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A Comparitive Study of Feto Maternal Outcome of Covid and Non Covid Pregnancies

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***Abstract**:*

BACKGROUND:COVID-19 (Coronavirus disease 2019),caused by SARS-CoV-2(severe acute respiratory syndrome corona virus-2), is first reported in Wuhan,China[1].WHO declared coronavirus disease as a public health emergency of international concern on January 30,2020.COVID-19 and has become a global pandemic[2].It is important to know about COVID impact on pregnant women.

AIM:

To assess the Impact of COVID 19 in maternal and fetal outcome.

MATERIALS AND METHODS:

Retrospective case control study was conducted in Obstetrics and Gynecology department, Gandhi hospital, Secunderabad,Telangana,India.Studied medical records of 500 pregnant women diagnosed with COVID 19 and1000 non COVID pregnant women who delivered between February 2021 and May 2021.

RESULTS:

Out of 500 COVID and 1000 non COVID cases,48.4%(242)in COVID group and 55.1 %(551) in non COVID group pregnant women are in between the age group of 20 and 25yrs .In the COVID affected group 64% (320) were found to be multipara and in non COVID group 62.5% (625) were found to be multiparous.62.6%(313)in COVID group and 74.7%(747) in non COVID pregnant women were with more than 37 weeks GA.31.8%(216) of the COVID positive pregnant women were asymptomatic and most common symptom is fever(19.7%). Most common comorbidity is anemia followed by hypertensive disorder in both COVID and non COVID group. 65% (325)cases in COVID group 46.3%(463) in non COVID group pregnant women were delivered by caesarean section.39.8% (199)COVID mothers and 30.7% (307) non COVID mothers gave birth to low birth weight babies.84% (420) COVID mothers and 91% (910)non COVID mothers gave birth to the babies with normal APGAR score.91.2%(456) babies born to COVID mothers are discharged healthy and 83.5% (835) babies born to non COVID mothers are discharged healthy. Out of 98.4% (492) live babies 0.4%(2) babies of COVID positive mothers are found to beCOVIDpositive.6.8% (34) cases died in COVID group and most common cause being respiratory failure.2.1% (21) of cases died in non COVID group most common cause pregnancy induced hypertension related complications. As our institute is a COVID nodal center all COVID cases are referred to our hospital and also it is a tertiary care center with multidisciplinary team facility and hence most of the high risk cases are referred to our hospital. Mean duration of hospital stay is more among COVID group.

CONCLUSION:

The following conclusions were drawn from the study.

Although the majority of mothers discharged healthy maternal mortality is high in COVID compared with non COVID.

Caesarean section was more common than vaginal delivery for pregnant women with COVID 19.

KEYWORDS:

COVID-19, NON COVID, MATERNAL OUTCOME,FETAL OUTCOME, CO MORBDITIES,

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I. Introduction:

The COVID 19 pandemic is an ongoing pandemic of corona virus disease 2019.which is caused by SARS corona virus 2.The WHO declared COVID 19 as a global pandemic. As of June2021 more than 175million cases have been confirmed with more than 3.78million confirmed deaths attributed to COVID 19.Severe pulmonary and systemic disease manifestations of the illness have been described since the discovery of this virus[3].COVID 19 virus infect host cells through ACE-2 receptors which present predominantly within type 2 alveolar cells of the lung and across the aero digestive tract[4].Physiological changes in the immune and cardiopulmonary systems render pregnant women more susceptible to respiratory pathogens[5]. As the pandemic unfolds prevention and control of infection among pregnant women and potential risk of vertical transmission have become a major concern. RCOG advice mode of delivery should be an obstetric indication and not presumed protection of baby against infection. Maternal progression of disease, gestational age, fetal intra uterine status is the primary concern. COVID 19 was not considered an indication for caesarean delivery except in cases of fetal heart tracing abnormalities, that were not improved with adequate maternal respiratory support or worsening maternal respiratory status with anticipated need for intubation and immediate prone positioning, which precluded fetal monitoring[6].In this retrospective case control study, we analyzed maternal and neonatal outcome of COVID and non COVID cases delivered and got treated in Gandhi hospital.

AIM:

To assess the impact of COVID 19 on maternal and fetal outcome.

OBJECTIVES:

1. To study the maternal and fetal outcomes in pregnant women affected with COVID 19 as compared to non COVID pregnant women
2. To evaluate the risk factor and clinical characteristics associated with COVID 19 pregnant women.

II. Materials And Methods:

A hospital based retrospective study was conducted in the department of obstetrics and gynecology, Gandhi medical college and general hospital by collecting data regarding details of 500 COVID 19 positive pregnant women and 1000 non COVID pregnant women between 1st February 2021 and 31st May 2021 in Gandhi hospital which is a tertiary care center and State nodal center for COVID.

