

A Case Series on Severe COVID 19 Infection in Antenatal Patients

^{1.} Dr. J. Priyadharshini
Post Graduate Student,
M.S. in Obstetrics and Gynaecology

^{2.} Dr. V.R. Rajalakshmi MD., DGO
Superintendent and in-charge Professor,
Department of Obstetrics and Gynaecology

DEPARTMENT: Obstetrics and Gynaecology,
Government RSRM Lying in Hospital,
Attached to Government Stanley Medical College, Chennai.
INSTITUTION: Government Stanley medical college, Chennai.
Correspondence author-in-charge:
Name: Dr. J.Priyadharshini

Address for communication:
Room no: 2, PG quarters,
Government RSRM Lying in hospital,
Royapuram,
Chennai-13.

Permanent address:
Dr. J.Priyadharshini
W/o Dr.R.Pratyush,
29/42, Kennedy Square Main Road,
Sembiyum.
Thiru Vi Ka Nagar,
Chennai 600011

Abstract:- Out of total COVID 19 cases in India, 10% includes antenatal of which over 90 percent women recover without need for hospitalization, although rapid deterioration in health may occur in few. Selected cases in our hospital with severe COVID 19 infected antenatal patients under oxygen support are presented here with data on demographic characteristics including gestational age at the time of sustaining COVID infection, nature of obstetric complications, comorbidities, oxygen saturation, CT scoring, duration of hospital stay, oxygen therapy and mode of therapy and obstetric outcome. It gives an insight into the cause of the adverse obstetric outcome which can be reduced by early identification of symptomatic COVID 19 patients, early diagnosis and appropriate antenatal care.

Keywords:- COVID 19, Hypoxia, Miscarriage.

I. INTRODUCTION

➤ Case Presentation

- CASE 1: A 31 years G2P1L1 came with complaints of breathlessness with saturation of 90% , PR-150/min and palpitation, with outside COVID swab positive and CT

showing 52% involvement. She was put on CPAP (Continuous Positive Airway Pressure) support to maintain saturation. She expelled products of conception two days following admission. She was started on steroids, remdesvir and other symptomatic medications and was discharged 14 days following admission after complete recovery.

- CASE 2: A 28years G2P1L1/ previous LSCS of 37 weeks 3 days gestational age was admitted with breathlessness with saturation 88% and was tested positive for COVID following admission. She was immediately put on HFNC (High Flow Nasal Oxygen) with 30L Oxygen and was started on betamethasone, remdesvir, antipyretics and analgesics. CT was done and she was found to have 92% lung involvement, B/L ground glass opacities and consolidation. Emergency LSCS was done three days after admission in view of fetal distress. She delivered an alive, term, boy baby of BW: 2.465kg with APGAR 7/10 and 8/10 at 1 and 5mins respectively. Gradually her clinical condition improved and was discharged 21 days following admission.
- CASE 3: A 26 year old primi presented at 34 Weeks 2 days of gestation with dyspnea and tachycardia. Saturation on admission was 92%. She was put on NRBM (Non

rebreathing mask) with 10L oxygen and her saturation maintained. After initial clinical stabilization patient was shifted for CT which showed 90% lung involvement. Emergency LSCS done two days following admission and she delivered an alive, preterm baby of BW: 2.215kg with an APGAR 7/10 and 8/10 at 1 and 5 minutes respectively. Mother continued on steroids and remdesvir for 21 days as per physician orders and steroid was then tapered gradually. Clinical condition improved and she was discharged 26 days following admission.

- CASE 4: A 33 year old woman with 15 weeks of gestation, who was tested positive for COVID outside was admitted in our hospital with complaints of intermittent fever and breathlessness with saturation 84% on admission. She was immediately put on ACMV mode of mechanical ventilation, aggressively hydrated and was started on antivirals and steroids. She expelled products of conception spontaneously on the next Day of admission weighing 30g. CT was taken which showed 76% lung involvement. Inflammatory markers were found to be raised. She was also started on heparin in view of raised CRP. Gradually clinical condition improved and she was weaned to HFNC and then to Venturi mask. After 8 days of intensive care in ICU she maintained saturation at room air. Steroids gradually tapered and she was discharged 21 days following admission.
- CASE 5: A case of 21 years old G2A1, 24 weeks of gestation, was admitted with history of fever and acute gastroenteritis with saturation 90%. Outside swab was negative for COVID. She was stabilized and was put on HFNC mode of ventilation to maintain saturation. Spontaneously she expelled products of conception on the day of admission. She was put on steroids and remdesvir. CXR was taken and showed B/L ground glass opacities. CT was taken and showed 60% lung involvement. After 14 days of intensive care in ICU patient was weaned from oxygen. Slowly steroids were tapered as per physician opinion and patient was discharged 17 days following admission.

