International Journal Dental and Medical Sciences Research
Volume 2, Issue 5, pp: 239-243 www.ijdmsrjournal.com ISSN: 2582-6018

Study of fetomaternal outcome in asymptomatic pregnant women during COVID pandemic

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Date of Submission: 02-11-2020 Date of Acceptance: 16-11-2020

ABSTRACT: Introduction: Rising COVID-19 cases is an issue of public health concern globally.
Objective: To assess risk factors, demographic features, obstetric outcome, clinical course of COVID -19 infection in asymptomatic pregnant women admitted during covid pandemic.
Material and Method: This retrospective observational study was conducted at B.J. Government
Medical College and Sassoon General Hospital (SGH), the dedicated COVID hospital in Pune during period of 1st April 2020 to 30th June 2020. Study group cases were tested for SARS-COV-2 infection by nasopharyngeal swab (NPS) test by RT-PCR.
Results: During study period, 2034 asymptomatic pregnant women were admitted in hospital, out of which 65 cases were enrolled in study. 27 women from study group had additional co-morbidities, anaemia 11 (21.53%) being most common risk factor followed by pre-eclampsia 8(12.30%). Of 62 cases, 58 remained afebrile & asymptomatic throughout their delivery, hospitalization & postpartum peiod. Out of 60 women,37 (59.67%) delivered vaginally & 23 (37%) by caesarean delivery. 11(18.33%) women had preterm delivery.
Conclusion: There was good obstetric & perinatal outcome in asymptomatic COVID-19 infected pregnant women. Deterioration of COVID-19 infection & worse disease outcome was not noted in asymptomatic pregnant women.
Keywords: Asymptomatic COVID-19, Pregnant & postpartum women, RT-PCR, Obstetric outcome.

I. INTRODUCTION:

Rising COVID-19 cases is an issue of public health concern globally. Novel corona virus (SARS-COV-2) is a new strain of coronavirus causing COVID-19, first identified in Wuhan city, China towards end of 2019. Most cases of COVID -19 globally have evidence of human to human transmission[1]. Most pregnant women experience mild or moderate flu-like symptoms but few develop severe pneumonia[2].Pregnant women do not appear more likely to contract covid infection than general population[3].Because of various physiological changes occurring in respiratory and immunological system in pregnancy they are at increased risk of developing complications from respiratory infections than non-pregnant women[3].

There is limited data about clinical course and obstetric outcome of asymptomatic pregnant women with COVID -19 infection. During study period, 2034 asymptomatic pregnant women were admitted in hospital on pregnancy in COVID -19 pandemic. Aim of this study was to assess risk factors, demographic features, obstetric outcome, clinical course of COVID -19 infection in asymptomatic pregnant women admitted during covid pandemic.

II. MATERIAL & METHOD :

This retrospective observational study was conducted at B.J. Government Medical College and Sassoon General Hospital (SGH), the dedicated COVID hospital in Pune during period of 1st April 2020 to 30th June 2020 after approval from institutional ethical committee. We included all asymptomatic pregnant & postpartum women admitted in SGH during 1st April 2020 to 30th June 2020 who were found infected with SARS CoV-2 during universal screening. Study group cases were tested for SARS-COV-2 infection by nasopharyngeal swab (NPS) test as per ICMR guidance[4]. Viral RNA detected using RT-PCR of NPS was used for diagnosis of COVID -19. After test results, COVID -19 confirmed cases were isolated in COVID -19 designated maternity care set up in SGH. COVID-19 confirmed cases were assessed for severity of COVID-19 symptoms by multi disciplinary team approach including medical specialist and pulmonologist and obstetrician. Classification of disease severity & management protocol was followed according to MoHFW guidelines[2]. All pregnant & postpartum women with confirmed COVID -19 infection admitted in

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Volume 2, Issue 5, pp: 239-243 www.ijdmsrjournal.com ISSN: 2582-6018

SGH during study period were excluded from study. Data regarding demographic characteristics, obstetric, medical history, clinical findings, lab reports, maternal complications, obstetric outcome was studied from medical & labour records of asymptomatic pregnant & postpartum women.

STATISTICAL ANALYSIS: Quantitative data was presented as means + standard deviation (SD). Qualitative data was presented as frequencies

III. RESULTS:

During study period, 2034 asymptomatic pregnant & postpartum women were admitted in hospital, while total number of deliveries was 1939. A total of 1010 swabs were taken in obstetric triage at time of admission as universal screening while 65 cases were found to be COVID -19 positive & were analysed in study Two pregnant women in study group were in early pregnancy & were managed conservatively, both of them continued pregnancy at time of writing. One postpartum case presented on day 9 of LSCS with wound gape was found to be COVID -19 positive. Among study group two cases underwent uterine evacuation, one for retained products of conception & other in view of partial mole. Hence delivery details & neonatal data was documented for remaining 60 women.

