

A PROSPECTIVE OBSERVATIONAL STUDY OF MATERNAL AND PERINATAL MORBIDITY AND MORTALITY IN COVID-19 POSITIVE OBSTETRICS PATIENTS IN TERTIARY CARE HOSPITAL

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Abstract

Introduction: COVID-19 is an infectious disease caused by a newly discovered coronavirus and a global burden. The disease was first reported in Wuhan city, China in December 2019. It initially considered to be spread by zoonotic transmission with high rate of human to human transmission and rapidly spread to rest of the world and declared as pandemic by WHO on 11 March 2020.

Materials and methods: This was a cross sectional prospective observational study, conducted at Gynae and Obstetric Department, in Narayana Medical College, Nellore between July 2020 to August 2021. All standard antenatal screenings, including Ultrasonography (USG), corona-specific tests for Interleukin-6 (IL-6), C-reactive protein (CRP), D-Dimer, and serum ferritin, were performed at the time of admission. Modified biophysical profile, Non-Stress Test (NST) and Amniotic fluid index (AFI) were used for fetal surveillance, and individuals were monitored all the way through delivery.

Results: Most of the patients 58 (38.7%) were aged 25-29 years and followed by 48 (32%) were aged 20-24 years, 26 (17.3%) aged 30-34 years and 18 (12%) aged 35-39 years. Among the all 150 patients, 52% (78) were un-booked while 48% (72) were booked. The mode of delivery among the study patients is depicted in (table 5). Among the 150 pregnant women delivery was done in 124 patients (15% NVD and 85% LSCS). 72% of the patients, or 96%, were asymptomatic; the remaining 4% of cases had cough symptoms. Based on our data, 94.7% (142) of the instances were antenatal, 4% (6) were postnatal, and 1.3% (2) were abortions. 30.7% (46) of the total antenatal cases were 37 weeks POG. Multigravida and Primigravida instances made up 65.3% (98) and 34.7% (52) of all observed cases, respectively.

Conclusion: We found that the majority of COVID-19-positive women had moderate or no symptoms. The majority of the patients had radiographic evidence of pneumonitic alterations while being asymptomatic. Enoxaparin was initially administered combined with antibiotic and antiviral medications to treat the symptoms. When covid-19 obstetric patients received this

rigorous treatment, they needed less acute care, recovered well after giving birth, and were discharged in satisfactory condition.

Key Words: COVID-19, Ultrasonography, Interleukin-6, C-reactive protein.

INTRODUCTION

COVID-19 is an infectious disease caused by a newly discovered coronavirus and a global burden. The disease was first reported in Wuhan city, China in December 2019. It initially considered to be spread by zoonotic transmission with high rate of human to human transmission and rapidly spread to rest of the world and declared as pandemic by WHO on 11 March 2020.¹

As the people are hesitant in seeking treatment for chronic diseases because of pandemic, but obstetrics never stops, as it is a powerful gift of Mother Nature. The physiological changes of pregnancy are well tolerated by most of women and are reversible.² Medical problems may interfere with the physiologic adaptations of pregnancy and cause poor pregnancy outcome and vice versa.²

Various type of medical disorders including cardio-vascular system, respiratory system, gastrointestinal, renal, endocrine disorders, hematological disorders, central nervous system may exist before pregnancy or may present for first time during pregnancy such as pregnancy induced hypertension and gestational hypertension.³ The main outcome of pregnancy depends upon the nature of the disease or severity of the disease at the onset of pregnancy and the quality of obstetric and medical management used. Therefore, management of pregnancies with pre-existing medical disorders should begin before conception. The management of medical disorders in pregnancy based on four important clinical principles.⁴ They are medical disorders affected by pregnancy; medical disorders that affect pregnancy; physiological changes may make diagnose of medical disease difficult and treatment of medical diseases may be totally different in pregnant state and non-pregnant state.⁵

The objective of this study was to evaluate the effects of COVID-19 in maternal and perinatal morbidity and mortality among obstetrics patients in tertiary care center.

MTAERIALS AND METHODS

This was a cross sectional prospective observational study, conducted at Gynae and Obstetric Department, in Narayana Medical College, Nellore between July 2020 to August 2021.

Inclusion criteria:

- There were 150 pregnant women who tested positive for COVID-19 and admitted to our center for at least 14 days of isolation or symptom relief and were included in this study.
- Patients with and without labor were both included in the study.

Exclusion criteria: Pregnant women who had COVID-19-like symptoms and indications but tested negative for RT-PCR/True Nat were excluded.

All standard antenatal screenings, including Ultrasonography (USG), corona-specific tests for Interleukin-6 (IL-6), C-reactive protein (CRP), D-Dimer, and serum ferritin, were performed at the time of admission. Modified biophysical profile, Non-Stress Test (NST) and Amniotic fluid index (AFI) were used for fetal surveillance, and individuals were monitored all the way through delivery. The ward, labor room, and operating room were equipped with all the relevant recommendations as instructed by the MoHFW regarding the necessary steps, including PPE Kits, Gloves, KN-95 masks, goggles, and face shields. Version 20 of SPSS was utilized for the analysis.

RESULTS

Most of the patients 58 (38.7%) were aged 25-29 years and followed by 48 (32%) were aged 20-24 years, 26 (17.3%) aged 30-34 years and 18 (12%) aged 35-39 years. Among the all 150 patients, 52% (78) were un-booked while 48% (72) were booked.