II. DISCUSSION

COVID 19 in pregnancy is quite common and the management is symptomatic as in general population. Most cases presented with breathlessness, fall in saturation, fever, cough and cold. The above patients with different clinical picture clearly demonstrate the variable clinical presentation of COVID 19 in pregnancy. Most of the cases in early pregnancies and second trimester pregnancies underwent spontaneous expulsion of products of conception which may be due to underlying hypoxia, however term and near term patients delivered alive baby with good APGAR scores and were discharged after complete recovery.

The above cases had high lung involvement and positive inflammatory markers and hence were put on steroid to prevent cytokine storm. Remdesvir was given to all the above

cases which helps in alleviating the symptoms. Other antivirals such as nirmatrelvir and favipiravir have also proved to be effective in a few studies. Monoclonal Antibodies such as sotrovimab, casirivimab, imdevimab are approved by FDA in COVID but couldn't be used as the safety in pregnancy is yet to be studied. Ivermectin, chloroquine, analgesics and antipyretics were given. Many of them required artificial ventilator but gradually recovered with supportive therapy.

III. DIAGNOSIS

No test gives a 100% accurate result. The most commonly done PCR test is a molecular test that detects genetic material of the virus using polymerase chain reaction. Nasal swab or a throat swabs are collected, genetic material is amplified and analysed. It has got 93% sensitivity for bronchoalveolar lavage, 63% for nasal swab and only 32% for throat swab.

Antibody testing, also known as serology testing, is usually done after full recovery from COVID-19 and positive result indicates past infection.

CT scan also can be used as a diagnostic tool as well as to know the impact of the disease as it can detect the percentage of lung involvement. The results are interpreted using the CO-RADS classification, which is a standardized reporting system for patients with suspected COVID 19 infection developed for a moderate to high prevalence setting.

CXR is also a valuable tool for diagnosis especially in low resource settings, where BRIXIA scoring which is a new CXR based design for the diagnosis for COVID.

Routine blood investigations such as complete blood count, ESR levels, RFT, LFT, D dimer levels, Interleukin-6, Serum Ferritin, Serum electrolytes, CRP. PT, aPTT, FDP and LDH should be done in all suspected and positive cases to decide the plan of treatment and to monitor the course of disease.

IV. MANAGEMENT

Most cases are asymptomatic and mild requiring supportive care, fluid therapy, oxygen support and prone positioning as needed. Antivirals such as Remdesvir, nirmatrelvir, favipiravir are tried in some cases. Antipyretics, IV fluids, analgesics and other symptomatic supportive therapy should also be given. Medications or devices to support other affected vital organs use of the glucocorticoid dexamethasone is strongly recommended, as it can reduce the risk of death by preventing cytokine storm. Non-invasive ventilation and, ultimately, admission to an intensive care unit for mechanical ventilation may be required to support breathing. Extracorporeal membrane oxygenation (ECMO)

has been used to address the issue of respiratory failure, but its benefits are still under consideration.

V. PREVENTION

Vaccinated pregnant women are less likely to experience COVID-19 infection compared to unvaccinated pregnant patients, and COVID-19 vaccination during pregnancy was not associated with increased pregnancy or delivery complications. In India two vaccines are approved for use in pregnancy. COVAXIN is an inactivated vaccine whereas COVISHIELD is a non replicating vaccine vector. mRNA vaccines such as MODERNA and SPUTNIK are also found to be safe in pregnant and lactating women. In addition to vaccines, general safety measures such as personal hygiene, social distancing and by following strict respiratory etiquette, usage of N95 masks and triple layered masks should be followed.

