant women may predisposes to a higher rate of complications like preterm birth, miscarriage, foetal growth restriction and still birth.

Pregnant women, their foetuses and the new-borns are likely to represent a high risk population during the current covid-19 pandemic caused by SARS-CoV-2. The aim of our study is to find out the foetal as well as maternal outcomes in COVID-19 pregnancy.

Aim Of The Study-

To conduct a comprehensive evaluation of maternal as well as foetal outcomes of pregnant woman confirmed to have COVID-19 infection in a tertiary care hospital (VSSIMSAR, Burla) in Western Odisha.

Objective Of The Study-

To study maternal and perinatal outcomes in delivery of COVID-19 pregnant woman.

Place Of Study:

COVID Hospital, VIMSAR, Burla

Study Design:

Observational study

Study Population:

All pregnant women admitted to COVID Hospital, VIMSAR, Burla who tested positive for COVID-19 either by rapid antigen test or RTPCR

Study Period: 2 Years

Inclusion Criteria:

Pregnant women More than 24 week of gestational age .Laboratory confirmed either by RTPCR or RAT positive COVID19 infection through nasopharyngeal swabs .Admitted to COVID Hospital, VIMSAR Burla according to VIMSAR COVID protocol during study period .Patients willing to participate in study

Exclusion Criteria:

Pregnant woman who has sign symptoms of SARS-CoV-2 but have negative or equivocal testing results for (RTPCR or RAT) .Abortion, Ectopic and Molar pregnancies. Patients those did not give consent to participate in the study

Materials And Methods-

The pregnant women those become RAT or RTPCR positive on nasopharyngeal swab are admitted to COVID hospital from OPD and IPD of VIMSAR as per VIMSAR COVID guideline and referred cases from peripheral hospital. All those patients who given consent were included in our study.

Detailed history like demographic profile, gestational age at time of presentation, associated medical illness, maternal symptoms noted including obstetric history was taken and clinical examination was done. Blood samples was collected and sent for biochemical and pathological tests including serum proinflammatory covid markers like serum LDH (normal value<400IU/L), CRPq (normal value <5 mg/l), D-Dimer (normal value <0.5mg/l) and serum ferritin (normal value <130mcg/l). Ultrasonography of mother was done whenever needed for study of foetal well-being. Patients were followed up till delivery and discharge for perinatal outcomes.

Pregnant women underwent vaginal delivery or by caesarean as per obstetric indication. After delivery, babies those needed special care has been shifted to SNCU after covid status of the baby. Those babies needed more care has been admitted to NICU. Patients besides obstetric management also treated for covid symptoms by oral medications like ascorbic acid, Zinc, cetirizine, Tab Doxycycline or Inj Piperacillin, high flow or low flow oxygen whenever necessary. Patient with severe illness were given ICU care. The detailed information of treatment, mode of delivery, foetal and maternal outcome of patients such as parity, gestational age, maternal hypoxia, preeclampsia, foetal distress, birth weight, APGAR at birth, need of SNCU admission and covid status of new born was collected and noted as per predesigned Proforma. All observations was subjected to analysis by Microsoft excel and SPSS version 17.

RESULTS & DISCUSSIONS:

Total of 273 covid-19 positive pregnant women were admitted during this study period out of which 16 went undelivered and discharged with antenatal advise but did not return. Therefore remaining 257 were observed, followed up till delivery and analysed for maternal and foetal outcome

About 53.1% women belong to age group between 21-25 year and mean age of study population was 25.04±5.17year. Majority of patients 181(66.3%) presented between 37-40 weeks of gestation. 52% were primigravida and rest were multigravida. Saima Siddiqui et al.5 in their retrospective study of 100 COVID positive pregnant woman observed maximum 47% in 20-25year age group. Bhomia, Chhavi, et al.6 in their study found maximum 69% primigravida similar to our study.

Delivery was conducted by LSCS in 128(46.9%) cases and 129(47.2%) cases were delivered Vaginally including 3 instrumental delivery by forceps application and 16 patients remain undelivered and discharged. Bachani et al.7 observed 54.3% had VD and 45.7% had caesarean section. Saima Chaudhary et al.8 shows 32.7% LSCS and 67.3% NVD, which is contradictory to our study finding

We observed the indication for LSCS was maximum 27.9% for previous LSCS followed by foetal distress in 21.7%, Oligohydramnios 11.6%, IUGR 3.1%, primigravida with breech presentation 7.75%, CPD 9.3%, Obstructed labour 7.7% . Saima Chaudhary et al. shows 32.7% LSCS and 67.3% NVD, which is contradictory to our study finding. In their study indication of LSCS with maximum previous LSCS (72.7%) followed by foetal distress (15.15%).

