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"MATERNAL AND FETAL OUTCOMES OF COVID 19 IN A TERTIARY CARE CENTRE- A CROSS SECTIONAL STUDY"

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ABSTRACT Covid 19 is declared as a pandemic having a poor prognosis in immunocompromised patients. This retrospective cross-sectional study describes the pattern of maternal and fetal outcome in pregnant women in a tertiary care center for a period of 10 months. This study was carried out in Karur Medical College and Hospital from April 2020 to Jan 2021.All pregnant women and postnatal mothers delivered outside tested positive by RT-PCR were included in the study. Among 4188 admitted, 211 antenatal mothers and 14 postnatal mothers were tested positive. Most of the pregnant women were second order birth. Out of the total deliveries, 125 deliveries were in the medical college hospital and 14 cases were delivered elsewhere and admitted at medical college hospital for various reasons. Among 125 deliveries, 74 delivered by LSCS and 51 vaginally. There were 4 obstetric abortions, 2 in first trimester and 2 spontaneous expulsions in second trimester. Out of 14 postnatal mothers, 5 were delivered by lscs and 9 delivered vaginally. Out of 74 deliveries by LSCS, 31 were primary cesarean sections and 43 were repeat cesarean sections. Most common indication for repeat LSCS was previous LSCS in labour in 42 and 1 previous myomectomy. Most common indication for primary cesarean section being failed induction in 18 mothers, CPD accounted for 5 sections, Fetal distress for 3 cases, IUGR with oligohydramnios contributed to 5. High risk mothers in this study were 180. Majority of high-risk mothers were anemic, accounting 53, Previous cesarean accounting to 56, Preeclampsia contributing to 14, and the rest were Gestational diabetes, BOH, prolonged pregnancy, oligohydramnios, hypothyroid, Fetal growth restriction, malpresentations, heart disease, Rh incompatible pregnancy, overt diabetic and tuberculosis. 85 % of the mothers were asymptomatic. 12% presented with mild disease 3% with moderate disease. 6 babies were infected. No maternal mortality during this pandemic was observed in Karur MCH.

KEYWORDS : Pandemic, covid, maternal mortality.

INTRODUCTION:

Coronavirus COVID 19 pandemic has imposed a major impact on health systems across the countries worldwide, which has resulted in an increase in morbidity and mortality throughout. The generation of knowledge about the disease has occurred as fast as its global expansion[1]. Almost all branches of modern medicine had encountered the active manifestations as well as the aftermath of the pandemic, where a special mention needs to be given from the Obstetrician's point of view. The obstetric medicine has come across a variety of covid presentations in antenatal as well as postnatal mothers, which was surprisingly different from that of the general population. The presentation among the obstetric cohort by itself tends to be versatile, ranging from asymptomatic infection, symptomatic, yet milder infection to very serious life-threatening illnesses[2]. Covid 19 infection among mothers resulted in an increase in maternal mortality and morbidity even among the otherwise healthy antenatal mothers, and adverse perinatal fetal outcomes, as well[1]. This descriptive study henceforth explains the specific aspects of COVID 19 patterns and course in complicated maternity cases as observed in Government Karur Medical College Hospital, Karur, in Tamilnadu, the southernmost state of the Indian subcontinent.

COVID IN OBSTETRICS

In accordance to various systematic reviews across the world, more than 90% of the pregnant women admitted with covid 19 infections present radiological signs suggestive of pneumonia, detected either at X ray or computerized Tomography, where the most common symptoms being fever, cough and myalgia, with a common finding of lymphopenia on a routine hemogram[2]. Preeclampsia and cesarean deliveries were also common than in the general population[5]. The following pregnancy outcomes were observed:

PREGNANCY OUTCOME	PERINATAL OUTCOME
Preterm birth	Fetal distress (most common)
Preeclampsia	APGAR <7 at 5 mins
Preterm prelabor rupture of membranes	Neonatal asphyxia
Fetal growth restriction	Admission to NICU
Miscarriage	Perinatal death (including stillbirths)
Cesarean delivery	Evidence of vertical transmission

Despite the relatively low mortality associated with the disease per se, one of the major concerns related to covid 19 infections is the development of acute respiratory distress syndrome that often requires an invasive ventilatory support, that is the clinical epiphenomenon of viral pneumonia[4].

