

Course of Covid 19 and Fetomaternal Outcome at a tertiary care hospital

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ABSTRACT

Background: Corona virus disease 19 is an acute respiratory disease, the causative organism being SARS-COV-2, a novel coronavirus from china alarmed whole world. (1) and later became a pandemic. As pregnant women were equally susceptible to this infection there was a need to follow these cases closely so that guidelines can be made based on these observations.

Aim: To report the clinical experience regarding course of disease in pregnant women and fetal outcome in those who delivered during the study.

Methods: The clinical course of 47 pregnant women admitted in COVID isolation ward of Sir Gangaram Hospital from 8th April to 7th July were closely followed. Data regarding their demographic characteristics, clinical findings, laboratory tests, imaging studies, treatment given and neonatal and maternal outcome in patients who delivered during this period, was collected. All the data was entered on SPSS version 23 and analyzed.

Results: Mean age of women was 28.4 years, ranging between 19–39 years. Mean duration of gestation was 32weeks ranging between 10 to 40 weeks. 82.9% women were multigravidas.72.3%women were educated. 78.8% patients got infected via unknown source rest from the family.42.5% infected women were asymptomatic. Out of 57%symptomatic women 6% had severe disease.76.5%pts had raised TLC while in 8.5%.

Conclusion: COVID 19 is a new disease and herd immunity will take time to develop .pregnant women are equally susceptible to this infection although current study points it to be a less fatal disease in pregnant women as compared to other corona viruses but care must be taken to protect pregnant women as evidence on long term fetomaternal follow up is not available to date.

Keywords: Pregnancy, clinical course, fetomaternal, SARS-CoV -2

INTRODUCTION

Novel coronavirus infection was first reported from Wuhan city of china in early December 2019, the disease transmitted so quickly that within three months it was declared by World Health Organization as a global health emergency, a pandemic on 11thMarch 2020². This novel coronavirus after being identified in the beginning of year2020 at china was named as 2019-nCoV but later labeled as COVID -19³. Since its first emergence in humans the virus is intensively studied regarding its genetics , virulence, epidemiology and clinical effects as after last six identified members of its family it is latest which has effected humans⁴. This virus is found to be causing a unique type of pulmonary pathology indicating poor prognosis⁵.

It was observed that covid 19 can equally affect all age groups of the general population from newborns to elders⁶. However the knowledge about the effects of novel coronavirus infection on pregnant women and their newborn babies was limited only few researchers reported it⁶. It was a matter of great concern as previously in SARS or MERS there was adverse fetomaternal outcome as compared to non pregnant patients⁷. The pandemic effected with such an intensity that even the most well

equipped nations were helpless at the moment, later on with implementation of strict preventive measures the curve of the disease flattened. In our part of the world with limited resources there was a compelled need of the time to study the clinical manifestation and complications of this new disease in pregnant women which can lead to better understanding and clinical management.

METHODS

The study was conducted at COVID isolation ward of Sir Ganga Ram Hospital Lahore, a tertiary care hospital from, 8th April to 7th July 2020 a period of six months. It was a descriptive study. 47 pregnant women infected with SARS-CoV-2, confirmed after PCR test for SARS-CoV-2 and admitted in the isolation ward were included. Written informed consent was taken and approval was taken from ethical committee. Data was collected on predesigned proforma and information regarding epidemiologic, demographic characteristics, clinical findings, laboratory tests, radiological imaging, treatment modalities, delivery methods, neonatal and maternal outcome was recorded. Neonatal PCR was also done to detect vertical transmission. Data was entered on SPSS version 23 and analyzed.

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RESULTS

Age of the patient ranged between 19 to 39 years with the mean age of 28.45±4.29. Mean gestational age of 32 weeks ranging between 10 to 40 weeks. Most of them were multigravidas counting 39 women, 7 were primigravida while only 2 were grand multigravida.

About 27% of the patients were uneducated, only one patient was graduate rest of them got education upto high school level. All of the patients were housewives and only one was self employed. 10 patients had a family member infected already which was the husband. While 37 patient's contact was unknown. Regarding their clinical presentation of 27 symptomatic patients, 10 patients were having mild symptoms including flu, fever, cough, aches and pains and sore throat, while 16 pts were having shortness of breath in addition to flu like symptoms, including 3 patients who were having cyanosis as well. One patient had fever with diarrhea. While 20 women were asymptomatic and were just kept for isolation and observation.

Total leukocyte count was raised in 36 pts, in 4 pts it was reduced while other had normal WBC count. Chest x-rays was done in 8 pregnant women only who had severe

respiratory symptoms. In 6 patients chest x-ray revealed mild changes and in 2 massive infiltrates.

Asymptomatic patients were not given any treatment in symptomatic pts 16 pts with mild symptoms received paracetamol and azithromycin only. 3 pts additionally received hydrochloroquine. While multiple drugs therapy including steroids and anticoagulant were given in 8 pts. 7 patients were admitted in intensive care unit 2 pts also given ventilatory support. No of expiries was 2. Out of which, one patient died with intrauterine demise of fetus in utero.

24 patients delivered during the study period 5 vaginally and 19 c sections. 52% cesareans were due to obstetric reasons like previously scarred uterus, 42% due to fetal compromise and only 1 C section was done in maternal interest (5.2%).

