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Original Research Article

A study on obstetric patients with corona virus infection requiring critical care

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ABSTRACT

Background: Coronavirus cause respiratory tract infection that can range from mild to lethal like cold, fever, cough, shortness of breath, fatigue, chills, body aches, headache, sore throat, loss of smell or taste, nausea, diarrhoea, pneumonia, respiratory failure, septic shock and death. The purpose of this study was to describe the clinical manifestations of obstetric patients with COVID-19 infection requiring critical care, their O₂ requirements, complications, co-morbidities associated and mortality related to it.

Methods: A study was conducted in the Department of Obstetrics and Gynecology, Cama and Albbless hospital, Mumbai including 31 patients with SARS CoV-2 infection requiring critical care. Necessary information such as their detailed clinical, and obstetric history, clinical examination, investigations was noted.

Results: In our study, the most common symptoms were shortness of breath, followed by fever. PIH was the most common co morbidity associated and pneumonia as most common complication. Anemia, thrombocytopenia and NLR>4 were found more common in intensive care unit (ICU) admitted patients as compared to non-ICU admitted patients. 77.4% of patients had abnormal chest X-ray with 25.8% requiring mechanical ventilation.

Conclusions: COVID 19 infection is affecting pregnant women resulting in mild to lethal disease. Most of pregnant women are asymptomatic or have mild disease but some of them require critical care. These women should be monitored carefully to prevent maternal morbidity and mortality.

Keywords: COVID 19, ICU, Comorbidities, Obstetric, Mortality

INTRODUCTION

In December 2019, a pneumonia outbreak was reported in Wuhan, China which was given the interim name 2019-nCov by WHO and later renamed as SARS-COV-2.¹

Coronavirus are a group of RNA virus that can cause respiratory tract infection that can range from mild to lethal. Corona virus can cause cold, fever, cough, shortness of breath, fatigue, chills, body aches, headache, sore throat, loss of smell or taste, nausea, diarrhoea,

pneumonia, respiratory failure, septic shock and death.²

Despite extensive studies on clinical features and complications of COVID-19 infection, studies of pregnant women with COVID-19 infection remain relatively rare.

The purpose of this study was to describe the clinical manifestations of obstetric patients with COVID 19 infection, their O₂ requirements, complications and risk factors along with it.

METHODS

An observational study was conducted in the Department of Obstetrics and Gynaecology at Cama and Alless Hospital, Mumbai, India from 25th May 2020 to 26th August 2020. A total of 31 obstetric patients who presented to JJ group of Hospitals with COVID-19 positive status or who were diagnosed later requiring critical care are part of this study with following inclusion and exclusion criteria. Hence sample size of this study is 31.

Inclusion criteria

Inclusion criteria for the selection of the study participant was COVID-19 positive, requiring critical care and transferred to medicine department for future management.

Exclusion criteria

All other obstetric patients can be selected as a study participant.

Study participants or their family members gave consent to be part of this study. Approval of ethical committee was taken. A detailed history was taken, vitals of patients were noted, clinical examination and relevant laboratory investigation were performed on admission. Information about complications like ARDS, pneumonia, acute liver injury, mortality etc was noted. Microsoft Office Excel software was used to analysis the data.

RESULTS

The most common symptom was shortness of breath (64.5%) following fever (48.4%), cough (32.3%), vomiting (9.7%), generalised weakness (9.7%). Cold (6.5%) and diarrhoea (6.5%) which mention in Figure 1).

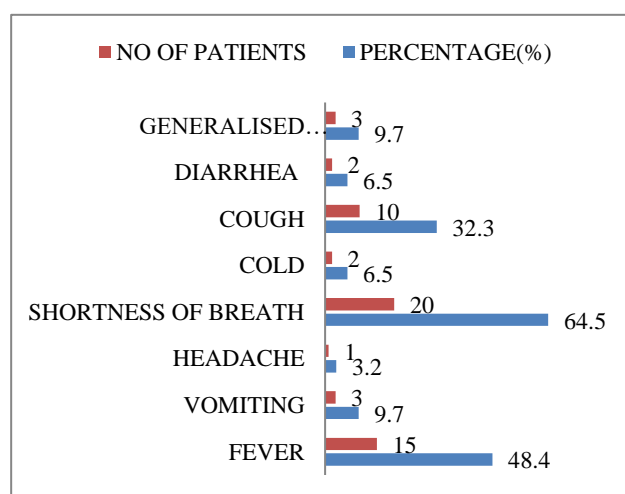


Figure 1: Symptoms of patients.