OBJECTIVES

To find out the course of covid in antenatal and postnatal mothers and fetal outcomes.

MATERIALS AND METHODS

Study Design: Cross sectional study

Place Of Study: Government Karur Medical College Hospital

Study Population: Pregnant mothers with medical complications affected with Covid-19 admitted in Govt Karur medical college hospital during the pandemic of Covid-19 from April 2020 to January 2021.

Sample size: 225

Inclusion Criteria:
Mothers with medical complications affected with Covid-19

Exclusion Criteria:
Mothers who do not consent for the study.

METHODS

All the antenatal and postnatal mothers admitted in O&G dept at Karur MCH were tested by RT-PCR for covid 19. Nasopharyngeal and oropharyngeal swabs collected by the laboratory personnel or health care worker trained in specimen collection, under the supervision of a physician. It was ensured that the collection of specimens was made with strict biosafety precautions and using personal protective equipment (PPE). Samples were transported to the designated laboratory. Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) is the standard of diagnosis. All the Antenatal mothers and postnatal mothers tested covid positive were included in the study.

LITERATURE REVIEW:

In a study titled 'Impact of the COVID-19 pandemic on maternal and

perinatal health: a scoping review', pregnant women and mothers were not found to be at higher risk than people who are not pregnant, however pregnant people with symptomatic covid 19 may experience more adverse outcomes compared to non pregnant people and seem to face disproportionate adverse socio economic consequences. High income and low and middle income countries alike faced significant struggles.

In a study titled ' Outcome of corona virus spectrum infections(SARS, MERS, COVID-19), during pregnancy- a systematic review and meta analysis' showed in hospitalized mothers infected with corona virus infections, including COVID-19, more than 90% of whom also had pneumonia, preterm birth is the most common adverse pregnancy outcome. COVID-19 infection was associated with higher rate of pre term birth, pre- eclampsia, caesarean and perinatal death.

Corona virus disease 2019 in pregnancy; clinical management protocol and consideration for practice showed no increase in miscarriage or early pregnancy loss in women with COVID-19 but cases of pre term birth and fetal distress have been noted

RESULTS:

SOCIODEMOGRAPHIC DATA

Table No 1 Age Distribution

S.NO	AGE	Number ofmothers
1	<19 yrs	11
2	20 -34 yrs	199
3	>35 yrs	15

Table No 2: Parity Distribution

S.NO	PARITY	No of Mothers
1	Primigravida	98
2	G2	73
3	G3 and Above	54

Table No 3: Gestational Age Distribution

S.No	Gestational Age	No of Mothers
1	< 14 wks	9
2	15 wks – 28wks	15
3	>29 wks	201

Table no 4: SYMPTOMS

SYMPTOMS	FREQUENCY
Asymptomatic	191
MILD (cough/ cold/anosmia/myalgia)	27
Moderate (heavy cough/ fever/systemic symp)	7

Table No 5: Investigations

Deranged LAB parameter	FREQUENCY
Lymphopenia	7
Elevated CRP	34
Changes in CT Chest	7

Table No 6: Management

Mode of management	FREQUENCY
Antivirals	34
Supportive measures (vitamin c, zinc, hydration)	191
Anticoagulants	225
Steroids	122
Nasal O2	10
NRBM	1
CPAP	0
Ventilatory/ inotropic support	0

Table No 7: Pregnancy Outcomes

S.No	Pregnancy Outcome	No of Mothers
1	I TRIM obst Abortion	2
2	Spontaneous Expulsion (II trim)	2
3	Delivery	125
4	Undelivered	82
5	Postnatal admissions	14

