



**ORIGINAL RESEARCH PAPER**

**Obstetrics & Gynaecology**

**A STUDY OF PREVALENCE ON MATERNAL MORTALITY IN COVID-19**

**KEY WORDS:**

**Dr. Gudipalli Keerthi**

Final year postgraduate MS OBGY,GGH, Guntur.

**Dr. Naseer Unnisa**

Final year postgraduate MS OBGY,GGH, Guntur.

**ABSTRACT**

**Introduction** On march 11, 2020, WHO officially announced that COVID 19 has become global pandemic . Most of the studies available on COVID 19 have evaluated the impact of the disease in general population and there are insufficient data on COVID 19 in pregnancy. Pregnant women are more susceptible to acquired viral respiratory infection and severe pneumonia due to physiological changes in immune and cardiopulmonary system during pregnancy COVID 19 infection in pregnancy more likely present as mild symptomatic infection or it may be asymptomatic and the risk of COVID 19 infection for pregnant women may be SARS or middle east respiratory syndrome. **Aims And Objectives** **Aim:** TO audit maternal mortality due to COVID 19 **Objective :**To estimate the prevalence of maternal mortality due to COVID 19 infection in obstetrics patients. **Materials And Methodology** A cross sectional study was conducted from January 1st 2020 to May 30 2022 at GOVERNMENT GENERAL HOSPITAL ,GUNTUR, a tertiary care centre. During study period all pregnant women and antenatal, intrapartum and postpartum who were diagnosed to have COVID 19 infection by RTPCR or RAPID ANTIGEN TEST positive were considered. **Results** Out of 942 cases of COVID 19 recorded throughout the study period, the prevalence of maternal mortality is 3.3% (32 cases) According to age wise distribution, 37.5% in 20-25 years age group, 56.25% in 25-30 years age group, 6.2% in 30-35years age group. According to BMI 15.6% deaths in 18.5 -24.9, 59.3% deaths in 25-29.9 group, 25% deaths in 30-34.9 group. According to socioeconomic status 50% in lower SCS, 40.6% in lower middle class group, 9.3% in upper middle class group According to gestational age wise distribution 28% in 24-30 weeks of GA, 46.8% in 32-36 weeks of GA , 25% in 35 and above and postpartum. According to CT severity score number of deaths are 90.6% if score greater than 16, 9.3% with score of 8-15, 0% with score of less than 7. Based on investigations D-dimer elevated in 100% of death cases, serum ferritin elevated in 68.7% of death cases , CRP elevated in 93.7% of death cases.

**INTRODUCTION**

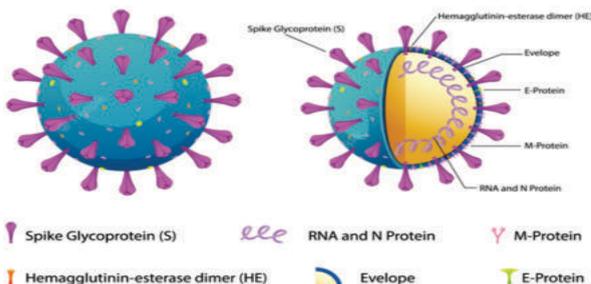
On march 11, 2020, WHO officially announced that COVID 19 has become global pandemic . Most of the studies available on COVID 19 have evaluated the impact of the disease in general population and there are insufficient data on COVID 19 in pregnancy. Pregnant women are more susceptible to acquired viral respiratory infection and severe pneumonia due to physiological changes in immune and cardiopulmonary system during pregnancy

COVID 19 infection in pregnancy more likely present as mild symptomatic infection or it may be asymptomatic and the risk of COVID 19 infection for pregnant women may be SARS or middle east respiratory syndrome.

COVID 19 caused by SARS CoV 2 which is a zoonotic disease which is a single stranded 80 to 120nm sized envelope RNA beta corona virus which uses angiotensin converting enzyme (ACE-2 ) receptors for its entry into cell using S1 & S2 subunits.

Incubation period 5to 7 days Infectivity is 2days before onset of symptoms and last upto 8 days.

**CORONAVIRUS COVID 19**



**Classification Of Covid 19 Illness During Pregnancy**

ASYMPTOMATIC	No symptoms Positive screen test for COVID 19
MILD DISEASE	Mild flu like symptoms like fever, cough, myalgia, anosmia No dysnea or shortness of breath
MODERATE DISEASE	a) Lower respiratory tract disease with dysnea. b) imaging (CT scan ) shows pneumonia c) abnormal blood gas analysis d) refractory fever of 39degrees Celsius or more not relieving with paracetamol e) O2 saturation is maintained at 94% or higher on room air.
SEVERE DISEASE	a) Respiratory rate >30 /min b) O2 saturation <94% c) Involvement of lungs in 90% cases in imaging
CRITICAL DISEASE	a) Respiratory failure requiring mechanical ventilation b) Shock c) Multiorgan failure or dysfunction
REFRACTORY HYPOXEMIA	Persistent inadequate oxygenation or ventilation inspite of appropriate and substantial measures to optimize eg., PaO2 < 70MMHG, PaO2 / FiO2<15 OMMHG

**Co-rads Scoring On Ct Scan**

Corads 1	No	Normal/Non Infectious
Corads 2	Low	Abnormality Consistent With Infection Other Than COVID 19
Corads 3	Indeterminate	Unclear Whether COVID 19 Is Present
Corads 4	High	Abnormality Suspicious Of COVID 19
Corads 5	Very High	Typical COVID 19
Corads 6	Pcr Positive	COVID 19

