Original Article

PRESENTATION OF PREGNANT WOMEN DURING COVID -19 PANDEMIC IN FAROOQ HOSPITAL, WEST WOOD

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ABSTRACT:
A descriptive study to evaluate fetomaternal complication in pregnant patients admitted with either symptoms of COVID-19 or with other obstetric indications, who were tested positive for SARS-COV 2.

Material and Methods: Study was conducted from 1st March 2020 to 30th June 2020 in the department of gynaecology of Farooq Hospital Westwood Branch Lahore. A total of 262 pregnant patients were admitted for observation and emergency procedures out of which 28 patients were tested positive for COVID-19. Patient's demographic characteristics, COVID symptoms, obstetrics symptoms and maternal complications were noted. Mode of delivery, fetomaternal complications and fetal outcomes of delivered patients were recorded. The antenatal patients in various trimesters were managed conservatively and are still under follow up. The data was analyzed by SPSS version 20.

Results: Out of 28 tested positive patients, 19 (67.8%) have delivered till now and the remaining 9 (32.1%) are still under follow-up. The mean age of pregnant patients was 28.46 ±4.07. Ten (35.7%) were primigravida. Most of the patients were in 3rd trimester of pregnancy between 35-42 weeks (n=17, 60.7%) at the time of presentation. The mean gestational age at presentation was 31.72±9.55. Eight patients (28.5%) were asymptomatic and remaining 20 (71.5%) were having mild symptoms including fever (n=5, 17.8%), cough (n=4, 14.2%), myalgia (n=2, 7.14%) and headache (n=1, 3.5%). Obstetrical presentation was spontaneous labour (n=8, 42%) and preterm labour (n=8, 42%), 3(15.7%) had intrauterine growth retardation (IUGR) and 1(5.26%) had preterm prelabour rupture of membranes. Out of undelivered 9 patients, 2 (22.2%) were in 1st trimester, 3 (33.3%) in the second trimester and 4 (44.4%) in the third trimester. There is a history of contact in 8 of these patients. Out of 19 delivered patients, 12(63.1%) had cesarean sections, 6 (31.5%) had a normal delivery and 1 (5.26%) expulsion. Regarding the fetal outcome of 19 patients, 10 (52.6%) were delivered at term, 8 (42.1%) was preterm and one expulsion. Five newborns (26.3%) had low birth weights (≤2.5kg). Four newborns (21.05%) developed respiratory distress syndrome and were admitted in the neonatal intensive care unit. There was no case of maternal and perinatal mortality.

Conclusion: Universal testing of all pregnant females helped in identification of asymptomatic carriers and isolation of those cases helped in reducing spread of disease. Mild cases of COVID-19 infection were with good maternal and perinatal outcome.

Key Words: Pandemic, COVID-19, Pregnancy

INTRODUCTION:

The world is facing COVID-19 pandemic for the last few months and millions of people are affected world over. This corona virus disease - 2019 (COVID-19) is caused by "Severe acute respiratory syndrome corona virus-2 (SARS-COV-2)" which is an encapsulated single-stranded RNA virus. The first case was identified in Wuhan China in December 2019 and now the disease had spread all over the globe.[1, 2]

The spectrum of symptoms of the disease ranges from mild flue like symptoms to severe respiratory illness. The effect of COVID-19 infection in pregnancy is still under research and limited data is available

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as case reports, case series and small sample studies, so the findings and results of these studies are diverse.[3]

The mode of transmission of disease is human to human transmission. It can spread by droplets through cough and sneeze, close contact with an infected person and from contaminated surfaces. The virus can be isolated from respiratory secretions, faeces and fomites. Emerging evidence now suggests that vertical transmission is also possible.[4] The usual presentations of COVID-19 are with fever, flu, cough, headache, myalgia, fatigue, shortness of breath and abdominal symptoms like diarrhea, abdominal pain and vomiting.[5]

Pregnant women get the infection in a similar way as the general population.[6, 7] In pregnancy the physiological changes, alteration in body's immune system and response to infections make the women more susceptible to viral illnesses and to suffer from more severe symptoms especially in third trimester.[8] Most pregnant patients experience only mild or moderate symptoms, but the symptoms of severe infection like pneumonia and marked hypoxia are not different from general patients.[4]

Previously viral outbreaks like severe acute respiratory syndrome corona virus (SARS-COV) and the Middle East respiratory syndrome corona virus (MERS-COV) and Influenza A (HINI) virus were associated with poor fetomaternal outcome[9,10] and greater mortality rates than the general population.[11] The data regarding the maternal and perinatal outcome in pregnant women infected with SARS-COV 2 is small, but so far this virus is not affecting mother and fetus as badly as previous viral pandemics. However, the maternal complications encountered in these patients are preterm rupture of membranes, preterm labor, intrauterine growth retardation while fetal complications are prematurity, respiratory distress syndrome and still birth.[12]

This study was conducted to evaluate the maternal and fetal complication in pregnant females admitted in our hospital with symptoms of COVID-19 or other obstetric indications, who were tested positive for SARS-COV 2.