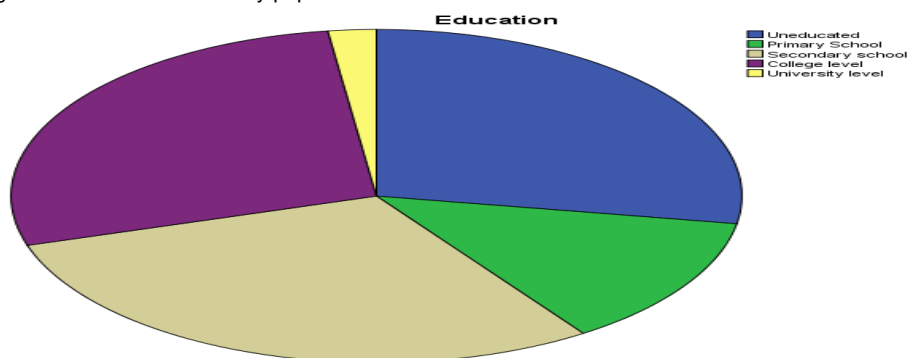
Regarding neonatal outcome there were all live births with good APGAR score only 2 babies had score of less than 6. Average birth weight was 2.6 kg ranging between 2.5 to 3.5 kg. 3 neonates were admitted in neonatal ICU but there was no Covid related reason. All 24 babies were reported negative for SARS CoV -2. There was no early neonatal death.

Table 1 overview of maternal and neonatal outcome in SARS -CoV- 2 Infected pregnant women

Variables	All trimesters	First trimester	2 nd trimester	3 rd trimester
N	47	2	6	39
Maternal age(years)	28(19-39)			
GA at presentation(weeks)	32(10-40)			
Maternal comorbidity	2			2
Asymptomatic at presentation	20	1		19
ICU admission	2		3	4
Maternal mortality	2			2
Viral changes on chest x-ray in symptomatic women	8		4	4
IUD/miscarriage	1			1
Delivery	24			24
SVD	5			5
LSCS	19			19
Post infection fetal growth restriction	NR			NR
Vertical transmission	0			0
Early neonatal death	0			0

GA: gestational age, ICU: intensive care unit, IUD: intrauterine death, SVD: spontaneous vaginal delivery, LSCS: lower segment c section.

Fig. 1: Education level of study population



DISCUSSION

There is a large variety of pathogens that are responsible for respiratory infections human corona viruses are one of them. SARS-CoV-2 is a new amongst the coronaviruses that has infected humans, it has enveloped virions their size is 50-200nm with single positive sense RNA genome⁸. This virus is transmitted via aerosols, nasal secretions,

physical contact and also from one person to other^{8,9}. Pregnancy is a unique physiologic state and changes in respiratory and cardiovascular systems increases the risks of complications with these types of viruses¹⁰.

This study that revealed that covid 19 can affect pregnant women equally. Although about more than 50 % of women were educated and housewives still they caught the

infection. The source of contact remain undetected in majority of them while 21% of the cases had at least one family member already infected. 82% of the effected women were in third trimester of pregnancy. Regarding the manifestation of disease 57% were symptomatic and most of them had milder symptoms (flu, fever, cough, aches and pain) which were comparable with the study conducted by Nan Yu et al¹¹. These patients were managed in collaboration with medical, anesthesia and neonatal specialist's team. Women with severe symptoms or complications were advised x ray chest and given additional drugs like steroids and anticoagulants in addition to antipyretics and antibiotics. In majority of cases the course of disease was mild and pts shown improvement on medication. As the data regarding large doses of steroid in pregnancy is limited and found to be associated with fetal malformations and fetal growth restriction¹² so their use was delayed till delivery of the patient.

The pts who had severe symptoms and shortness of breath were admitted in ICU, only two required ventilatory support and both deteriorated and could not survive. Both had additional risk factors one patient having severe preeclampsia and cardiac failure, the other one suffering from HELLP syndrome and multiorgan failure. According to Wong SF et al the mortality rate of SARS in pregnant women was 25%¹³. While in current study SARS COV 2 mortality rate in pregnant women does not seem to be that much high. Regarding labour and delivery the patients who delivered vaginally had spontaneous labour while c section done due to obstetric or fetal indications only one c section at term was done in maternal interest.

Fetal outcome was also satisfactory that only 3 neonates required NICU admission and that also due to reasons other than covid. There was no case of vertical transmission as PCR was negative in all same was reported by Liu et al according to his study all 10 neonates delivered by c section were found negative on testing¹⁴. No baby was low birth weight and there was no early neonatal death.

Zhang and colleagues also reported that all neonates born by SARS -CoV- 2 infected mothers were negative on testing¹⁵ on the other hand at the start of epidemic in China 2 neonates were reported to be positive for infection, but on further investigation it was found that both acquired infection after birth and no other evidence indicating vertical transmission was found^{16,17}.

However there are several limitations of this study .First, only 47 pregnant women were studied, it should be done on extended period of time and comparative analysis with uninfected pregnant women should be done, moreover the patients who were not delivered during study period should be followed till delivery and long term effects on mother and fetus need to be studied.

CONCLUSION

As covid 19 is a new disease, herd immunity will take time to establish so each person is equally at risk including pregnant women. Pregnant women are more vulnerable to respiratory tract infections including SARS -CoV-2. Although mortality rate in pregnant women is not too much high with this infection compared to other corona viruses

but long term fetomaternal effects in those infected in first and second trimester are not known till now therefore pregnant women need to be protected vigilantly from this pandemic and long term studies should be carried out in future.

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