S.No	Age group	N (%)
1	20-24 years	44 (32%)
2	25-29 years	58 (38.7%)
3	30-34 years	26 (17.3%)
4	25-39 years	18 (12%)

Table 1: Age distribution

S.No	Booking status	N (%)
1	Booked	72 (48%)
2	Un-Booked	78 (52%)

Table 2: Booking status

The mode of delivery among the study patients is depicted in (table 5). Among the 150 pregnant women delivery was done in 124 patients (15% NVD and 85% LSCS). 72% of the patients, or 96%, were asymptomatic; the remaining 4% of cases had cough symptoms. Based on our data, 94.7% (142) of the instances were antenatal, 4% (6) were postnatal, and 1.3% (2) were abortions. 30.7% (46) of the total antenatal cases were 37 weeks POG. Multigravida and Primigravida instances made up 65.3% (98) and 34.7% (52) of all observed cases, respectively.

Clinical presentation		N	%
Obstetrics status on admission	Antenatal	142	95%
	Postnatal	6	4%
	Abortion	2	1%
Gestational age of patient on admission	<37	46	35%
	≥37	98	65%

Gravidity	Primigravida	52	35%
	Multigravida	98	65%
COVID-19 symptoms	Asymptomatic	144	96%
	Cough	6	4%
Indication for LSCS	Fetal distress	38	25%
	Scar tenderness	26	17%
	Pre-eclampsia	18	12%
	Postdated pregnancy	14	10%
	Previous 2LSCS with pain abdomen	4	6%
	Oligohydramnios	4	6%
	Malpresentation (Transverse lie)	2	1.5%

Table 3: Clinical presentation

Laboratory finding		N (%)
C-Reactive protein normal range	CRP Raised	122 (81%)
	CRP Normal	28 (18%)
Interleukins 6 normal range: 1.8 pg/ml (15 cases)	IL-6 range	30 (20%)
Chest X-ray findings (39 cases)	Pneumonitis	58 (75%)
	Normal	20 (26%)

Table 4: Laboratory findings

A previous 2LSCS with discomfort in the belly 2.7% (4), oligohydramnios 2.7% (4), fetal distress 25.3% (38), scar tenderness 17.3% (26), pre-eclampsia 12% (18), post-dated pregnancy 9.3% (14), and malpresentation (transverse lie) 1.3% are examples of complications (2).

S.No	Mode of delivery	N (%)
1	LSCS	106 (85%)
2	NVD	18 (15%)

Table 5: Mode of delivery

Treatment	N	%
Hydroxychloroquine (HCQ)	90	60%
Antiviral treatment	60	40%
Use of steroids	60	40%
Conservative management only	24	16%
ICU admission	2	1%

Table 6: Treatment given to the study patients

Maternal and perinatal/neonatal morbidity and mortality	N	%
Normal	90	60%
IUGR	12	8%
IUD	6	4%
NICU Admissions	8	5%
Preterm	4	3%
Neonatal death	4	3%

Table 7: Maternal and perinatal/neonatal morbidity and mortality among the study patients

S.No	Outcome	N (%)
1	Discharged	146 (97%)
2	Death	4 (3%)

Table 8: Outcome among the study patients

DISCUSSION

The COVID-19 test should be administered to all pregnant women, regardless of whether they are experiencing symptoms, in labor, or are expected to give birth within the next five days, according to FOGSI guidelines. Out of these 60, the most (96%, or 72 instances) were asymptomatic; the remaining 4% of individuals had cough symptoms. Cough and fever were shown to be the most prevalent symptoms in pregnant women who tested positive for COVID 19 in studies conducted by Muhidin et al.⁷

In our study, 58 patients (38.7%) were aged years, followed by 48 patients (32%) who were aged 20–24 years, 26 patients (17.3%) who were aged 30-34 years, and 18 patients (12%) who were aged 35-39 years. Similar conclusions were reached in a study by Knight et al.⁸

In addition to regular prenatal testing, CRP and IL6 tests specific to COVID-19 was sent upon admission. Due to the lack of an IL-6 facility in our center, IL-6 testing was delayed and only completed in 15 cases, where all of the cases had elevated IL-6 levels. In 80.0% (48) of the cases, elevated C-reactive protein levels were discovered. When compared to non-pregnant people, pregnant women with COVID 19 have physiological "silencing" of the Th1 pro-inflammatory response and a relative Th2 dominance that lowers the inflammatory cascade, lessening the disease's severity and reducing the likelihood of maternal fatalities.⁹

Despite elevated inflammatory markers in our study as well, both maternal and neonatal outcomes were favorable. According to research by Yan et al., 65.5% (76) of the 116 cases had been discharged with no maternal deaths. In our study, pregnant women with covid-19 infection had similar favorable outcomes, with maternal death being only 3%. Following surgery on day 2, two patients were brought to the intensive care unit (ICU) because to worsening COVID-19 symptoms; both patients passed away from pulmonary embolism.

Since pregnancy is a known hypercoagulable state, D-dimer levels must also be monitored. Elevated D-dimer in pregnant women with COVID-19 has been linked to an increased death risk, according to case series research. In our study, pneumonia was radiologically diagnosed in 74.4% (58) patients; only 4 of these patients passed away from respiratory complications. Out of 427 pregnant women with proven SARS-CoV-2 infection, 10% needed respiratory support, and 1% passed away, according to a prospective cohort study by Knight et al.¹⁰

CONCLUSION

We found that the majority of COVID-19-positive women had moderate or no symptoms. The majority of the patients had radiographic evidence of pneumonitic alterations while being asymptomatic. Enoxaparin was initially administered combined with antibiotic and antiviral medications to treat the symptoms. When covid-19 obstetric patients received this rigorous treatment, they needed less acute care, recovered well after giving birth, and were discharged in satisfactory condition. Even the neonatal result was quite positive. Our research, we believe, will be highly valuable in furthering this research's efforts to battle and defeat the virus.

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