



IMPACT OF COVID-19 PANDEMIC ON PREGNANCY AND ITS OUTCOME

Obstetrics & Gynaecology

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ABSTRACT

Background: Timely and comprehensive antenatal care (ANC) is critical for health of women and their newborns, allowing for early detection and management of pre-existing conditions and pregnancy related complications and reducing the risk of maternal and infant morbidity and mortality. The COVID-19 pandemic has been extremely disruptive to health systems and services worldwide. **Methods:** This study is a prospective observational study focused on the 100 antenatal women and their visit to antenatal clinics and the pregnancy complications and outcome, done at our institute for a period of 8 months, from February 2021 to October 2021. **Results:** The study included 100 antenatal, with 52% having low risk pregnancy and 48% having high risk pregnancy with 27.1% having moderate to severe anemia and pre-eclampsia. The total number of term pregnancies in study population is 67 with 67.2% at low risk and 32.8% being high risk pregnancies, while the pre-term pregnancies are 33 with 21.2% being low risk and 78.8% high risk pregnancies. **Conclusion:** The study provides evidence of covid related effects on utilization of ANC services, which was a critical determinant of maternal health. ANC during COVID-19 pandemic is challenging yet essential. Following a protocol-based approach is the key to management of ANC amidst the pandemic. Strategies are needed to mitigate disruptions to ANC among pregnant women during pandemics.

KEYWORDS

ANC, Term, Pre-term, Covid-19, High risk pregnancy

INTRODUCTION

Pregnancy is a precious time for an expectant mother with full of excitement and anticipation. Pregnant women need to be aware of various events of pregnancy and related complications and about the foetus condition. Good pregnancy related care is paramount for the health of an expectant mother and normal development of foetus.

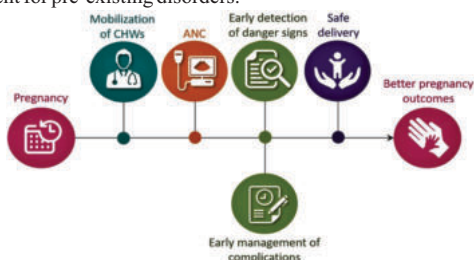
Though pregnancy itself is not a disorder, some undesirable changes may occur due to altered physiological state, such as nausea, vomiting, edema, heartburn, constipation, backache, tiredness, lack of sleep, thyroid disorders, hypertension disorders, diabetes, anaemia, abnormal bleeding.

The covid 19 pandemic represents a major stress factor for infected as well as to non-infected pregnant women. Generally, increased maternal stress during pregnancy leads to increased risk of intrauterine growth restriction, preterm delivery, preeclampsia, eclampsia, diabetes.

The present study focussed on pregnancy and its outcome during the covid 19 pandemic and during the lockdown phases. Regular consultation with health care professional is recommended throughout pregnancy which is called antenatal care (ANC)

Antenatal health care defined by WHO as the "care a pregnant mother receives before birth and involves education, screening, counselling and treating minor ailments and immunization services."¹ ANC is a critical opportunity for the health workers to provide appropriate guidance and educate pregnant women on unexpected events.

ANC visits are essential for both maternal and foetal well-being. These visits help to promote good and healthy lifestyle, provide appropriate treatment for pre-existing disorders.



Antenatal care presents the first contact opportunity for a woman to connect with formal health services and linking women with pregnancy complications to referral centres. The Covid 19 Pandemic is posing many challenges to health care system to maintain provision for high quality care, essential maternal and new-born health services.

In present day, pregnant women and new-born mothers may face difficulties in accessing services due to 1) transport disruption 2) lockdown restrictions 3) reluctant to come to health care facilities in fear of chance of infection and associated complications 4) socio-economic issues.

METHODS

This study is a prospective observational study focused on the 100 antenatal women and their visit to antenatal clinics and the pregnancy complications and outcome, done at our institute for a period of 8 months, from February 2021 to October 2021. The data was gathered from the antenatal women visiting out-patient and emergency departments and in-patients. Detailed history taking and examination of the patient including necessary investigations and ultrasound scanning if needed was done after taking the verbal and written consent from the study participants. All pregnant women, with singleton or multiple pregnancies, with or without associated medical disorders, booked and un-booked cases visiting DR. PSIMS & RF out-patient, emergencies and in-patients are taken into the study.