Table 1: Distribution of demographic characteristics & obstetric details of women in study group

S.NO	Maternal Characteristics	Frequency	Percentage
1	Age in Yrs		
	<30	52	80
	>30	13	20
2	Parity		
	Nulliparous	35	53.85
	Multiparous	30	46.15
3	Gestational age in weeks		
	<37	14	21.53
	> 37	51	78.46
4	h/o previous caesarean	18	27.69
5	h/o contact with confirmed COVID -19 case	2	3.07

Table 1 shows demographic characteristics and obstetric details of women in study group. Mean age of women in study group was 24.86 yrs+ 3.77yrs. 51(78.46%) cases from study group were from gestational age group of >37 weeks (term pregnancy) while 27.69% cases had h/o previous caesarean section. Mean gestational age at presentation was 35.22 + 7.22 weeks with 4 cases in first trimester while remaining in second & third trimester

Table 2: Distribution of medical & obstetric risk factors in study group

S.N	Medical & obstetric risk factors	Frequency	Percentage
1	Anaemia	11	21.53
2	Pre-eclampsia	8	12.30
3	GDM	3	4.61
4	Hypothyroidism	2	3.07
5	Cardiac disease	1	1.53
6	Chronic Hypertension	1	1.53
7	Sickle cell trait	1	1.53
8	Twin	1	1.53
9	Oligohydraminos	1	1.53

Table:2 shows medical co-morbidities & obstetric risk factors present in study group women. Twenty seven (41.53%) women from study group had additional comorbidities. Among 11 (16.92%) cases of anaemia, severe anaemia was reported in 4 (6.15%) cases who required blood transfusions. Out of 8 (12.3%) cases of pre-eclampsia, 4 (6.15%) cases had severe pre-eclampsia. Out of 4 cases of severe pre-eclampsia, two developed eclampsia, among them one was 21week nulliparous woman

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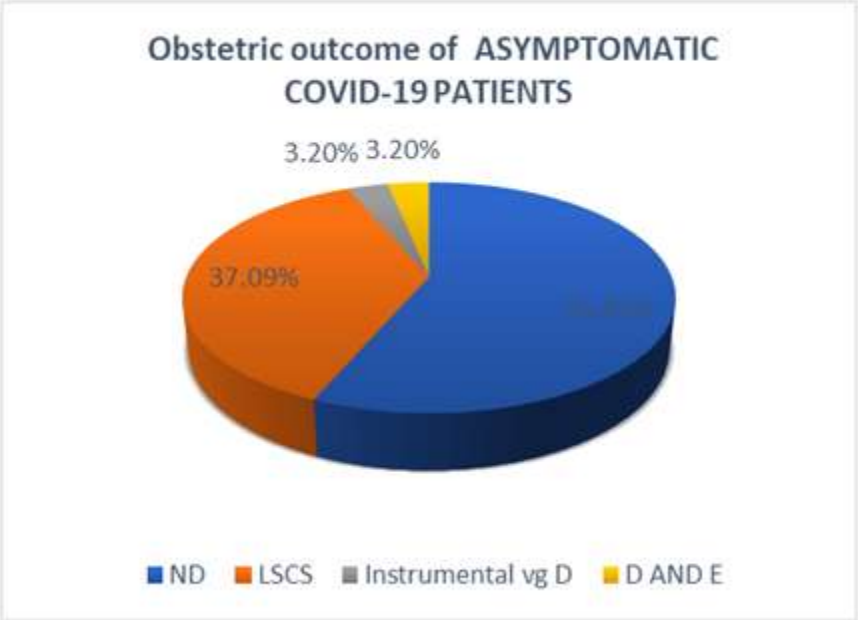
who required induced preterm vaginal delivery & other underwent emergency caesarean for obstetric indication. Among 29 high risk pregnancies, three cases required around 18 days hospital stay due to positive swab report, ten days after COVID -19 test confirmation. Of these 3 patients, two were cases of severe pre-eclampsia & one had rheumatic valvular heart disease.

Table 3 & Pie Chart showing Obstetric outcome among study group women.



S.N	Obstetric outcome	Frequency	Percentage
1	ND	35	56.45
2	LSCS	23	37.09
3	Instrumental vg D	2	3.2
4	D AND E	2	3.2
5	Total	62	

Out of 62 study cases, 37(59.67%) delivered vaginally & 23(37%) by caesarean, 2 cases underwent uterine evacuation for miscarriage. Laboratory presentation: Among 11 cases of anaemia (HB<10gm%), 4 cases had severe anaemia (HB<7gm%). None of study group cases had deranged coagulation or liver function test.