Maternal data: Data collected regarding socio demographic status, obstetric features and medical history, laboratory tests, ICU admissions, mode of delivery, complications and duration of hospital stay.

Neonatal data :birth weight, APGAR at 1 and 5 minutes, complications and COVID status.

INCLUSION CRITERIA:

All pregnant women with 28 weeks or more admitted to labor room.

EXCLUSION CRITERIA:

All pregnant women with less than 28 wks admitted to labor room.

All pregnant women who had recovered from COVID.

DATA ANALYSIS:

All patient profiles were recorded in proforma and findings were tabulated; EPIINFO and SPSS 22 was used to analyze the data.

CHART 1: AGE-WISE DISTRIBUTION OF PATIENTS

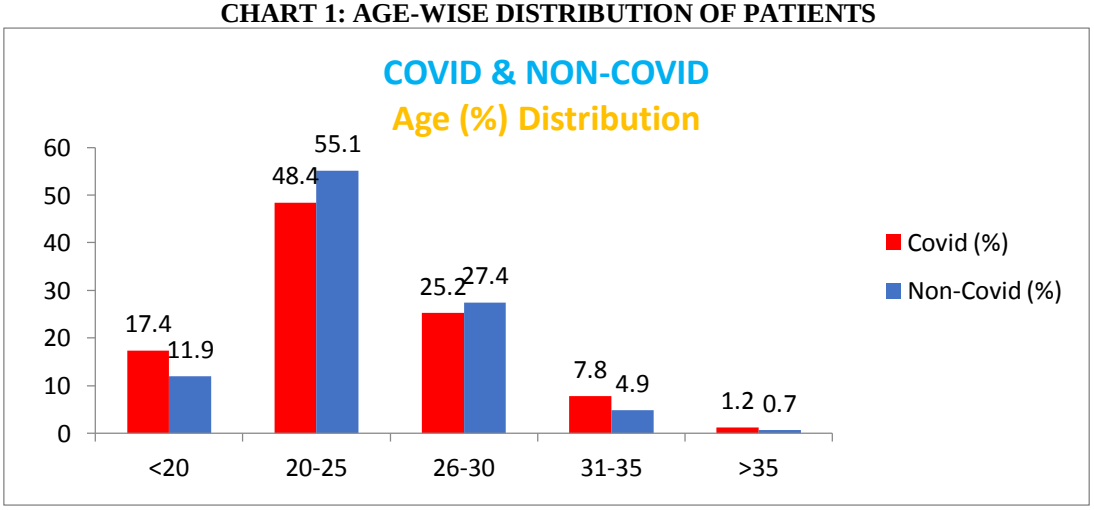

Chart 1 data reveals that among total 500 cases and 1000 non COVID cases 48.4% of COVID and 55.1% of non COVID cases were in age group of 20 to 25 years.

CHART 2: OBSTETRIC FORMULA

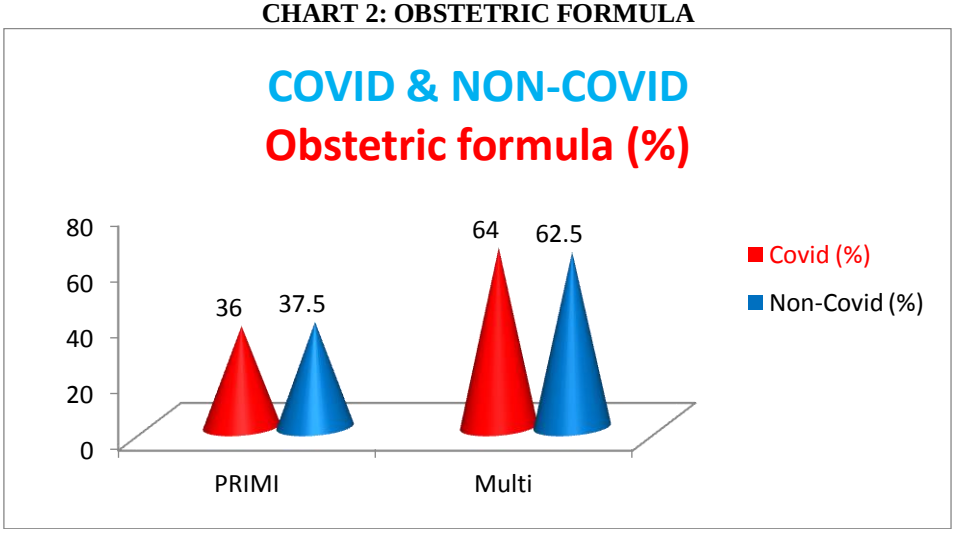

Chart 2 study population reveals 54%COVIDand 67.5% NON COVID cases were multi gravida.