Anaemia was more prevalent in patients admitted in ICU as compared to non-ICU admitted patients infected with COVID 19 (Figure 2).

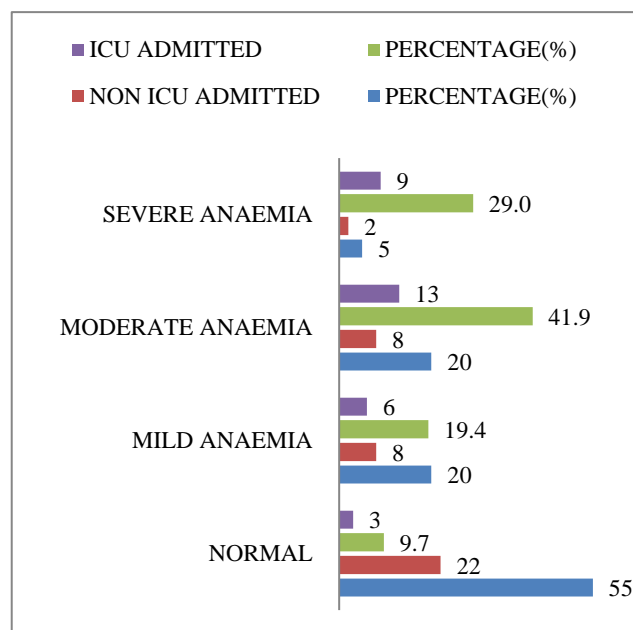


Figure 2: Anaemia findings of ICU admitted patients in reference with non-ICU admitted patients.

Most of the ICU admitted patients suffered from Pregnancy Induced Hypertension (29%) followed by TB (19.4%).

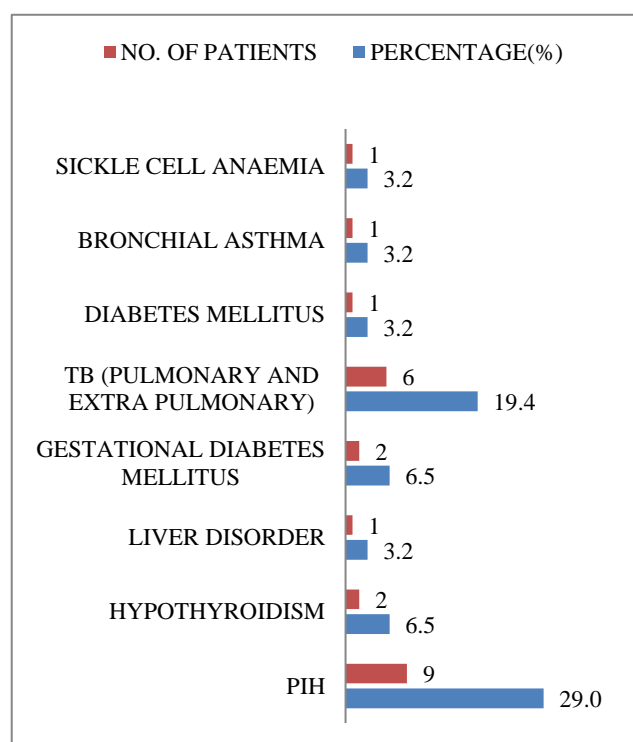


Figure 3: Co morbidities in the patients admitted into ICU.

38.7% of ICU admitted patients had Thrombocytopenia as compared to 5% of non-ICU admitted patients (Figure 4).

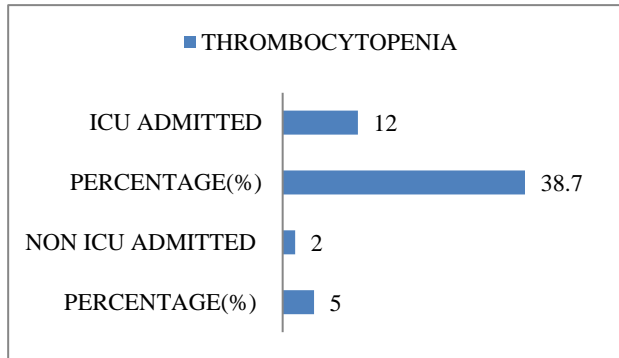


Figure 4: Thrombocytopenia findings.

NLR>4 was found in 71% ICU admitted patients as compared to 25% non-ICU admitted patients (Figure 5).

