ORIGINAL ARTICLE

Fetomaternal Outcome of Pregnancy with COVID-19: An Observational Study in a Tertiary Care Hospital of Pakistan

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ABSTRACT

Background: In December 2019, the new corona virus initially appeared in Wuhan, China, and has since spread to other nations around the world. On January 30, 2020, the World Health Organization believes that the new CoV-19 outbreak will be declared a public health emergency of international concern (PHEIC) by the World Health Organization. The mortality rate of this viral infection varies widely around the world, from 2% in Pakistan to 14.4% in Italy. In the early stages of the disease, lympopenia, raised transminase, proteinuria, increased LDH, and C-reactive protein levels are all common laboratory results. Patients treated with Covid have had severe pneumonia, ARDS, heart defects, sepsis and septic shock, and respiratory tract super infection, among other problems.

Methodology: The Gynecology unit of the Saidu Group of Teaching Hospitals conducted this retrospective observational research study. Biochemical and radiological parameters of medical history, test findings, symptoms, pregnancy, and neonatal outcomes were noted in a pre-constructed data collection form. The study excluded patients who was treated in an outpatient setting.

Results: There were a total of 121 patients, with a mean age of 27 and a standard deviation of 5, with a range of 19-40 years. Pregnant women reported their first pregnancy in 48.3% of cases (primigravida). 51.3 percent of SARS-Cov-2 patients were in their third trimester, whereas 34.7 percent were between 35 and 40 weeks of pregnancy. Pregnancy-induced hypertension (PIH) (16 instances), hypothyroidism (14 cases), and gestational diabetes (GDM) (9 cases) are the most common problems.

More than half of the patients (53%) are asymptomatic. Cough (22 percent) and fever (11 percent) are the most common symptoms (11 percent). As seen in table 1, the incidence of multiple organ failure was 2%. Lympopenia was a prevalent ailment (84 percent). Bilateral invasion was discovered in a CT scan of 24 subjects.

Conclusion: According to our findings, COVID-19 has a deleterious impact on the foetus. Although pregnant women do not appear to be more susceptible to COVID-19 complications than non-pregnant adults, previous research has suggested that pregnant women may be more at risk for negative pregnancy outcomes such as preterm birth, foetal pain and respiration, symptoms, and LBW in a newborn baby.

Keywords: Corona virus, COVID-19, pregnancy, outcome.

INTRODUCTION

SARS CoV2 is a corona virus that infects humans and produces severe acute respiratory illness. It's an RNA virus with only one strand. SARS-CoV and MERS-CoV are distinguishable from other members of the family by their high transmission rates and low pathogenicity (SARS-CoV and MERS-CoV) (1). The novel corona virus first appeared in Wuhan, China, in December 2019 and has since spread to other countries across the world (2). The World Health Organization expects the latest CoV-19 epidemic to be declared a public health emergency of international concern (PHEIC) by the World Health Organization on January 30, 2020. (3). The fatality rate of this virus varies greatly around the world, ranging from 2% in Pakistan to 14.4% in Italy (4).

COVID-19 symptoms are mild in the majority of SARS-CoV-2 infections. The elderly and patients with comorbidities like cardiovascular disease, lung illness, and diabetes are more likely to die. (5,6). Lympopenia, raised transminase, proteinuria (excess protein in the urine), increased Lactate Dehydrogenase (LDH), and C-reactive protein levels are all common test results in the early stages of the disease. Covid patients have been documented to develop severe pneumonia, ARDS, heart issues, sepsis and septic shock, and respiratory tract super infection (7).