CHART 3: GESTATIONAL AGE WISE DISTRIBUTION

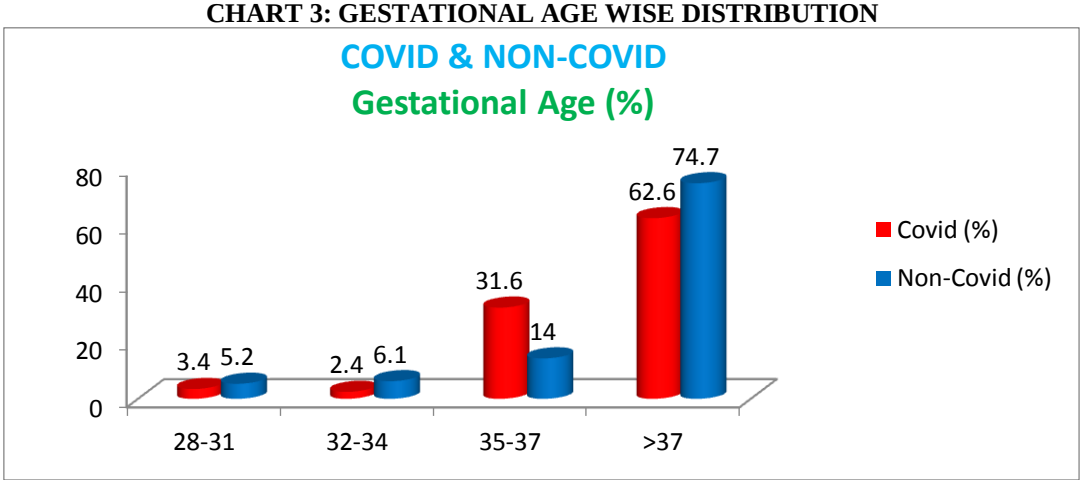

Chart 3 reveals that 62.6% COVID and 74.7% non COVID cases were more than 37wks gestational age group.37.4% COVID pregnant women gave birth to preterm babies,25.3% non COVID pregnant women gave birth to preterm babies.

CHART 4: PRESENTING COMPLAINTS

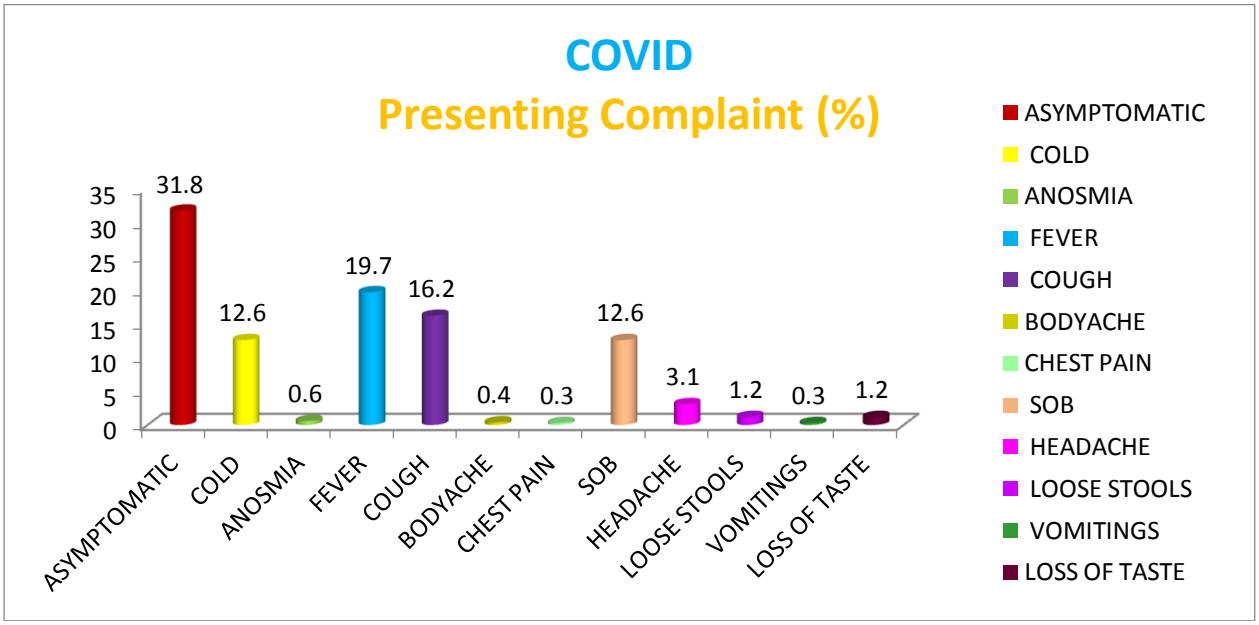

Chart 4 reveals that 31.8% of cases are asymptomatic, followed by 19.7% of cases presented with fever and 16.2% with cough. Patients presenting with SOB had greater mortality and morbidity rate. Symptomatic patient have more than one presenting complaint.