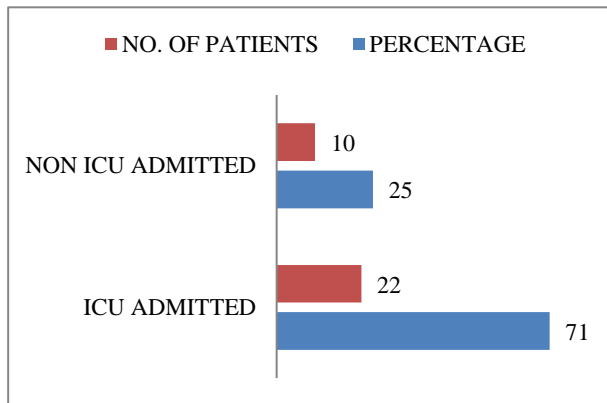


Figure 5: Neutrophil to lymphocyte ratio.

The most common complication was Pneumonia (35%) followed by ARDS (30%) (Figure 6).

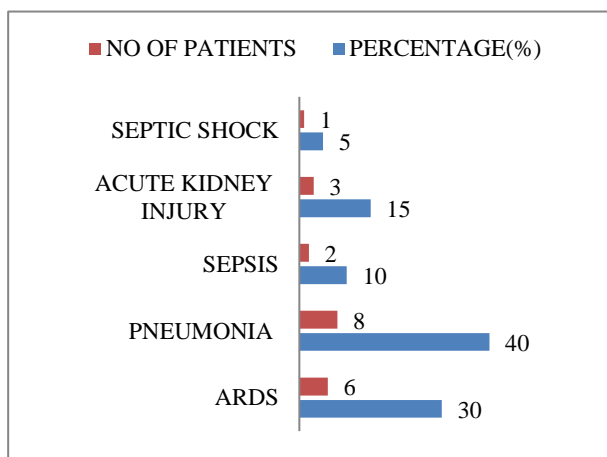


Figure 6: Thrombocytopenia findings.

77.4% of patients had abnormal chest X-ray (Figure 7). 25.8% patients required mechanical ventilation (Figure 8). 74.2% of patients admitted in ICU survived while mortality rate was 25.8% (Figure 9). Details of mortality cases are described in Table 1.

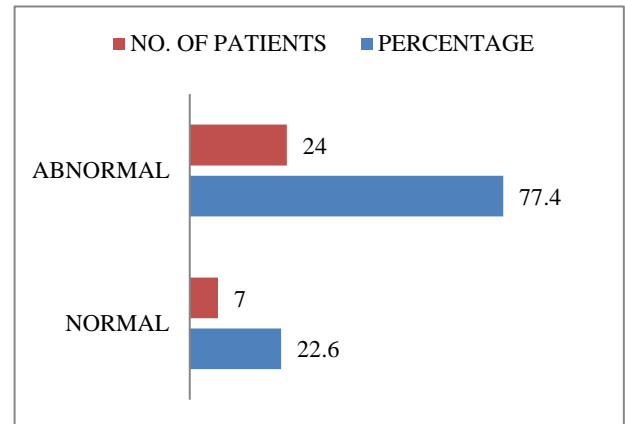


Figure 7: Chest X-ray report of patients.

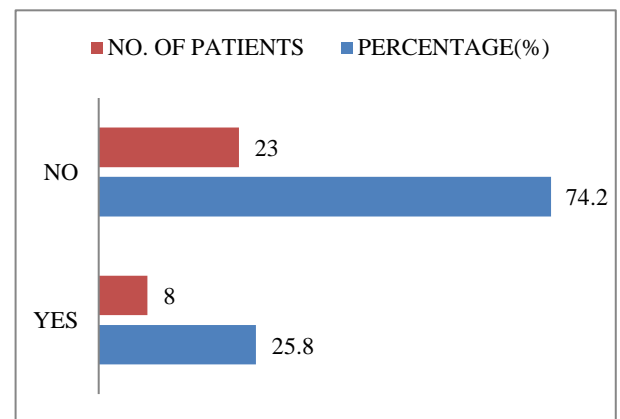


Figure 8: Patients required mechanical ventilation.

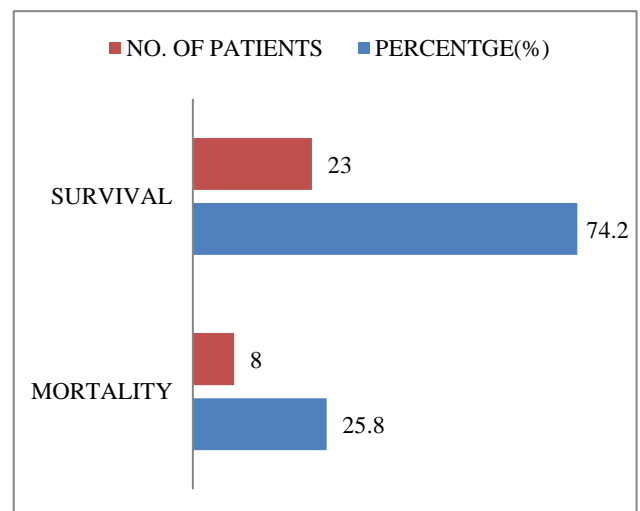


Figure 9: ICU admission outcome.