Table No 8: Mode Of Delivery

S.NO	Mode of Delivery	MCH	Delivered Outside
1	Vaginal	46	9
2	LSCS	74	5
3	Assited Deliveries	5	

Table No 9: Indications – Primary LSCS

S.No	Primary LSCS	MCH	Delivered Outside
1	Failed Induction	18	2
2	CPD	5	
3	Severe Oligo	4	
4	Fetal Distress	3	
5	IUGR/Oligo	1	

Table No 10: Indications- Repeat LSCS

S.No	Rpt LSCS	MCH	Delivered Outside
1	Pre LSCS	40	3
2	Pre 2 LSCS	2	
3	Pre Myomectomy	1	

Table No 11: High Risk Obstetric Cases

S.NO	High Risk	No of Mothers
1	Pre LSCS	56
2	Anemia	53
3	Preeclampsia	14
4	HOB	13
5	BOH	7
6	Postdated Pregnancy	6
7	Precious Pregnancy/ShortPrimi/Rh Neg	2
8	GDM	10
9	Severe oligo	4
10	Thyroid	4

Table No 12: Family Planning Methods

S.No	METHODS OF FAMILY PLANNING		
1	Temporary Method	PPIUCD	60
2	Permanent Methods	LSCS with STERILISATION	14

Table No 13: Neonatal Outcome

Term Babies	100
Preterm	10
LBW	14
Neonatal Death	1

Among the mothers 6 babies were infected.one baby died on the 1 postnatal day born by lscs indication being severe preeclampsia /IUGR/Oligo at 34 ks.birth wt 1.7 kg.

Physical barriers like curtain was placed between the mother and the baby >6 feet.

When baby is kept under observation expressed breast milk was given by a healthy caregiver to the new born. When Rooming in is practiced mother was advised to wear mask and practice hand hygiene before and after breast feeding.

DISCUSSION

First case of Pneumonia of unknown cause identified in Wuhan China was reported to WHO in Dec 31, 2019. On Feb 11 2020 WHO announced the name COVID 19.In India the first case of covid 19 infection was reported in Kerala on Jan 27th 2020. In Tamilnadu the first case of covid 19 infection was reported in Chennai on March 8 th 2020. It is a known fact that pregnant women are at increased risk of severe morbidity and mortality from respiratory infections. An intense inflammatory response is a key feature of severe covid infection.A relative immunosuppresion in pregnancy may be the reason underlying more asymptomatic presentation.In our study number of RTPCR done in karur MCH was 1,45,917 .Among tested positive was 3296.Obstetric cases reported positive were 225. Among 4188 admissions. COVID positive mothers less than 19 yrs were 11.This teenage mothers data reflect the need for education of the society to educate the girl child and creating awareness of the risk of anemia, pre-eclampsia ,CPD In this group. Elderly mothers infected with covid 19 were 15. .Elderly mothers are at risk of anemia, hypertension, diabetes and CPD.IEC to prevent this should be done more vigorously. Most common age group infected with covid 19 is 20 yrs to 34 yrs. As far as parity is concerned, infection was reported in 98 primigravida and 73 multigravida. This proportion of multigravida stress the need of promotion of counseling for family planning procedures.

Regarding presentation of symptoms, 85% of the infected women were asymptomatic.12% had mild disease and 3% had moderate disease. Relative immunosuppression may be the reason for this presentation. But no cases of severe illness requiring ventilatory or

inotropic support were reported during the period of study.