CHART 5: COVID SEVERITY

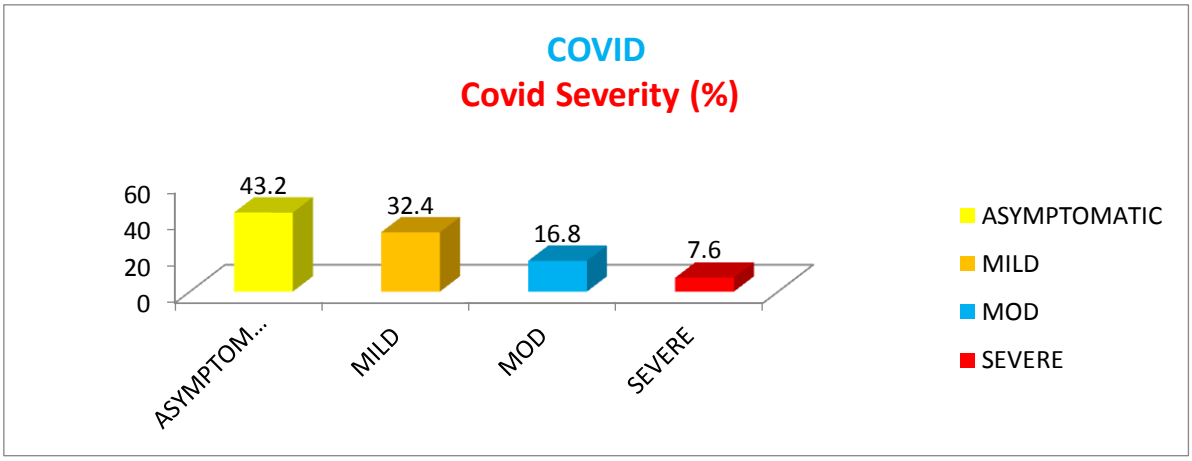

Chart 5 reveals that 43.2% cases are asymptomatic followed by 32.4% cases with mild illness and 7.6% of cases had severe illness.

CHART 6: COVID STATUS OF THE BABIES

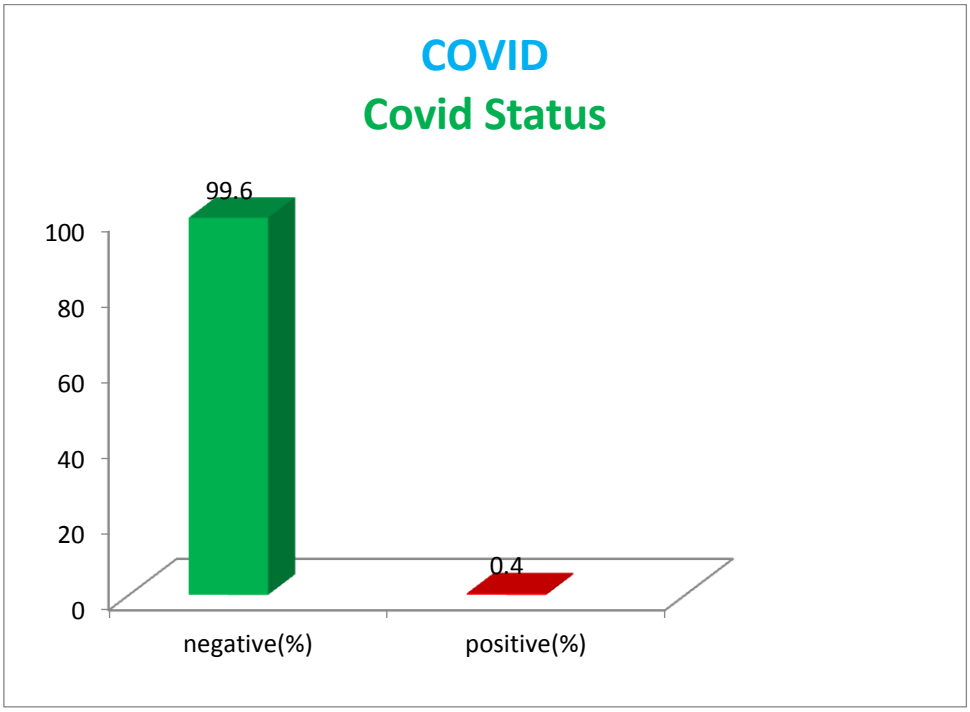

Chart 6 reveals that 99.6% babies of COVID mothers are diagnosed as COVID negative and 0.4 % babies diagnosed as COVID positive.*IUD excluded.