Table 1: Details of mortality cases.

Details	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
Age	28	30	28	20	26	32	37	25
Gravida / parity	G4P3L2N ND1	G4P1IUFD 1A2	G3P2L2	P1L1	P3L3	G3P2L2	P10L11	PRIMI
Date of admission	28/06/2020	19/6/2020	27/6/2020	15/6/2020	13/06/2020	28/05/2020	22/6/2020	9/08/2020
Symptoms	Fever, vomiting, loose stools	Shortness of breath, fever, cough	Shortness of breath, fever, generalised weakness	Shortness of breath, cough	Shortness of breath, cough	Shortness of breath, fever	Loss of conscious	Shortness of breath, pain in abdomen
Spo2 on admission	96	38	97	28	94	92	96	97
Intubated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Hb (gm%)	9.7	10.4	5	9.8	9.6	10.9	5.3	5.8
Platelets	93000	102000	197000	141000	108000	245000	296000	74000
Nlr	12.57	11.5	7.8	10.75	12.5	6.8	17.5	31
Comorbidity	Pih, acute fatty liver of pregnancy	Pih	H/o abdominal kochs	Pih	H/o pulmonary tuberculosis Hbsag		Schizophrenia	Pih
Chest x ray	Abnormal (rt sided haziness)	Abnormal (suggestive of ards)	Abnormal (b/l nodular opacities)	Abnormal (suggestive of ards)	Abnormal (b/l extensive lesions B/l bronchiectasis with rt volume loss)	Abnormal (b/l diffuse opacities)	Abnormal (b/l diffuse opacification)	Abnormal (suggestive of ards)
Complications	Ards Sepsis Acute kidney injury Septic shock	Ards Pneumonia	Aki	Ards Pneumonia	Pneumonia	Ards Aki	Pneumonia	Ards
Duration of hospital stay	8	1	9	1	1	7	1	7
Date of death	5/7/2020	14/6/2020	4/7/2020	16/6/2020	14/6/2020	04/06/2020	23/6/2020	15/08/2020
National early warning score (news)	5	9	6	14	10	8	9	5

DISCUSSION

Cases of COVID-19 have a wide range of symptoms from fever, cough, cold, sore throat, loss of taste or smell, diarrhea, headache to breathlessness. In our study the most common symptom was shortness of breath (64.5%) following fever (48.4%), cough (32.3%), vomiting (9.7%), generalized weakness (9.7%). Cold (6.5%) and diarrhea (6.5%).

In a study conducted by Paudel, fever was most common symptom (88.8%) followed by dry cough (68%), fatigue

(33%), productive cough (28%), shortness of breath (17%), muscle pain (14.40%), sore throat (11.40%), headache (10.20%).³

In our study, it was that Hypertensive Patients have increased morbidity and mortality rates (29%) and have been linked to more hospitalisation and ICU admissions followed by TB (pulmonary and intrapulmonary) 19.4%. 4 out of 8 mortality cases had PIH and 6 had TB (pulmonary / extra). Similar results were found in study conducted by Paudel where most common co morbidity was hypertension (15.8%).³

In our study anaemia was more prevalent in patients admitted in ICU as compared to non-ICU admitted patients infected with COVID 19. 6 out of 8 mortalities were anaemic.

In a study on 1099 laboratory-confirmed COVID-19 cases, it was shown that severe patients had significantly lower haemoglobin levels than those diagnosed as non-severe cases. It should be noted that, the decline in haemoglobin was more pronounced in patients who reached to the composite endpoint incorporating admission to the intensive care units (ICUs), or mechanical ventilation, or death, thus indicating that low haemoglobin levels might be related to poor progression and prognosis.⁴

Anaemia commonly aggravates the severity of respiratory diseases, and it has been documented that respiratory diseases combined with anaemia are associated with poor outcomes and increased mortality.^{5,6}

38.7% of ICU admitted patients had Thrombocytopenia as compared to 5% of non-ICU admitted patients.