MATERIAL AND METHODS:

This study was conducted from 1st March 2020 to 30th June 2020 in the department of Gynaecology of Farooq Hospital Westwood Branch Lahore, in collaboration with Corona Unit of Farooq Hospital Westwood Lahore, which is the largest Corona Hospital in private sector in Lahore. A total of 262 pregnant patients were admitted in Gynaecology department for observation and emergency procedures out of which 28 patients were tested positive for COVID-19 during the study period.

This is a simple descriptive study and the study was reviewed and approved by the Research Ethical Committee of Akhter Saeed Medical and Dental College. Informed consent was taken from patients and the data was entered on predesigned proforma.

In addition to real-time polymerase chain reaction (rt-PCR) positive cases, we had also included the serological test (IgM and IgG antibody detection) positive pregnant females in our study because when there was need for obstetric procedures to be done in an emergency in suspected or asymptomatic patients this serological testing result was quick, readily available, cost-effective and more convenient for the patients.

Patient's demographic characteristics, COVID symptoms, obstetrics symptoms and maternal complications were noted. Mode of delivery, fetomaternal complications and fetal outcomes were also recorded. The antenatal patients who were in first, second or third trimesters having mild to moderate symptoms were managed conservatively and are still under follow up.

The data was analyzed by statistical software package for social sciences version 20 (SPSS 20). For the main variable, including age, parity and gestational age, we calculated means and standard deviations

(SD). The qualitative variables were expressed as frequencies and percentages.

RESULTS:

The total number of patients admitted in the department of Gynae/Obs, Farooq Hospital, Westwood Branch during study period were 262 and 28(10.7%) were tested positive for COVID-19. Out of these 28 patients, 19 (67.8%) have been delivered till now and remaining 9 (32.1%) are still under obstetric follow-up.

Out of 28 patients, 26 (92.8%) were booked and 2 (7.14%) were unbooked. The demographics of these 28 patients are shown in Table1.All patients were in age range of 20-40 years and mean age at presentation was 28.46 ±4.07. Maximum patients (n=13, 46.4%) were in age range of 26-30 years.

Table-1: Demographics of all patients (n=28)

Booking Status	**n=28**	**Percentage (%)**
Booked	26	92.85
Unbooked	2	7.14
Age (in years)		
20-25	7	25
26-30	13	46.4
31-35	7	25
36-40	1	3.5
Gravidity		
Primigravida	10	35.71
Para 2-4	18	64.28
Gestational Age		
<12 wks	2	7.14
13-24 wks	2	7.14
25-34 wks	7	25
35-42 wks	17	60.7
Travel History		
Yes	1	3.17
No	27	96.42
Contact History		
Yes	9	32.14
No	19	67.80

Out of 28 patients, 10(35.7%) were nulliparous and 18 (64.2%) were between para 2-4.

Most of the patients were in 3rd trimester of pregnancy between 35-42 weeks (n=17, 60.7%) at the time of presentation. Mean gestational age at presentation was 31.72±9.55. Nine patients (32.14%) had history of contact and one patient (3.17%) had history of travel.

The clinical presentation of patients is summarized in Table 2. Out of 28 patients, 8 (28.5%) were asymptomatic and remaining 20 (71.5%) were having mild symptoms. It was observed that five patients (17.8%) presented with fever, followed by cough (n=4, 14.2%), myalgia (n=2, 7.14%) and headache (n=1, 3.5%) in our patients. None of the patients had flu, shortness of breath, sore throat, diarrhea and vomiting.

Table-2: Clinical presentations of patients (n=28)

Clinical Presentation	**n=28**	**Percentage (%)**
Fever		
Yes	5	17.8
No	23	82.1
Cough		
Yes	4	14.2
No	24	85.7
Myalgia		
Yes	2	7.14
No	26	92.8
Headaches		
Yes	1	03.5
No	27	96.4

The obstetric presentation of delivered patients is shown in Figure-1. Out of 19 patients, 18(94.7%) had singleton pregnancy and 1(5.26%) had twin pregnancy. Most common obstetrical presentations were spontaneous labour (n=8, 42%) and preterm labour (n=8, 42%). Three patients (15.7%) had intrauterine growth retardation (IUGR) and 1(5.26%) each had preterm prelabour rupture of membranes (PPROM) and absence of amniotic fluid.