CHART 7: COMORBIDITIES

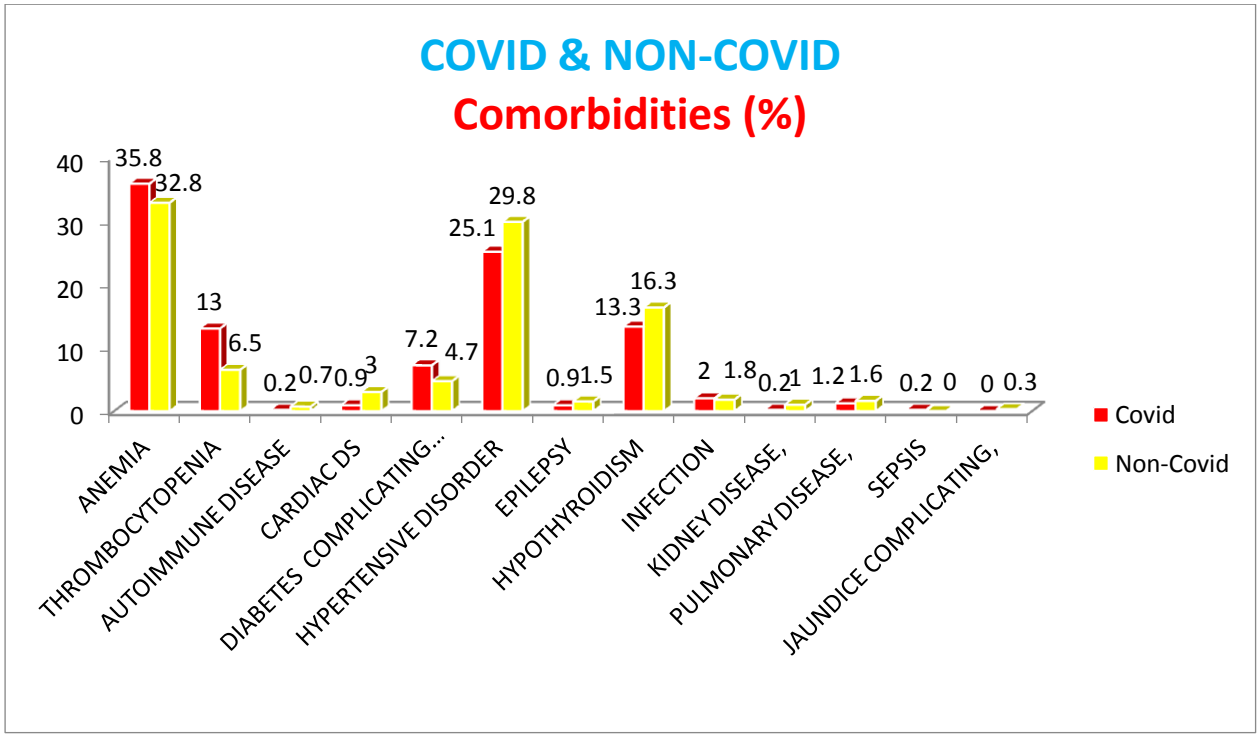

Chart 7 reveals that 35.8% of COVIDgroup and 32.8% of non COVIDgroup mothers had anemia.Second most common comorbidity is hypertensive disorder in both groups.the pregnant women have more than one comorbidity.

CHART 8 : MODE OF DELIVERY

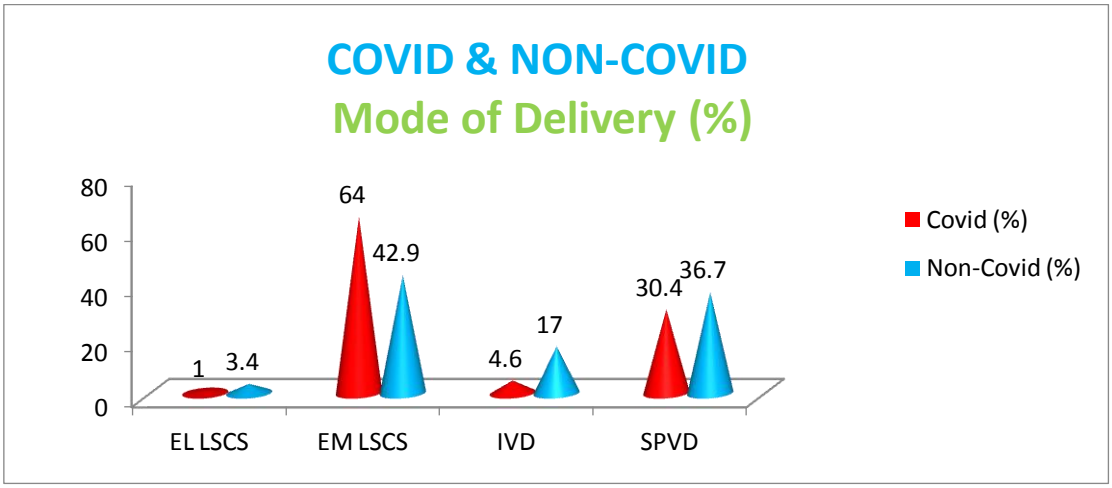

Chart 8 reveals that 64% of COVID cases and 42.9% non COVID cases delivered by caesarean section.
Analysis: Mode of Delivery taken as ElLSCS+EmLSCS=LSCS and SPVD+Induced Vaginal Delivery=Vaginal Delivery

COVID	Mode of Delivery		
	LSCS	Vaginal Delivery	Total
Positive	325	175	500
Negative	463	537	1000
Total	788	712	1500

Chi-Square =46.745; p<0.0010
Interpretation: "We observed that there is a Statistical Significant association between COVID Disease and Mode of Delivery" (OR= 2.154).

