



PROSPECTIVE OBSERVATIONAL STUDY ON DEMOGRAPHICS, CLINICAL CHARACTERISTICS AND TREATMENT GIVEN IN COVID 19 INFECTED PREGNANT WOMEN IN 1ST AND 2ND TRIMESTERS.

Obstetrics & Gynaecology

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ABSTRACT

Background: WHO declared COVID-19 infection a health emergency of international concern on 11 March 2020. It is not clear whether the clinical characteristics of pregnant women with COVID-19 differ from those of nonpregnant women and whether it aggravates COVID-19 symptoms and whether antibiotic therapy, HCQ, multivitamins with zinc therapy is necessary for COVID-19-infected pregnant women. **Methods:** This is a Prospective observational study of 50 cases based on compiled clinical data for pregnant women with COVID-19 infection between April 2020 – September 2020(6 months). laboratory-confirmed positive cases of COVID-19 infection in pregnant women were included. we included all pregnant women coming to the new civil hospital Surat who had COVID-19 in 1st and 2nd-trimester pregnancies .demographics, clinical characteristics and treatment which is given will be noted. **Results:** The majority of subjects belonged to the age group of 19-30 years (78%). The majority of subjects were Hindu (92%). The majority of subjects were from urban areas(76%). 22% of subjects had a history of contact with COVID-19-positive patients and 4% had a history of travelling to cluster areas. The majority of subjects were gravida 2 (38%).2% of subjects had sickle cell disorder. 4% of subjects had a hypertensive disorder in pregnancy. The majority of subjects had a history of fever as presenting symptom(40%).majority of subjects had positive C reactive protein(64%).all subjects were treated with multivitamins containing zinc and tablet of vitamin C, and 92% received antibiotic therapy. **Conclusions:** COVID-19 pandemic affects pregnant women in the general population. As the pandemic waves continue to recur with newer strains, the obstetrician has to be vigilant. Pregnant women with severe diseases have to be given intensive multidisciplinary care to prevent maternal and fetal morbidity.

KEYWORDS

COVID-19, Maternal morbidity, Pregnancy, SARS-CoV-2, Treatment

INTRODUCTION:

On March 11, 2020, World Health Organization (WHO) declared coronavirus disease (COVID-19) a public health emergency of international concern since its outbreak in Wuhan, China.1 Coronaviruses are enveloped RNA viruses that are distributed widely among humans, other mammals and birds and they cause respiratory, neurologic, hepatic and enteric diseases.2,3 Six coronavirus species are known to cause human disease and four of them - 229E, OC43, NL63, and HKU1 are less pathogenic causing common cold symptoms in immunocompetent individuals.4 The two other strains - severe acute respiratory syndrome coronavirus (SARSCoV) and Middle East respiratory syndrome coronavirus (MERS-Co V) - are zoonotic in origin and sometimes cause fatal illness.5 Due to its high prevalence and wide distribution, the large genetic diversity and frequent genetic recombination, and increasing human-animal interface activities, novel coronaviruses emerge periodically in humans owing to frequent cross-species infections.5 There is 82% homology between the genome of the virus that causes COVID-19 infection, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and human severe acute respiratory syndrome coronavirus (SARS-CoV).6

There have been extensive studies on the HRCT and clinical manifestations of patients with COVID-19 infection and treatment monitoring but studies of pregnant women with COVID-19 infection remain relatively rare. Still, it is doubtful whether the clinical characteristics of pregnant women with COVID-19 infection differ from those of nonpregnant women with COVID-19 infection and pregnant women with SARSCoV, whether pregnancy and labour aggravate COVID-19 symptoms and whether antiviral therapy is essential for COVID-19 affected pregnant women.

Since pregnancy is known to be a period of increased risk for susceptibility of respiratory infections, such as influenza, it appears important to screen for COVID-2019 in the presence of symptoms and monitoring is needed.7 Until now, the effects of COVID-19 on pregnancy, such as preterm labour, intrauterine transmission, and intrauterine growth restriction were limited. And from this study, we need to know about infect of coronavirus in 1st and 2nd trimesters of pregnancy, its demographics and treatment in this study.

AIMS AND OBJECTIVES

To study demography, clinical characteristics and treatment needed in patients who are infected with COVID-19 in 1st and 2nd trimesters of pregnancy.