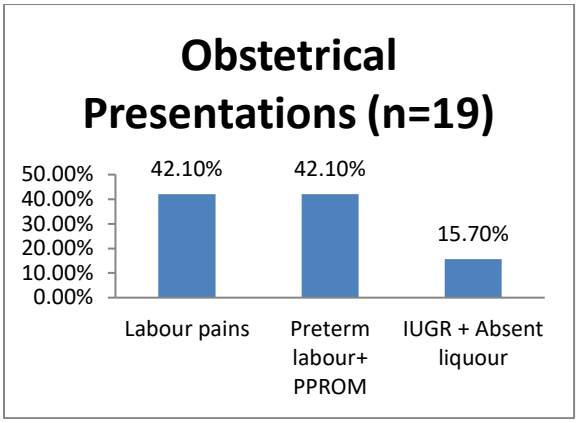

Figure-1: Obstetrical presentation in delivered patients (n=19)

Out of total 28 patients, 9 (32.1%) are not delivered yet and are under obstetric follow-up. Out of these 9 patients, 2 (22.2%) are in 1st trimester, 3 (33.3%) are in second trimester and 4 (44.4%) are in third trimester of pregnancy. All of them are having uncomplicated pregnancies till now. Out of these 9 patients, 8 had history of close contact with COVID positive patients but were asymptomatic and one patient suffered from myalgia and was tested positive.

The mode of delivery of 19 patients is shown in Figure-2. Twelve (63.1%) were delivered by elective or emergency cesarean section due to obstetric indications and 6 (31.5%) were delivered normally. One (5.26%) patient had expulsion at 24 weeks and the outcome was 600 grams male fetus. All patients remained stable in the postoperative and postnatal period and were discharged home in good health.

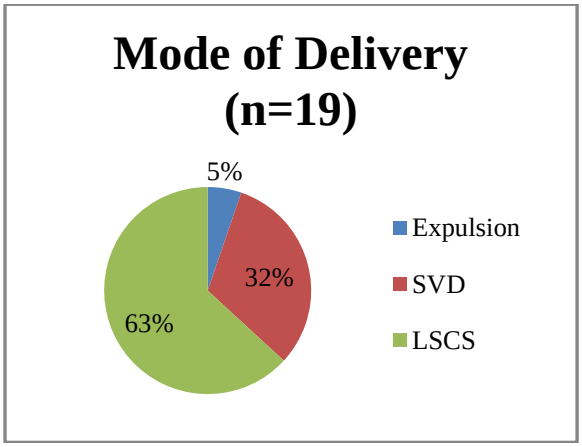

Figure-2: Mode of delivery in delivered patients (n=19)

The fetal presentation of 19 patients is described in Table 3. Ten (52.1%) were delivered at term and 8 (42.1%) were delivered preterm and one expulsion at 24weeks. Five newborns (26.3%) had low birth weights (≤2.5kg). Twelve newborns (63.1%) were in weight range of 2.1kg-3.0kg, whereas three newborns (15.7%) had weight of >3kg. Two newborns (10.5%) had meconium-stained amniotic fluid. Four newborns (21.05%) developed respiratory distress syndrome (RDS) and were admitted in the neonatal intensive care unit. (NICU)

There was no case of maternal and perinatal mortality.

Table-3: Fetal presentation in delivered patients (n=19)

Gestational Age	**n (19)**	**Percentage (%)**
≤ 24 wks	1	5.26
25-36+6 wks	8	42.1
≥37 wks	10	52.6
Birth weight (in grams)		
500-1000 gm	2	10.5
1100-2000 gm	2	10.5
2100-3000 gm	12	63.1
>3000 gm	3	15.7
Meconium		
Yes	2	10.5
No	17	89.5
RDS		
Yes	4	21.05
No	15	78.9
NICU Admission		
Yes	4	21.05
No	15	78.9
Neonatal Mortality		
Yes	0	0
No	19	100

DISCUSSION:

At the peak of COVID-19 outbreak in Lahore, many pregnant women presented to

our hospital with symptoms of COVID-19, obstetric problems or with history of contact with COVID-19 positive patients. Real time PCR was performed on the patients, but those patients who presented in emergency and needed urgent obstetric intervention, serological antibody testing for COVID-19 (IgG and IgM) was done. This test was convenient, easy to perform and economical for patients. Recently many Chinese studies have shown promising results and benefits of serological testing over PCR in case of emergency.[13-15]

In this study, mean age (years) of COVID-19 positive patients was 28.46± 4.01 and the mean gestational age (weeks) at presentation was 31.72±9.55. Most of the patients (n=17, 60.7%) presented in 3rd trimester for obstetrical indications and were tested positive. These results are comparable to a local study done in Sir Ganga Ram Hospital on 20 patients, which showed mean age of 29.3±4.17 and mean gestational age of weeks 29± 9.53.[12] A study done in New York on 43 patients showed mean age of 29.7 years but contrasting result regarding gestational age at presentation as the mean gestational age at presentation was 37 weeks.[16]

Regarding the parity of positive patients, this study showed that 35.7% patients were nulliparous and 64.28% patients were multiparous. Contrasting results were shown by local study where 20 % patients were nulliparous and 80% were multiparous.[12] Another study done in China on 116 patients, concluded that 55.2% patients were nulliparous and 44.8% were multiparous. Almost the same findings were shown by another Chinese study done on 118 patients.