CHART 9: BABY WEIGHT AT THE TIME OF BIRTH

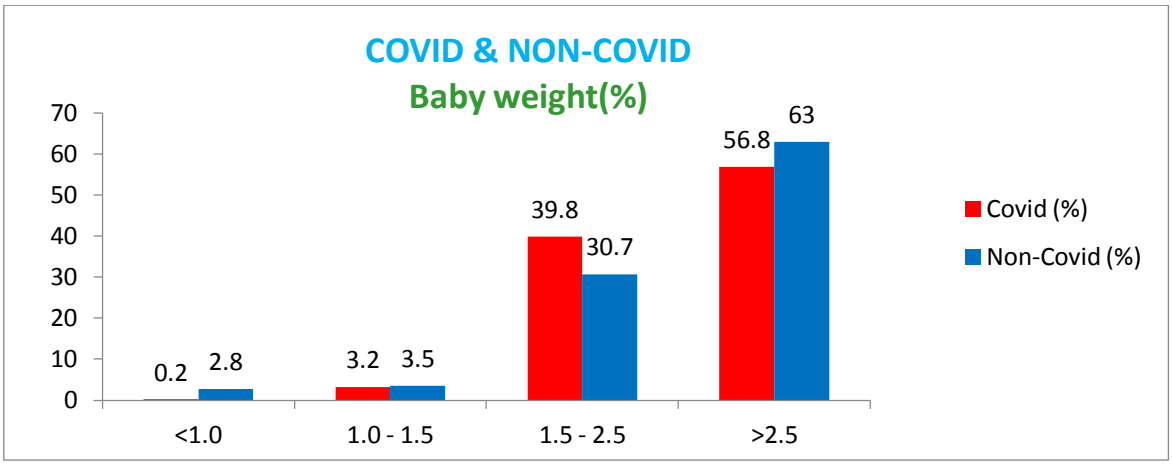

Chart 9 reveals that 56.8% of COVID and 63% non COVID pregnant women gave birth to more than 2.5kg babies.

CHART 10: APGAR SCORE OF BABIES

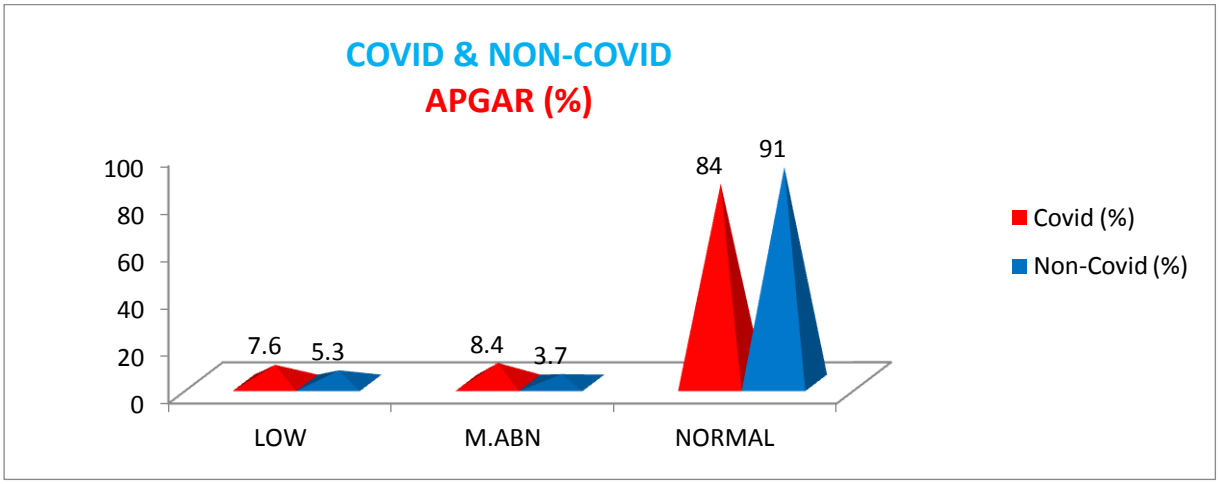

Chart 10 reveals that 84% of COVID and 91% of non COVID pregnant babies APGAR score were normal.