Clinical course of COVID -19 in asymptomatic pregnant women:

Out of 64 asymptomatic pregnant women, two were managed conservatively & continued pregnancy. Of remaining 62 cases, 58 remained afebrile & asymptomatic throughout their delivery, hospitalization & postpartum peiod. Four (6.4%) out of 62 patients, who initially presented for obstetric complications, later developed fever during admission, in 2 patients during antepartum & 2 in postpartum period. These 2 antepartum fever cases were preterm pregnancies with severe pre-eclampsia, where one case required preterm LSCS at 33 weeks & other was delivered vaginally at 35 weeks. Both had prolonged hospital stay due to positive swab report, 10 days after COVID -19 test confirmation. Among postpartum fever cases, first case was 26year old G3P2L2 with 36 weeks gestation with previous LSCS & left hemiplegia with rheumatic mitral stenosis. She developed PPROM (preterm rupture of membranes). She was delivered by caesarean section who developed atonic postpartum haemorrhage (PPH) managed medically & required blood transfusions. She developed postpartum fever, required anticoagulants & 18 day hospital stay due to positive swab report for COVID-19. Second case was multiparous with 27 weeks diachorionic twin pregnancy with hypothyroidism & h/o hysterotomy in the past who developed PPROM. She was delivered by LSCS for scar dehiscence. Excluding case of rheumatic mitral stenosis, remaining 63 antepartum women did not require oxygen

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supplementation, steroid therapy & anticoagulant treatment

Table 4: Neonatal outcome & Postpartum morbidity

S.N	Neonatal outcome & Postpartum morbidity	Frequency	Percentage
1	Preterm deliveries	11	18.33
2	SGA babies	5	8.19
3	AGA babies	53	86.88
4	FGR babies	3	4.91
5	Birth weight		
a)	<2.8 kg	22	36
b)	> 2.8kg	39	63.93
6	Fever during postpartum period	2	3.22
7	Atonic PPH	1	1.61
8	wound infection	1	1.61

Table 4 shows Neonatal outcome & Postpartum morbidity among study group. 60 women delivered 61 infants including one twin pregnancy. All neonates were tested twice for SARS-COV-2 48 hrs apart & none of them had positive test result. 11(18.33%) women had preterm deliveries which included 2 cases of PPROM & 9 of either spontaneous or induced preterm labour. No intrauterine fetal death, neonatal death or neonatal asphyxia was observed. Fever during hospital stay in postpartum period was seen in 3.22% women whereas 1.61% had PPH. There was no case of maternal mortality or serious maternal morbidity like uterine rupture, obstetric hysterectomy or DIC.

IV. DISCUSSION:

We studied, whether infection is more severe during pregnancy, effect of co-morbidities on infection, occurrence of pregnancy complications & obstetric outcome in terms of preterm labour, operative deliveries etc. No maternal death related to COVID-19 occurred in asymptomatic pregnant & postpartum women. Further serious complications of COVID-19 infection on pregnancy requiring ICU admission, mechanical ventilation & development of ARDS were not observed in study group. Most pregnant women experienced only mild or moderate flu like symptoms. Severity of infection was not associated with pregnancy in asymptomatic COVID-19 infected pregnant women. This finding was consistent with previous study by Qiancheng et al[5] & Chen et al[6]. Because of limited data & limited number of deliveries to asymptomatic COVID-19 infected pregnant women, it is difficult to comment whether clinical course, laboratory features remain same or different in pregnancy. In present study 27 (43.54%) cases had additional co-morbidities like anaemia, pre-eclampsia etc. This could be due to more number of high risk referrals are received to our Covid designated tertiary care hospital. Obstetric outcome in terms of pre-term birth (<37 weeks) was observed more in women with co-morbidities. Febrile morbidity 4(14%) & prolonged hospitalization 3(11%) was observed in high risk pregnancies. Intra-partum & postpartum complications were not increased in study group similar to study by Zhang et al[8]. All 60 women delivered live biths without any perinatal complications like still birth, neonatal death or neonatal asphyxia. This finding is consistent with previous study by Qiancheng et al[5].

None of delivered newborn baby was tested positive for Covid 19 suggesting there was no case of vertical transmission of COVID-19 in neonate.

V. CONCLUSION:

Finding of this study observed that good obstetric & perinatal outcome in asymptomatic COVID-19 infected pregnant women. Also, severity of disease was not increased during pregnancy. Deterioration of COVID-19 infection & worse disease outcome was not noted in asymptomatic pregnant women. Universal screening of pregnant women at entry even in asymptomatic will benefit health care professional to use optimum measures to proect themselves & other pregnant women.

CONFLICT OF INTREST - NIL
FUNDING SOURCE - NIL

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