Placenta previa is expected to occur 3-5 times per 1,000 people worldwide, and it is statistically on the rise due to inflammatory risk factors. (8) The prevalence rate in Pakistan was 3.5 percent, with 65 percent of mothers having their babies via caesarean section. Due to the high prevalence of caesarean section and the late age of the expecting mother, sensitivity to the urea ratio was previously noticed more frequently (10). Although the reason of placental control is unknown, various risk factors, such as caesarean surgery, high mothers, increasing age, and previous miscarriages, may indicate its presence. (11) Because the mother's immune system is less active throughout pregnancy, her body does not attack other embryos genetically. As a result, pregnant women are susceptible to a wide range of diseases, including viral infections. Furthermore, several physiological changes during pregnancy have been connected to a worsening of the obstetric prognosis in pregnant women with viral pneumonia, including airway edoema, increased respiratory secretions and oxygen demand, increased diaphragmatic and impaired functional performance. Provide a summary of the literature. In China's limited COVID-19 data, the worst birth outcomes, such as preterm delivery and mortality at birth across several pregnancies, were observed (12).

Pregnant women are worried, and our inability to respond to their questions has a negative influence on their health. Due to a paucity of recommendations regarding the impact of SARS-CoV-2 on pregnancy, clinical medical records of pregnant SARS-CoV-2 patients are compiled and reported to the third HMC treatment facility for further investigation and care. This study looked at the outcomes of foetal mothers in COVID-19-positive pregnant women.

METHODOLOGY

This retrospective observational research study was conducted at the Gynecology unit of the Saidu Group of Teaching Hospitals from April 2020 to July 2020 after receiving ethical approval from the Research and Ethics Committee of the Tikka Welfare Hospital, Peshawar. SARS CoV-2 RNA was discovered by RT PCR and given to 121 pregnant mothers and their infants. The study excluded patients who were treated in an outpatient setting. Biochemical and radiological characteristics of medical history, test

findings, symptoms, pregnancy, and neonatal outcomes were recorded in a pre-constructed data collection form. Analyze your data using SPSS version 20.

RESULTS

There were 121 patients in total, with mean age and standard deviation of of 28± 7, and a range of 17 to 42 years old. Pregnant women reported their first pregnancy in 48.3% of cases (primigravida). 51.3 percent of SARS-Cov-2 patients were in their third trimester, whereas 34.7 percent were between 35 and 40 weeks of pregnancy. Pregnancy-induced hypertension (PIH) (16 instances), hypothyroidism (14 cases), and gestational diabetes (GDM) (9 cases) are the most common problems.

More than half of the patients (53%) are asymptomatic. Cough (22 percent) and fever (11 percent) are the most common symptoms (11 percent). As seen in table 1, the incidence of multiple organ failure was 2%. Lympopenia was a prevalent ailment (84 percent). Bilateral invasion was discovered in a CT scan of 24 subjects. In roughly 92.6 percent of patients, mild to moderate disease was the most common, whereas just 7.4 percent of patients had severe disease. Mechanical ventilation was required in roughly 5 individuals due to serious illness. Patients had a significant sickness prior to giving birth and were given mechanical ventilation afterward. Patients with mild to moderate disorders (92.6%) were treated in the Corona ward, whereas those with severe diseases (7.4%) were treated in the Intensive Care Unit (ICU).

Table 1: Demographic and clinical characteristics of pregnant women with COVID-19 (N=81)

General characteristics	Percentage
Mean age 27 years (range 19-40)	-
Nulliparous	48.3
Multiparous	51.7
Sign and symptoms	
Asymptomatic	53
Cough	22
Fever	11
Shortness of breath	4
Anosmia	3
Multi-organ failure	2
Fever, headache, severe pneumonia	3
Hemoptysis	2