In the current study, 9 (32.14%) patients had a positive history of contact and were also tested positive. A study done in China also displayed comparable results showing positive contact history in 32.8% cases.

Regarding symptomatology, total 8 (28.5%) patients were asymptomatic and remaining 20 (71.5%) were having symptoms. These symptoms included both mild symptoms of COVID-19 (fever, cough, myalgia, headache) and obstetrics symptoms. These outcomes are comparable to a study done in China, where 23.3% of cases were asymptomatic.[17] Another study showed that 92% patients were having mild disease.

Most common presenting symptoms in current study were fever (17.8%), cough (14.2%), myalgia (7.14%) and headache (3.5%). Contrasting results were shown by a study done in China depicting fever and cough in 75% and 73% patients respectively and myalgia in 6% of cases.[18] Similarly a case series done on 138 patients in Wuhan, documented fever and cough in 98.6% and 59.45 % cases respectively.[19]

Mode of delivery was also noted in the current study. Out of total 19 delivered patients, 12(63.1%) had a caesarean section for obstetrical indications. Other studies had documented even higher rate of cesarean sections like 80%, 100% and 86%.[7,12,17] However study done in New York documented 44.4% cesarean section rate.[16]

Regarding obstetrical presentation of 19 patients, 42.15% patients presented in spontaneous labor and same percentage of patients presented with preterm labour. 15.7% patients had IUGR and 5.26% with PPROM. Regarding IUGR, one patient was 39 years old and presented at 27 weeks with IUGR and absent amniotic fluid. Emergency cesarean section was done and outcome was 900gram male baby admitted in NICU and later discharged in good health. Our two IUGR fetuses were at 34 and 39 weeks of gestation. A study done in Scandinavia showed 42% incidence of preterm labor.[3] A systematic review[7] showed higher incidence of preterm birth (63.8%) and IUGR (42.8%).However, a local study showed 6% incidence of preterm birth.[12] According to WHO 2018 report, across 184 countries around the globe, the incidence of preterm birth was from 5-16% and in Pakistan, the incidence of preterm birth was 15.8% and IUGR was 25%.[20] Keeping these WHO figures in mind, we can conclude that COVID-19 infection, even in milder forms could be associated with poor obstetrical presentations.

As pregnancy is an immunosuppressive state, so pregnant women are more prone to catch infections and fetal and neonatal wellbeing remains a concern. Most studies did not report adverse perinatal outcomes. Out of 19 delivered patients, 42.1% newborns were premature. These findings are comparable to other studies.[3,7] Regarding birth weight, 5(26.3%) neonates were low birth weight (≤ 2.5kg) included one set of twins. Out of these 5 neonates, 2 were born at 34 and 39 weeks of gestation and were also having IUGR. One set of twins was delivered by emergency cesarean section at 32 weeks. Contrasting results were shown by systematic review in which the incidence of low birth weight was 46.15%.[7]

Out of 20 neonates (including 1 set of twins), 4 (21%) neonates were having RDS and were admitted in NICU. A local study also showed 29% incidence of RDS and NICU admission.[12] Few other studies had variable incidence of NICU admission (77%, 16%, 23%) respectively.[7,16,17]

Chen reported that COVID-19 infection during pregnancy could cause preterm birth, IUGR, intrauterine death (IUD), and even neonatal death.[21] Only a study in literature which showed 2 cases of neonatal mortality in COVID positive patients was done by Zhu et al.[22] He showed that two neonates developed disseminated intravascular coagulation (DIC) multiorgan failure and later led to neonatal mortality.

As all mothers in this study presented with mild symptoms therefore they had good fetomaternal outcome with no mortality.

CONCLUSION:

Severity of COVID-19 infection in pregnant women appears similar to non-pregnant females. Universal testing of all pregnant females helped in identification of asymptomatic carriers and isolation of those cases helped in reducing spread of disease. This also helped in protection of their families and health care personnel. Mild cases of COVID-19 infection are associated with good maternal and perinatal outcome.

LIMITATIONS OF STUDY:

There are many limitations of this study including small sample size and vertical transmission was not assessed.

AUTHOR'S CONTRIBUTION:

FF: Supervisor and conception of study
NS: Study design
DN: Data collection
OF: Data analysis
FS: Drafting article
NJF: Data analysis

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