RESULTS

Table 1 Distribution based on Low and High-risk pregnancy

Pregnancy risk	Frequency	Percentage
Low risk	52	52%
High risk	48	48%
Total	100	100%

Table 2 Age distribution and Pregnancy risk

Age	Low Risk		High risk	
	N	%	N	%
17 – 21	13	25.0%	10	20.8%
22 – 25	17	32.7%	19	39.6%
26 – 30	21	40.4%	15	31.3%
31 – 35	1	1.9%	4	8.3%
Total	52	100.0%	48	100.0%

Table 3 Term vs Pre-term and Pregnancy risk

	Preterm		Term	
	N	%	N	%
Low risk	7	21.2%	45	67.2%
High risk	26	78.8%	22	32.8%
Total	33	100.0%	67	100.0%

Table 4 Obstetric score and pregnancy risk

Mode of delivery	Term		Preterm		Total	
	N	%	N	%	N	%
Vaginal delivery	37	55.2%	22	66.7%	59	59%
LSCS	26	38.8%	11	33.3%	37	37%
Assisted vaginal delivery	4	6.0%	0	0.0%	4	4%
Total	67	100.0%	33	100.0%	100	100%

Table 5 Mode of delivery

	Low Risk		High Risk	
	N	%	N	%
Primi	22	42.3%	27	56.3%
G2	22	42.3%	11	22.9%
G3 and more	8	15.4%	10	20.8%
Total	52	100%	48	100%

Table 6 mode of delivery: Term vs Preterm

Mode of delivery	Low Risk		High Risk		Total	
	N	%	N	%	N	%
Vaginal delivery	29	55.8%	30	62.5%	59	59%
LSCS	21	40.4%	16	33.3%	37	37%
Assisted vaginal delivery	2	3.8%	2	4.2%	4	4%
Total	52	100.0%	48	100.0%	100	100%

Table 7 Medical disorders and pregnancy

Medical disease	Low Risk		High Risk	
	N	%	N	%
GDM	4	7.7%	2	4.2%
Pre-eclampsia	1	1.9%	13	27.1%
Anemia (Moderate to severe)	2	3.8%	13	27.1%
Chronic HTN	3	5.8%	9	18.8%
Gestational HTN	0	0.0%	3	6.3%
Hypothyroidism	9	17.3%	0	0%
Oligohydramnios	0	0.0%	2	4.2%
Pedal edema	1	1.9%	1	2.1%
Syphilis	0	0.0%	1	2.1%
No complications	32	61.5%	4	8.3%
Total	52	100.00%	48	100.00%

Table 8 Birth Weights and Term Vs Preterm

Birth weight (kg)	Term		Preterm	
	N	%	N	%
<2.5	47	70.1%	29	87.9%
>2.5	20	29.9%	4	12.1%
Total	67	100.0%	33	100.0%

DISCUSSION

According to this study, 52% of the pregnancies were low risk, while 48% were high risk. In the current study it was found that there's increased high risk pregnancies. Low risk pregnancies had a mean gestational age of 24.36±3.64 years, while high risk pregnancies had a mean gestational age of 24.83±3.96 years. In the study, 23% belong to the 17-21 years, 36% to the 22-25 years, 36% to the 26-30 years, and 5% to the 31-35 years. In the study, 33% of the births were preterm (period of gestation less than 37 weeks), while 67% were term. Low risk pregnancies accounted for 21.2%, while high risk pregnancies accounted for 78.8% of preterm births. This observation was statistically significant. Based on obstetric score, 49% were primi, 33% were G2 and 18% were G3 and more. Out of 52 low risk pregnancies, 42.3% were Primi, 42.3% were G2 and 15.4% were G3 and more. Out of 48 high risk pregnancies, 56.3% were Primi, 22.9% were G2 and 20.8% were G3 and more.