Low platelet count is associated with increased risk of severe disease and mortality in patients with COVID-19, and thus should serve as clinical indicator of worsening illness during hospitalization.⁷

NLR>4 was found in 71% ICU admitted patients as compared to 25% non-ICU admitted patients. Anaemia, thrombocytopenia and NLR>4 are important diagnostic factors in COVID-19 patients in determining severity of disease and need of critical care.

A study by Qin et al showed a significantly higher NLR in patients with severe forms of COVID-19 in a cohort of 452 hospitalised patients.⁷

In the study by Ciccullo, a higher NLR at hospital admission was associated with a more severe outcome: in particular, a NLR>4 was a predictor of admission to the ICU. Patients with severe disease presented a significantly higher NLR at admission compared with patients with a milder form of COVID-19.⁹

The most common complication was pneumonia followed by ARDS, Acute kidney injury, sepsis and septic shock.

In our study 77.4% of patients showed chest x-ray finding like patchy or diffuse opacities and consolidation, ground glass specification or opacity. The distribution is most often bilateral, peripheral, and lower zone predominant.

Similarly, in study conducted by Wong it was found that chest radiographs may be normal in early/mild disease. In those COVID-19 cases requiring hospitalization, 69% had an abnormal chest radiograph at the initial time of

admission, and 80% had radiographic abnormalities sometime during hospitalization.¹⁰

8. In our study 8 out of 20 SARS COV-2 positive pregnant women who were admitted in ICU required mechanical ventilation and all those 8 were reported deaths adding to maternal mortality. 65% of patients admitted in ICU survived while mortality rate was 25.8%.

Similar study was conducted by Elshafeey et al where 17 out of 385 SARS COV-2 positive pregnant women required ICU admission from which 6 required mechanical ventilation with one reported death.¹¹

According to National Early Warning Score (NEWS) calculated for 8 mortality cases, 3 were at medium risk and rest 5 were at high risk. 4 out of 5 high risk cases had hospital stay of just 1 day before death.

CONCLUSION

COVID-19 infection is affecting pregnant women resulting in mild to lethal disease. Most of pregnant women are asymptomatic or have mild disease but some of them require critical care. These women should be monitored carefully to prevent maternal morbidity and mortality. Use of proper precautionary measures like use of masks, proper hand washing and maintaining social distancing along with regular ANC checkups can prevent maternal morbidity and mortality. Anaemia, thrombocytopenia and NLR>4 are important diagnostic factors in COVID-19 patients in determining severity of disease and need of critical care.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Novel Corona Virus 2019, Wuhan China. Available at <https://www.cdc.gov/coronavirus/2019ncov/index>. Accessed on 10 July 2020.
2. Coronavirus and COVID19: What You Should Know. Available at: <https://www.webmd.com/lung/coronavirus>. Accessed on 3 August 2020.
3. Paudel SS. A meta-analysis of 2019 novel corona virus patient clinical characteristics and comorbidities. Europe PMC. 2020.
4. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. China Medical Treatment Expert Group for C. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med.* 2020;382:1708-20.
5. Reade MC, Weissfeld L, Angus DC, Kellum JA, Milbrandt EB. The prevalence of anemia and its association with 90-day mortality in hospitalized community-acquired pneumonia. *BMC Pulm Med.* 2010;10:15.

6. Doshi SM, Rueda AM, Corrales-Medina VF, Musher DM. Anemia and community-acquired pneumococcal pneumonia. *Infection.* 2011;39(4): 379-83.
7. Lippi G, Plebani M, Henry BM. Thrombocytopenia is associated with severe coronavirus disease 2019 (COVID-19) infections: a meta-analysis. *Clinica Chimica Acta.* 2020;13.
8. Qin C, Zhou L, Hu Z, Zhang S, Yang S, Tao Y, et al. Dysregulation of immune response in patients with COVID-19 in Wuhan, China. *Clinical Infectious Diseases.* 2020;71(15):762-8.
9. Paliogiannis P, Fois AG, Sotgia S, Mangoni AA, Zinellu E, Pirina P, et al. Neutrophil to lymphocyte ratio and clinical outcomes in COPD: recent evidence and future perspectives. *European Respiratory Review.* 2018;27(147).
10. Wong HY, Lam HY, Fong AH, Leung ST, Chin TW, Lo CS, et al. Frequency and distribution of chest radiographic findings in COVID-19 positive patients. *Radio.* 2020;201160.
11. Elshafeey F, Magdi R, Hindi N, Elshebiny M, Farrag N, Mahdy S, et al. A systematic scoping review of COVID-19 during pregnancy and childbirth. *Int J Gynaecol Obstet.* 2020;150(1):47-52.

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