Although the presentation of COVID infection in pregnant and non pregnant women is the same, the severity of the disease is quite high in the pregnant population. This may be attributed to the relative immunocompromised status of pregnancy. In the pregnant group, mothers with obstetric or non obstetric complications had a higher morbidity than non complicated obstetric cases. We have come across 180 high risk mothers among the infected pregnant women. High risk factors are Pre LSCS, Anemia , Pre-eclampsia, GDM, HOB, BOH, Rh incompatible pregnancy, Oligohydramnios, Thyroid disorders, prolonged pregnancy and short gravida. The risks were either direct eg: pre-eclampsia and gestational DM, or indirect, necessitating need of anesthesia, eg., LSCS for a case of CPD, and other anesthesia/ surgery related complications. There was no difference in the reporting of covid infection between the normal and high risk mothers. As per guidelines, AN visits were limited to 12,20,28,36 weeks. System of mentoring has helped the high-risk mothers to get the tertiary care management at the right time. Line list pertaining to EDD for 3 months is kept under supervision and scrutiny of the mentor Obstetrician to follow up the high risk mothers virtually. USG for growth was postponed. We have a designated covid ward with adequate Doctors, Staff Nurses, medical and paramedical healthcare workers dedicated to covid duty.

Total no deliveries during this study period was 125. 74 deliveries were accomplished by LSCS and 51 delivered vaginally. Of the 74 of LSCS, primary lscs was 31, which accounted to 50.2%. While discussing the modalities concerned with anesthesia, spinal anaesthesia was given in most of the C sections considering the safety. Inspite, considering the patient indication, general anaesthesia with ET tube was given to a patient with severe preeclampsia , thrombocytopenia.

Glancing at the indications for primary sections, 62% were in view of failed induction, 15% in view of fetal distress, 13 % in view of CPD/ failed trial, and the rest 10% were due to other indications such as malpresentations, previous myomectomy, FGR/oligohydramnios, etc., which is on par with other studies describing covid outcomes[3,5].

Obstetric abortions were also carried out, and MVA was done in 2 patients in view of m issed abortion in first trimester. Second trimester spontaneous expulsion was observed in 2 cases, the reason behind which may be attributable to the thrombotic sequelae of covid infection.

Describing the neonatal outcomes, among the 125 deliveries, 100 newborn were term, 25 babies were preterm and 30 newborn of low birth weight, including SGA infants..It is evident that covid virus infection had no difference in the number of preterm and lowbirth weight babies born to the infected and nonfected women in this pandemic[5].

Both temporary and permanent methods of contraception were effectively carried out during this pandemic period. Temporary methods of contraception like PPIUCD was inserted in 60 delivered women. Permanent sterilization was done in 14 mothers.

Investigations done routinely were complete hemogram, kidney and liver function tests, C- reactive protein, coagulation profile. Lymphopenia was observed in 34 women and increased CRP observed in 7 mothers and CT Chest features of covid pneumonia in 7 mothers.

All asymptomatic mothers were given supportive measures like hydration, zinc, ascorbic acid ,Vit D3 and calcium supplements. Azithromycin tablets 500 mg for 5 days was given to 34 women. Oxygen therapy at 5L/min to maintain saturation>95% was given to 7 mothers. During the period of study, no mother needed invasive ventilation/inotrope support.

There is increased incidence of both venous and arterial thromboembolism in patients diagnosed with covid 19. This is due to mediators of inflammation, hypoxia, immobilization and DIC. Normal pregnancy by itself is a prothrombotic state. Hence patient may be at increased risk for thrombosis when affected by covid 19.As per RCOG recommendation all pregnant women admitted with covid 19 infection were given LMWH unless delivery is expected within 12 hrs.

Asymptomatic and mild patients were discharged after 10 days of monitoring anmd treatment, assuring their stable clinical status. Moderate cases were discharged if they were afebrile for 3 days and maintain oxygen saturation>95% for the next 4 days .The criteria for discharge for moderate cases were remaining afebrile without antipyretics, without breathlessness and there is no oxygen requirement. Swab testing was not repeated before discharge.

CONCLUSION

This retrospective study revealed the demographic characteristics of the covid 19 infected pregnant women, outcome of delivery management in a tertiary care center. This study concluded asymptomatic presentation was the most common presentation of covid 19 in pregnant women during the study period with zero maternal mortality[4].

LIMITATIONS:

This study was done over a limited time period and in a prescribed geographical location, and hence doesnot exactly represent the entire population.

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