**Symptoms And Signs Of Covid 19 Infection Symptoms**

Fever	Headache	Abdominal pain
Cough	Rhinorrhea	Anosmia
Breathlessness	Nasal congestion	Ageusia
Expectoration	Diarrhea	Reduced alertness
Myalgia	Loss of appetite	Reduced mobility
Lassitude	Nausea	Delirium
Sore throat	Vomiting	Uneasiness

**Signs**

COMMON SIGNS	SIGNS OF SEVERE DISEASE
Raised temperature	Respiratory rate >30/min
Breathlessness	Hypoxia with O2 saturation <94% on room air
Nasal congestion on examination	Tachycardia >110bpm
Sore throat	Systolic blood pressure <90mmhg

**Complications**

- Pneumonia
  - Acute respiratory distress syndrome
  - Acute liver injury
  - Cardiovascular complications
1. Cardiac injury
  2. Acute heart failure dysarrhythmias
  3. Myocarditis
  4. Prothrombotic coagulopathy
  5. Venous and arterial thromboembolism
- Acute kidney injury
  - Cytokine storm
  - Macrophage activation syndrome
  - Neurological complications
1. Impaired consciousness
  2. Acute cerebro vascular disease
  3. Shock

**Investigations**

**Tests For Covid Diagnosis**

- Nasopharyngeal swab /oropharyngeal swab for COVID 19 RTPCR: report takes 12hours
- CBNAAT: gives report in 3-4 hours or TRU-NAAT .
- Rapid point of care (POC) antigen detection test
- Ig G Elisa test for seroprevalence.

**Other General Laboratory Investigations**

- Hemogram –lymphopenia , thrombocytopenia
  - Coagulation profile –prolonged prothrombin time
  - D-dimers
  - Low fibrinogen
  - Renal function tests
  - Hepatic function tests
  - Radiological imaging – chest xray, CT scan chest
  - Elevated inflammatory markers
- a) Raised ESR
  - b) Raised CRP
  - c) Raised ferritin
  - d) Raised TNF-ALPHA , IL-1,6

**AIMS AND OBJECTIVES**

**AIM:**

TO audit maternal mortality due to COVID 19

**OBJECTIVE :**

To estimate the prevalence of maternal mortality due to COVID 19 infection in obstetrics patients.

**MATERIALS AND METHODOLOGY**

A cross sectional study was conducted from January 1<sup>st</sup> 2020 to May 30 2022 at GOVERNMENT GENERAL HOSPITAL, GUNTUR, a tertiary care centre.

During study period all pregnant women and antenatal, intrapartum and postpartum who were diagnosed to have COVID 19 infection by RTPCR or RAPID ANTIGEN TEST positive were considered.

**RESULTS**

Out of 942 cases of COVID 19 recorded throughout the study period, the prevalence of maternal mortality is 3.3% (32 cases)

**Age Wise Distribution**

AGE ( IN YEARS)	NUMBER OF DEATHS
20-25	12 (37.5%)
25-30	18(56.25%)
30-35	2(6.2%)

**Bmi Based Distribution**

BMI	NUMBER OF DEATHS
18.5-24.9	5 (15.6%)
25-29.9	19(59.3%)
30-34.9	8(25%)

**Socio-economic Wise Distribution**

SOCIO ECONOMIC STATUS	NUMBER OF DEATHS
LOWER	16(50%)
LOWER MIDDLE	13(40.6%)
UPPER MIDDLE	3(9.3%)

**Gestational Age Wise Distribution**

GESTATIONAL AGE (WEEKS)	NUMBER OF DEATHS
20-30	9(28%)
30-36	15(48.6%)
37 and above,POSTPARTUM	8(25%)

**Ct Severity Score Wise Distribution**

CT SEVERITY SCORE	NUMBER OF DEATHS
>16	29(90.6%)
8-15	3(9.3%)
<7	0

**Based On Investigations**

INVESTIGATIONS	LEVELS	NUMBER OF DEATHS
D-dimers	ELEVATED	32(100%)
Serum ferritin	ELEVATED	22(68.2%)
CRP	ELEVATED	30(93.7%)

**DISCUSSION**

Even though the clinical manifestations and treatment monitoring of COVID 19 patients have been studied extensively, there are few studies on pregnant women with COVID 19.

It was not clear whether pregnancy itself was a risk factor for severe illness from COVID 19 but now there is a growing evidence that the pregnant women may be at increased risk of severe illness from COVID 19 infection particularly in third trimester.

It is highly important to systematically investigate the clinical characteristics and outcome of pregnant women As we are reporting a case series of 32 maternal mortality cases from our study we note all the 32 cases were symptomatic at the time of presentation.

In these 32 cases breathlessness and myalgia present in all cases, while fever and cough are present in 17 out of 32 cases. 6 patients had loss of taste and smell.

Pregnant women with COVID 19 were less likely to have fever and myalgia than non pregnant women of same age.

The **PRIORITY** ( PREGNANCY CORONA VIRUS OUTCOME REGISTRY) an ongoing prospective cohort study from united states found that the most prevalent first symptoms in infected were – cough 20%, sore throat 16%, myalgia 12%, fever 12%.

**CONCLUSION**

COVID 19, pneumonia is an additional tool for maternal mortality and one of the indirect cause for maternal mortality

which needs to be considered in future along with other causes of maternal mortality.

Obstetric patients in second and third trimester having COVID 19 infection with late presentation to the hospital, moderate to severe disease (RR> 30) , with raised inflammatory markers ( CRP, D-dimers, serum ferritin etc.,) at presentation and bilateral lung infection are at risk for poor maternal outcome.

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