MATERIAL AND METHODOLOGY

This prospective observational study was carried out in the obstetrics and gynaecology department in the new civil hospital, Surat from April 2020 to September 2020(6 months) after ethical committee approval. Subjects were followed up till discharge and till delivery by telephonic talk.

Inclusion Criteria:

All the patients who were laboratory-confirmed cases of COVID-19 infection in 1st and 2nd trimesters of pregnancy (< 26 weeks)admitted to a new civil hospital were included in this study

Exclusion Criteria:

This study does not include postnatal women, > 26 weeks of pregnant women and nonpregnant women

RESULTS AND OBSERVATIONS:

This prospective observational study was carried out in the obstetrics and gynaecology department in the new civil hospital Surat over a period of 6 months (from April 2020 – September 2020) after ethical committee approval and after taking the consent of participants (n=50).

Table 1: Baseline Variables

Age		
Age of Subjects	No of Subjects (n=50)	Percentage (%)
≤ 18 Year	0	0
19 – 30 Year	39	78
≥ 31	11	22
Religion		
Religion	No of Subject (n=50)	Percentage (%)
Hindu	46	92
Muslim	4	8

Residence		
Residence of Subjects	No of Subject (n=50)	Percentage (%)
Urban	38	76
Rural	12	24
History of Contact and Travel		
	No of Subject (n=50)	Percentage (%)
History of Contact with Covid-19 Positive Patient	11	22
History of Travelling in Cluster area	2	4

Table 1 shows the baseline characteristics of the study subjects. In our study majority of subjects were belongs to 19-30 years of age (78%), and 22% of subjects belongs to the age group of ≥ 31 years. Majority of subjects were Hindu (92%), 8% subjects were Muslim. Majority of subjects were from urban area (76%), 24% subjects were from rural area. Out of 50 subjects 22% subjects had history of contact with covid positive patient and 4% subjects had history of travelling to cluster areas.

Table 2: Antenatal Variables

Gestational Age at Covid-19 Infection		
Gestational Age at Covid-19 Infection	No of Subject (n=50)	Percentage (%)
< 12 week	9	18
12 – 26 week	41	82
Gravida status of Pregnant Women		
Gravida status of Pregnant Women	No of Subject (n=50)	Percentage (%)
Primigravida	16	32
Gravida 2	19	38
Gravida 3 and more	15	30
Pre-existing Medical Disorder		
Pre-existing Medical Disorder	No of Subject (n=50)	Percentage (%)
Diabetes mellitus	1	2
Hypertension	1	2
Hypothyroidism	1	2
Asthma	1	2
Sickle cell anaemia	2	4
Heart Disease (RHD)	1	2
Antenatal Morbidity		
Antenatal Morbidity	No of Subject (n=50)	Percentage (%)
Gestational Diabetes mellitus	1	2
Hypertensive Disorder	2	4
IUGR	1	2
Oligohydramnios	1	2

Table 2 shows antenatal variables in study participants. Majority of subjects in our study belongs to 2nd trimester from 12 week to 26 week of pregnancy which accounts for (82%). And 18 % subjects belongs to <12 weeks if pregnancy (1st trimester). Majority of subjects were gravida 2 (38%) followed by 30% were gravida 3 and more, 32 % subjects were primigravida. In our study, We studied pre-existing medical disorder in which, 4% cases have sickle cell disorder out of which 2% have sickle cell trait and 2% subjects have sickle cell disease. 2% subjects had chronic hypertension, asthma, hypothyroidism and diabetes mellitus separately. Then we observe antenatal morbidity in our study participants. Majority of subjects had (4%) hypertensive disorder of pregnancy from which 2% subjects had gestational hypertension and 2 % subjects had severe PET. 2% subjects had gestational DM, Intrauterine growth restriction and oligohydramnios separately.

Table 3: Clinical Characteristics and laboratory finding seen in study subjects

Clinical Characteristics		
Clinical Symptom	No of Subject (n=50)	Percentage (%)
Fever	20	40
Cough	11	22
Sore Throat	2	4
Breathlessness	5	10
Diarrhoea	2	4
Asymptomatic	11	22
Laboratory Findings		

WBC Count		
	No of Subject (n=50)	Percentage (%)
Decreased	0	0
Normal	46	92
Raised	4	8
CRP		
	No of Subject (n=50)	Percentage (%)
Positive	32	64
Negative	18	36

Table 3 shows clinical characteristics in COVID-19-positive cases, which include presenting symptoms and laboratory findings. The most common presenting symptom was fever which accounts for 40% of study subjects, followed by 22% of subjects who had complaint of cough, 10 % of cases had breathlessness, 4% had sore throat, and diarrhoea and 22% of cases were asymptomatic. No subjects had complained of loss of taste and smell. In laboratory findings we studied WBC count which is normal in majority of cases (46%) and raised in 4% study subjects. 64% cases were positive for C reactive protein and 36% were negative for CRP.