A study done by Malitha et al, stated that 69.3% had missed antenatal care service and 24.2% had difficulty in travelling to seek help from health care providers. A study by R. Townsend et al in 2021, revealed a substantial decrease in the number of scheduled and unscheduled ANC visits, hospitalization when urgent care had been sought, a reduction in antenatal care screening uptake (including but not limited to ultrasound and prenatal genetic testing), and delayed attendance when labor started.²

In the study out of 52 low risk pregnancies, 7.7% diagnosed with GDM, 1.9% with Pre-eclampsia, 3.8% with Anemia (Moderate to severe), 5.8% with chronic HTN, 17.3% with Hypothyroidism, 1.9% with pedal edema. Among high-risk pregnancies, 4.2% diagnosed with GDM (uncontrolled sugars on insulin), 27.1% with Pre-eclampsia, 27.1% with anemia (Moderate to severe), 18.8% with chronic HTN, 6.3% with Gestational HTN, 4.2% with Oligohydramnios, 2.1% with pedal edema and 2.1% with Syphilis.

Several studies have shown that SARS-CoV-2 infection during pregnancy increases the risk of pregnancy complications. In a systematic review and meta-analysis that included 42 studies of 438,548 pregnant persons, COVID-19 was associated with an increased risk for preeclampsia, preterm birth, and stillbirth, compared with no SARS-CoV-2 infection during pregnancy.³

Based on mode of delivery, among low-risk pregnancies, 55.8% had vaginal delivery, 40.4% underwent LSCS, 3.8% underwent assisted vaginal delivery. Among high-risk pregnancies, 62.5% had normal delivery, 33.3% underwent LSCS, 4.2% had assisted vaginal delivery. In the study, out of 67 term pregnancies, vaginal deliveries in 55.2%, LSCS in 38.8%, assisted vaginal delivery in 6%. Out of 33 preterm deliveries, 66.7% had vaginal delivery, 33.3% had LSCS.

In a large study using data from 499 US academic health centers or community affiliates published after the systematic review, COVID-19 diagnosis was not associated with an increased risk of cesarean delivery (P = .57); however, the association between diagnosis of COVID-19 and preterm birth remained uncertain (P < 0.01).² A systematic review and meta-analysis focusing on the effects of SARS-CoV-2 infection during pregnancy and preeclampsia showed increased odds for preeclampsia; preeclampsia with severe features; eclampsia; and hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome among pregnant persons with SARS-CoV-2 infection compared with those without SARS-CoV-2 infection. Increased odds of preeclampsia were seen in patients with both asymptomatic and symptomatic SARS-CoV-2 infection; however, the odds were higher among symptomatic patients.⁴

In a recent study of nearly 500,000 hospitalizations in 703 US hospitals, pregnant persons with a documented COVID-19 diagnosis were only slightly more likely to have a cesarean delivery (33.5 vs 32.0%, P = .0093) and preterm labor with a preterm delivery (aRR 1.2, 95% CI 1.1–1.3) than those without a COVID-19 diagnosis. The investigators noted that differences in the risks of cesarean delivery and preterm birth might be related to different obstetric intervention practices across populations and geographic areas.⁵

In the study, 81.8% of low risk and 71.4% of high-risk pregnancies had spontaneous delivery. Induction was done in 12.1% of Low risk and 20% of high-risk pregnancies. Low birth weight was observed to be 70.1% among term and 87.9% of preterm deliveries.

Tadesse et al have reported that only 29.3% have utilized antenatal care completely during the pandemic in Ethiopia.¹ However, a retrospective study assessing maternal and neonatal outcomes during the peak and following the pandemic in Ireland have shown no significant negative impact.⁷

Most of the ambulance services are diverted for COVID-19 related activities and with suspension of transportation facilities, women in labor found it difficult to reach a healthcare facility. There have been reported cases of women giving birth in ambulances because of delay in transport.⁸ Even if they reach a facility on time, they must get COVID-19 testing done and in case they report positive, they are referred to a COVID-19 designated facility for delivery which led to further delay.

Number of home deliveries has also increased as indicated by decrease in number of institutional deliveries to approximately 78 percent in April-May 2020 corresponding to the figures in April-May 2019.⁹ Also, the number of childbirths registered in hospitals in both public and private facilities across India stood at 17,17,500 in March last year while this year the number dropped to 9,71,782.⁹

CONCLUSION

The study provides evidence of covid related effects on utilisation of ANC services, which was a critical determinant of maternal health.

ANC during COVID-19 pandemic is challenging yet essential. Following a protocol-based approach is the key to management of ANC amidst the pandemic. Strategies are needed to mitigate disruptions to ANC among pregnant women during pandemics.

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