CHART 11: OUTCOME OF BABY

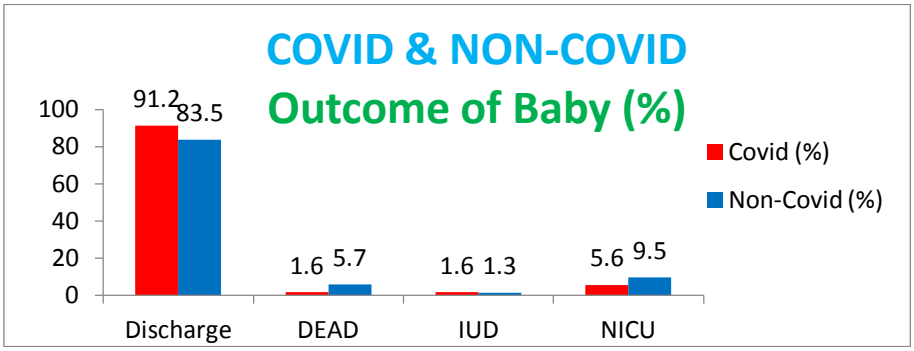

Chart 11 reveals that babies of 91.2% COVID mothers and babies of 83.5% of non COVID mothers discharged healthy followed by babies of 5.6% COVID mothers and babies of 9.5% non COVID mothers admitted in NICU, babies of 1.6% COVID mothers, babies of 5.7% non COVID mother died at NICU, babies of 1.6% of COVID mother,1.6% of COVID mother, of 1.3% of non COVID mothers had still birth.

Analysis: Baby outcome in COVID& non-COVID

COVID	Baby outcome		
	Death	Discharge	Total
Positive	16	484	500
Negative	70	930	1000
Total	86	1414	1500

Chi-Square = 8.906; $p<0.05$
Interpretation: "We observed that there is a statistical significant association between COVID Disease and Baby Outcome"(OR= 0.439) and p-value less than 0.05.

CHART 12: OUTCOME OF MOTHER

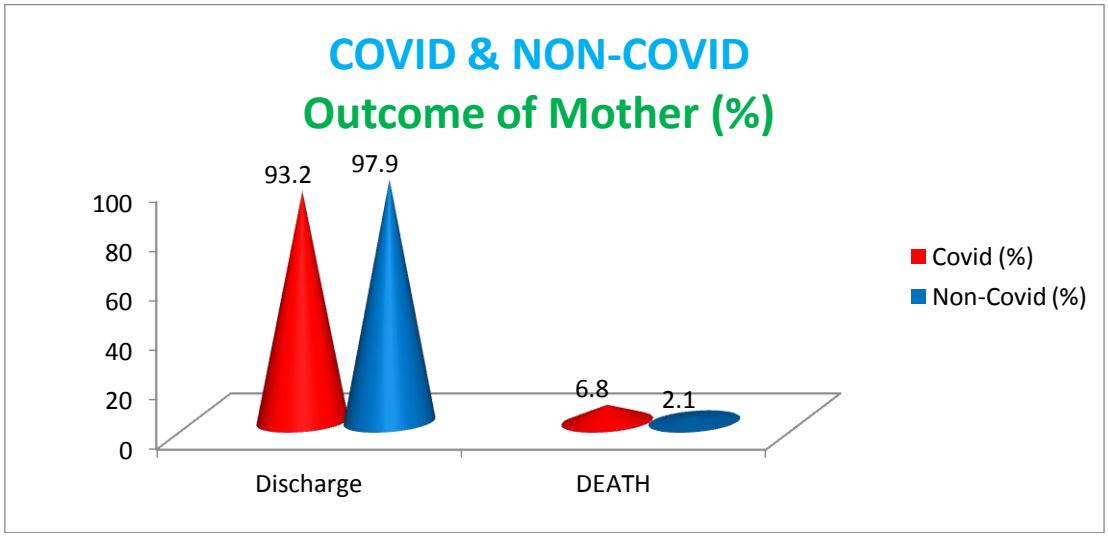

Chart 12 reveals 6.8% of mothers died in COVID group and 2.1% in non COVID.

Analysis: Mother Outcome in COVID& non-COVID

COVID	Mother outcome		
	Death	Discharge	Total
Positive	34	466	500
Negative	21	979	1000
Total	55	1445	1500

Chi-Square = 20.846; p<0.001(highly significant)
Interpretation: "We observed that there is a statistical significant association between COVID Disease and Mothers Outcome"(OR= 3.401) i.e. more deaths among COVID pregnant mother.