Table 4: Treatment given to study subjects

Treatment given to study subjects	No of Subject (n=50)	Percentage (%)
Antibiotic therapy	46	92
HCO	4	8
O2 therapy	9	18
Multivitamins containing zinc	50	100
Tablet Vitamin C	50	100
Use of corticosteroids	2	4
LMWH	2	4

Table 4 shows treatment required in COVID-19 positive cases in 1st and 2nd trimester, all subjects were treated with multivitamins containing Zinc and tablet vitamin C. 94% cases required antibiotic therapy in which tab. Azithromycin 500 mg once a day given for 5 days and Inj. Ceftriaxone 1gm I.V 12 hourly given for 5 days with antacids. 8% of cases had given tab HCO (Hydroxychloroquine). Out of 50 cases 9 (18%) cases required O2 therapy by mask or nasal cannula. In 2% of subjects corticosteroids and LMWH (Low molecular weight heparin) were required.

DISCUSSION

Coronavirus disease 2019 (COVID-2019) pandemic severely affected the health, economy, and life style of people all over the world.⁸ Following the first case report in Wuhan, there was a rapid increase in the cases all over the world. All age group were affected and had become international public health emergency.⁹ Pregnant women are more prone for COVID-2019 infection due the physiological changes like decreased functional residual capacity and changes in cellular immunity which can lead to higher maternal and fetal mortality and morbidity.¹⁰ There are vulnerable groups within both the pregnant and nonpregnant populations. Clinicians should be aware of these high-risk groups and manage them accordingly.¹¹ While certain affected individuals remain asymptomatic, others experience some form of disease related manifestations like fever, myalgia, anosmia, respiratory symptoms like sore throat, dry cough and breathlessness.¹² Since pregnancy is known to be a period of increased risk for the susceptibility of respiratory infections, such as influenza, it appears important to screen for COVID-2019 in the presence of symptoms and monitoring is needed.¹³

Until now, the effects of COVID-19 on pregnancy, such as preterm labour, intrauterine transmission, and intrauterine growth restriction were limited. The risks to the mother appear to increase during the last trimester of pregnancy in other types of coronavirus infection (SARS, MERS).

In this study we want to study demographic profile of pregnant women, antenatal variable, clinical characteristics and treatment given were observed. In our study majority of subjects were belong to age group of 19 to 30 year of age which is comparable to Wani R et al study,¹⁴ and Shah PT et al,¹⁵ study in which majority of subjects belongs to same group. In our study majority of subjects were gravida 2 which is comparable to Shah PT et al study where majority of cases were multigravida. In this study 22% cases had history of contact with COVID 19 positive patients but in Shah PT et al study the rate was 39%.

Majority of cases in our study presenting a complaint of fever (40%) but

in Shah PT et al study majority of cases had complaint of cough. in our study majority of cases had hypertensive disorder in pregnancy (4%) which is comparable to Shah PT et al study (6.6%)

Out of 50 cases, all cases were treated with multivitamins with zinc and tablet of vitamin C and 92% of cases required antibiotic therapy which is comparable with Shah PT et al study.

Some nutrients play a key role in maintaining the integrity and function of the immune system, presenting synergistic actions in steps determinant for immune response. Among these elements, zinc, and vitamin c stands out for having immunomodulatory functions and for playing roles in preserving physical tissue barrier, so in the COVID-19 pandemic it prevents and lower the risk of severe disease progression and maintains physical tissue barriers like skin and mucous membranes.¹⁶

CONCLUSION

The COVID-19 pandemic affects pregnant women along with the general population. As the pandemic waves continue to recur with newer strains, obstetricians have to be vigilant. Pregnant women with severe disease have to be given intensive multidisciplinary care to prevent maternal and fetal morbidity and mortality. Until the pandemic is over pregnant women have to be advised to wear masks and follow social distancing.

Limitations: No limitations in this study.

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Conflict Of Interest: none declared.

Ethical Approval: the study was approved by the institutional ethics committee.

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