In our study the associated obstetric complications were maximum 17.21% with Foetal distress followed by Previous LSCS 16.48%, Post-dated pregnancy 12.82%, PROM 10.98% and preterm labour 7.69%, Oligohydramnios 8.79% and IUGR 5.12%, breech presentation 4.39%, CPD 4.39% and obstructed labour 3.66%, Twin 2.2% and Rh- pregnancy 1.46%, APH 0.73%. Gajbhiye et al.9 found in their study preterm labour 26%, foetal distress 8% , PROM in 9% and still birth in 2%. Daniele Dimasizo et al.10 observed preterm birth 24.3%, PROM in 20.7% and FGR in 11.7%.

Hypertensive disease of pregnancy was most common (12.5%) medical illness associated with pregnancy followed by anemia (4.76%), and hypothyroidism (4.02%). Bachani et al. reported Anaemia in 12.3% cases, HDP in 12.3% case, GDM in 1.8% cases and Hypothyroidism in 7% cases.

In our study 231(84.6%) were asymptomatic and among symptomatic cough and breathlessness (6.22%) common presenting symptoms followed by fever 5.12% and other symptoms. Among those symptomatic patients Out of total 17 patients of Cough and breathlessness patients only 14 patients with low spo2 needs oxygen therapy. Among them 7 patients needs low flow O2 and 3 patients need High flow O2. 4 (1.46%) patients were admitted to ICU. Maternal death was 11(4.02%), among SARI (3/11) was most common cause followed by 18.19% with severe Preeclampsia/eclampsia, 9.09% each for sepsis, perforation and pyoperitonium. We observed postpartum complications like PPH and sepsis in 1.56% patients followed by AKI in 0.78% patients.

S. Siddiqui et al. observed 73% patients (out of 100) were asymptomatic, among clinical manifestations cough (55.5%) was most common similar to our study, followed by fever (37%) and myalgia (37%). Zlochiver et al.11 out of 85 COVID positive pregnant study population, oxygen support was needed by 7% patients, ventilator was used in 4% patients. Bachani et al. in their study reported 5.2% (3 patients) maternal death occurred with pulmonary embolism, Acute on chronic renal failure and septic shock

Among study population serum CRPq and D-dimer increased in 73.3% and 67.4% respectively. Chaudhary et al. reported raised CRPQ value in only 17.1% and Yan et al.12 detected high CRP(Q) levels in 44% cases

There was 6 IUD (2.02%), 5 still births (1.8%) and 246 live birth (90.1%). Out of 246 livebirths, LBW (32.1%) was more common followed by prematurity (13.0%) and foetal distress (11.4%) and IUGR (2.8%). Maximum SNCU admission was due to respiratory distress following foetal distress. Among 5 neonatal death in our study, Birth asphyxia in 3 (60%) was the most common cause of death among followed by 1 (20%) each due to pre maturity and VLBW. Only 4 neonates (10%) out of 40 those admitted to SNCU were found to be covid RTPCR/RAT positive.

Pooja Gupta Jain et al.13 reported 12% IUFD and 4% stillbirth

respectively. S. Siddiqui et al. observed 28.1% were LBW babies . Zlochiver et al. recorded 15% preterm births. Pooja Gupta Jain et al. shows 9.5% meconium aspiration syndrome, 28.6% respiratory distress syndrome. Anand et al. reported 10.7% RTPCR positive neonates, among them 42.8% were preterm, 14.28% developed RDS, 28.5% developed hyperbilirubinemia, and no COVID positive neonatal death. S. Siddiqui et al. reported 2 neonatal deaths due to respiratory distress.

CONCLUSION:

The majority of pregnant women with COVID-19 are asymptomatic and recovered with good perinatal outcomes. Increased percentage of meconium stained liquor leading to foetal distress raises a possible area of research on placental insufficiency in pregnancy with COVID-19.

Maximum COVID-19 infected maternal deaths occurred due to SARI.

COVID-19 adversely affects both both mother and foetus. There is an increased risk of preterm birth, foetal distress, IUD, still birth among covid-19 mothers. Every positive mothers should be counselled about the adverse impact on them and their foetuses.

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