CHART 13: CAUSE OF DEATHS

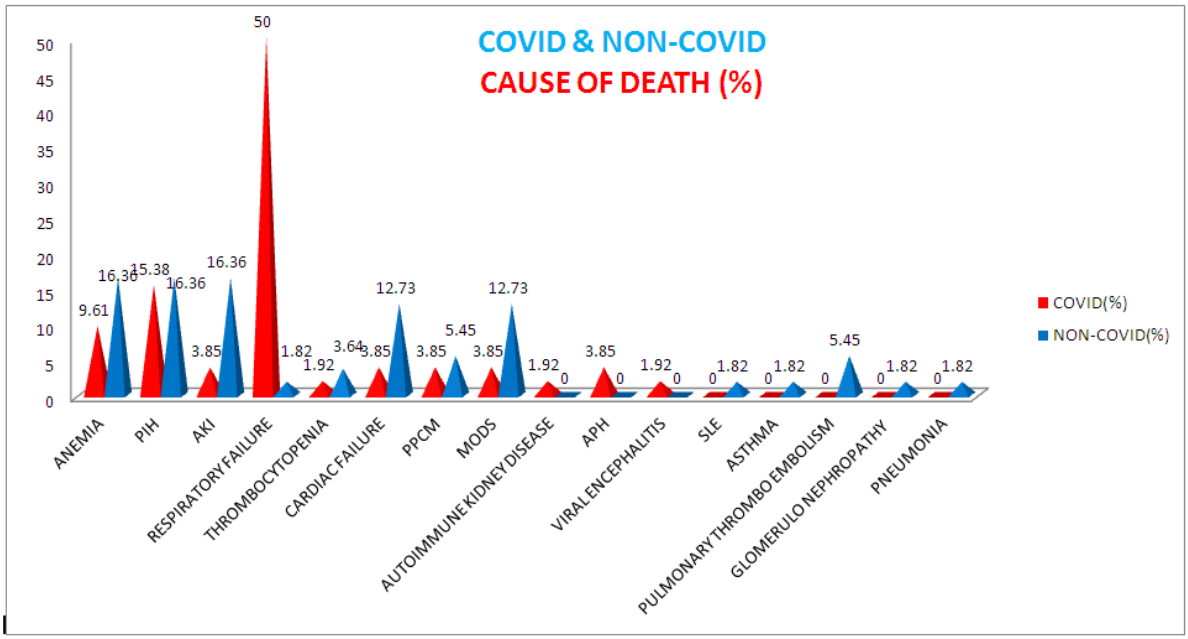

Chart 13 reveals that 50% of COVID cases died due to respiratory failure and 16.3% of non COVID cases died due to pregnancy induced hypertension related complications. Many of the pregnant women in the COVID group without comorbidities also died.

III. Discussion:

SARS coV-2 causes as infection known as COVID-19.As this is a new infection little is known about COVID-19,particularly related to its effects on pregnant women and infants and there is currently no definitive evidence based guidance specific to pregnant women regarding the evaluation or management of COVID-19.Our institute being the COVID care multi-speciality institute with round the clock availability of obstetrician, anaesthetist, paediatrician critical care physicians, lab facilities, operation theatre facilities and blood bank services, we are managing good number of antenatal and postnatal, COVID and non COVID cases and who require ICU admission. In view of above facts current study was done to know the impact of COVID-19 on maternal and fetal outcome. Our study showed that the clinical manifestations of pregnant women with COVID -19 were similar to those of general patients[7].In line with Huang et al[8], the most common presenting symptom was fever and cough. Asymptomatic infections were also reported in pregnant women. The need of mechanical ventilator was 25% which was higher compared to non COVID group which is 8.9%. We observed that there is a Statistical Significant association between COVID Disease and Mode of Delivery" (OR= 2.154) which is comparable to the study done by Chi J et[9]al,most common indication of LSCS in COVID is fetal distress in our study. We observed that COVID pregnant women gave birth to more preterm babies37.4% compared to non-COVID pregnant women, who gave birth to 25.3% preterm babies. We observed that there is a statistical significant association between COVID and Mothers Outcome" (OR= 3.401) i.e. more deaths among COVID pregnant mother which is similar with the study done by Zaigham et al[10] and Chi J et al[9].Most common cause of death in COVID 19 infected pregnant women during perinatal period is respiratory failure and in non COVID group complications of pregnancy induced hypertension is the most common cause of death followed by cardiac failure and also, We observed that there is a statistical significant association between COVID and Baby Outcome"(OR= 0.439) and p-value less than 0.05 it shows poor fetal outcome among COVID pregnant women.

IV. Conclusion:

The following conclusions were drawn from the study.

Although the majority of mothers discharged healthy maternal mortality is high in COVID compared with non COVID.

Caesarean section was more common than vaginal delivery for pregnant women with COVID 19.

Baby outcome also poor in COVID compared with non COVID due to preterm birth and fetal distress.

Vertical transmission could not be ruled out because the babies who were delivered during active COVID infection of mother had 0.4% of positive testing with COVID 19 which is very less.

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