Zinc, vitamin C, and vitamin D supplements were provided to all of the patients (100%), as well as Sodium Ceftriaxone and metronidazole caps, Cefixime, and Tab. All caesarean section patients are given metronidazole. Other antibiotics used in severe diseases include azithromycin, moxifloxacin, and colistin. Methylprednisolone, Remdisivir Inj., and Remdisivir Inj. Tocilyzumab should be used. To avoid thrombosis, 36 patients (29.6%) were given low molecular weight heparin and Tab. Rebroxaben was given after delivery in 6 (7.4%) severe patients. Ivermectin was given as a pill to 30 individuals (24.7 percent). The results did not differ between individuals who received ivermectin treatment and those who did not. According to the study, 106 of the 121 women were discharged (87.65%), with seven of them suffering from moderate or severe sickness. Only one death occurred: that of the mother. There were three spontaneous abortions in the sample population. 78 (64.2%) of the 121 patients in the study delivered birth. A Caesarean section was done on 63 (80.8 percent), a hysterectomy on 3 (2.4 percent), and a normal vaginal delivery on 12 women (15.3 percent).. A total of 12 patients (15.3%) experienced an abortion. For persistent hypertension with HELLP syndrome and pre-eclampsia, a hysterectomy was performed (PE). Anterior caesarean section (31), foetal depression (9), preterm labour (4), eclampsia (5), severe PE (3), HELLP syndrome (3), and cervix rupture (3) are all indications for caesarean section. Preterm birth with breech birth (3), no good

cervix (3), caesarean section (3) preterm birth with breech birth (2). Current pregnancy 39 (32.09%).

Table 2: Maternal outcome of pregnant ladies with COVID-19 (N=121)

Maternal outcome	Frequency	Percentage
Mild to moderate disease	112	92.6
Severe disease	9	7.4
Delivered	78	64.2
Discharged	106	87.7
Ongoing pregnancy	39	32.1
Maternal death	2	1.2

A neonatal pharyngeal swab was used to as diagnostic tool to test for SARS-CoV-2, and six people tested positive. 70 babies were born, with four endometrial deaths and three neonatal deaths. Table 3 shows that more premature newborns died as a result of neonatal death. The average duration of continuity was 13.3 days (SD = 6.5) (range 6–31). It took an average of 13.5 days (SD + 6.44) to start breastfeeding (range 5–25).

Table 3: Pregnancy and neonatal outcome of patients with COVID-19 (N=121)

Pregnancy and neonatal outcome	Frequency	Percentage
Delivery	78	64.2
Normal vaginal delivery (NVD)	12	15.1
Caesarean section	63	80.8
Hysterectomy	3	2.4
Abortion	4	3.7
Live birth	70	90.4
Preterm birth	12	15.4
Neonatal death	3	3.8
Neonatal COVID infection	6	7.6

DISCUSSION

Pregnant women's immunological, cardiac, and coagulation systems all undergo physiological changes, making them more susceptible to infection. Exacerbations of Covid pneumonia or any CT scan characteristics in Covid-infected pregnant women were not documented in other investigations. (13). Fever (68%) and cough (34%), as well as an increase in C-reactive protein (70%) and lymphopenia (59%) were typical laboratory results in a prior investigation on pregnant Covid infected woman patient symptoms and laboratory findings. (14). In compared to the results of previous research, our study subjects only reported cough (22%), fever (11%), lymphopenia (84%), and only 7.6% of patients received a CT scan.

Maternal and Fetal Outcomes: Many studies on pregnant women with Covid infection were conducted in China. One of the case studies, which involved three pregnant women with covid positive PCR test results, resulted in the birth of one preterm low birthweight (LBW) baby and two healthy kids (15). In a similar investigation, low birthweight (LBW) healthy babies were found in Covid positive 30 week pregnant women (16). In compared to earlier research, 15.8% of pregnant Covid positive individuals had premature births, according to our findings.

Liu et al. conducted a study on 13 covid positive pregnant women and found that two of them had positive PCR test results before 28 weeks, while the other eleven patients became infected after 28 weeks. Ten of the thirteen Covid positive pregnant women had caesarean sections, five of which were emergency caesarean sections, three patients suffered foetal depression, one patient had preterm fluid rupture, and one patient is still waiting to be born (17). In our study, 49.1% of patients were infected in the third trimester, 52 patients were born during the study time, six were extremely unwell and required intensive care, three were ventilated artificially, and one died during the study period.