VI. CONCLUSION

COVID in pregnancy resolve spontaneously with minor flu like symptoms in more than 90% cases. In high risk women with other associated comorbidities like diabetes, hypertension and other chronic lung diseases are likely to experience severe disease. Although few cases with no other associated comorbidities can also present with severe lung involvement like the cases presented above, but can be revived with prompt medical care and early diagnosis. Due care to be taken especially in pregnancy as it is known to cause hypoxia induced miscarriages, preterm births and placental microthrombus formation resulting in sudden IUD and fetal distress. Hence prevention of the disease at the primordial level, early reporting to hospitals at the onset of symptoms, timely diagnosis and intervention is the key to decrease morbidity and mortality.

CONFLICT OF INTEREST

None declared.

COMPETING INTEREST

None.

FUNDING

None.

REFERENCES

- [1]. [10:44 am, 28/12/2021] Dr. Priyadharshini: 1. Lu H., Stratton C.W., Tang Y.W. Outbreak of pneumonia of unknown etiology in Wuhan China: the mystery and the miracle. *J Med Virol.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [2]. Hui D.S., E I.A., Madani T.A., Ntoumi F., Kock R., Dar O. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health – the latest 2019 novel coronavirus outbreak in Wuhan, China. *Int J Infect Dis.* 2020;91:264–266. [PMC free article] [PubMed] [Google Scholar]
- [3]. Gorbalenya A.E.A. Severe acute respiratory syndrome-related coronavirus: the species and its viruses – a statement of the Coronavirus Study Group. *BioRxiv.* 2020 doi: 10.1101/2020.02.07.937862. [CrossRef] [Google Scholar]
- [4]. Burki T.K. Coronavirus in China. *Lancet Respir Med.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [5]. NHS press conference, February 4, 2020. Beijing, China. National Health Commission (NHC) of the People's Republic of China. <http://www.nhc.gov.cn/xcs/xwbd/202002/235990d202056cfcb202043f202004a202070d202007f209703b202113c202000.shtml>.
- [6]. World Health Organization; Geneva, Switzerland: 2020. WHO: coronavirus disease 2019 (COVID-19) situation report – 23. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200212-sitrep-20200223-ncov.pdf?sfvrsn=20200241e20200219fb20200278_20200212 [accessed 20200213 February 20202020] [Google Scholar]
- [7]. Huang C., Wang Y., Li X., Ren L., Zhao J., Hu Y. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [8]. Chen N., Zhou M., Dong X., Qu J., Gong F., Han Y. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [9]. Burrell C., Howard C., Murphy F. 5th ed. Academic Press; United States: 2016. Fenner and White's medical virology. [Google Scholar]
- [10]. Lu R., Zhao X., Li J., Niu P., Yang B., Wu H. Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Lancet.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [11]. Zhou P., Yang X.L., Wang X.G., Hu B., Zhang L., Zhang W. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature.* 2020 [PMC free article] [PubMed] [Google Scholar]
- [12]. Hughes J., Wilson M., Luby S., Gurley E., Hossain M. Transmission of human infection with Nipah virus. *Clin Infect Dis.* 2009;49(11):1743–1748. [PMC free article] [PubMed] [Google Scholar]
- [13]. Li Q., Guan X., Wu P., Wang X., Zhou L., Tong Y. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med.* 2020;382(13):1199–1207. [PMC free article] [PubMed] [Google Scholar]

- [14]. Yu W., Tang G., Zhang L., Corlett R. Decoding the evolution and transmissions of the novel pneumonia coronavirus (SARS-CoV-2) using whole genomic data. ChinaXiv. 2020 Preprint. [PMC free article] [PubMed] [Google Scholar]
- [15]. Chan J.F., Yuan S., Kok K.H., To K.K., Chu H., Yang J. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020 [PMC free article] [PubMed] [Google Scholar]
- [16]. Kramer A., Schwebke I., Kampf G. How long do nosocomial pathogens persist on inanimate surfaces? A systematic review. *BMC Infect Dis*. 2006;6:130. [PMC free article] [PubMed] [Google Scholar]
- [17]. Kampf G., Todt D., Pfaender S., Steinmann E. Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. *J Hosp Infect*. 2020 [PMC free article] [PubMed] [Google Scholar]