In their research, Chen H et al. discovered two cases of foetal distress, four cases of preterm birth (one case of maternal preeclampsia, one case of PROM, and two cases with a history of caesarean section or stillbirth dead), and two cases of LBW (with

maternal preeclampsia) In nine pregnant women who had a positive Covid test, there was one case of PROM (18). A prior research of 17 pregnant Covid positive women found that three kids were born prematurely (19). A prior study revealed the death of a neonate in a Covid positive severely sick pregnant lady, with uterine hypoxia being the cause of death (20). Six cases of foetal distress, three cases of IUD, and eight cases of pregnancy termination were detected when the results of our study were compared to the results of the studies described above.

In a study conducted by Zhu H. et al on nine pregnant women with Covid positive clinical signs and symptoms, there were multiple negative pregnancy outcomes. The symptoms in these nine women began at different times, for example, four pregnant women's symptoms began before delivery, two women became infected on the day of delivery, and three women became infected after delivery. Six premature babies were born to these nine pregnant covid infected ladies, and two of the kids were of SGA (short gestational age) (21).

In two cohort studies in 2019 and 2020, N. Li and colleagues compared case-control studies of 16 pregnant women with confirmed COVID-19 pneumonia and 18 pregnant women with suspected COVID-19 pneumonia who gave birth in the third trimester (22).

Other maternal problems (primary GDM, hypertension, hypothyroidism) were found in approximately 70% of cases in both groups, a substantially higher percentage than in the control group (33 percent). There were halted periods in three verified instances (two due to PROM and one due to placental haemorrhage), as well as three suspected cases (16.9%, one due to preeclampsia / preeclampsia and one due to placenta previa). This equates to 5.8% of the control population. In our study, the most common comorbidities were PIH, hypothyroidism, and GDM, with 13.58 percent, 11.11 percent, and 7.40 percent, respectively.

Delivery: In a prospective follow-up report (16.6%), the majority of caesareans were performed 24/28 (85.7%), 19/24 (79%) emergency caesareans, and 4/24 limited caesareans (23). A caesarean section is performed for a variety of reasons, including pathological CTG, birth failure, and PROM (birth failure, maternal needs and severe sepsis). During the pandemic in China, Zhang L. et al. conducted two case-control studies, comparing the pregnancy outcomes of sixteen covid positive patients, one of whom was severe, and 45 uninfected women, all of whom were delivered by caesarean section (24). According to the researchers, the volume of blood lost during the surgery did not differ considerably. There were 64.2 percent C-sections and 15.14 percent normal vaginal deliveries in our study, with 64.2 percent C-sections and 15.14 percent normal vaginal deliveries (NVD).

Neonatal Outcome: Among the clinical signs identified by Zhu H. et al. in their research of six neonates with a paediatric critical illness score (PCIS) of less than 90 were shortness of breath in six patients, fever in two patients, and thrombocytopenia with impaired liver function in two patients. One case of sickness (n = 1) and one case of vomiting (n = 1) were reported. Four of the babies exhibited gastrointestinal symptoms such bloating, milk rejection, food aversion, and gastric haemorrhage, and seven showed imaging abnormalities (infection, n = 4, neonatal respiratory distress syndrome, n = 2, and pneumothorax, n = 1). The baby died 9 days after receiving a blood transfusion after experiencing failure of several body systems and organs, as well as diffuse clotting in between vessels, 8 days after delivery (21). Only 6 instances were found to be RT-PCR positive in our investigation. Three babies were born due to a very early birth. All else was fine.

CONCLUSION

COVID-19 has a negative effect on the foetus, according to our findings. Although pregnant women do not appear to be more susceptible to COVID-19 complications than non-pregnant adults, previous research has suggested that pregnant women are more likely to experience negative pregnancy outcomes such as preterm birth, foetal pain and respiration, symptoms, and LBW in a newborn baby. More clinical research is needed to determine the exact impact of the Covid pandemic on Fetomaternal outcomes and to better guide gynaecologist advise. Only a detailed assessment of current virus features, epidemiology, sickness immunopathology, future prevention and treatment measures, and knowledge of existing clinical results can help identify the precise impact of Covid infection before, during, and after pregnancy.

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