

Background

Pregnancy is one of the risk factors associated with the severity of Coronavirus Disease 2019 (COVID-19). The perinatal complications also known to be increased when pregnant women become infected with COVID-19. However, there were not enough studies involving pregnant women with severe COVID-19, especially in Korea. The purpose of this study was to analyze the cases of pregnant women with COVID-19 infection with various severities, and to compare and describe the clinical course and the effects on pregnancy and perinatal prognosis according to severity.

Materials and Methods

We retrospectively analyzed the medical records of adults 18 years of age or older who were hospitalized in the Gachon University Gil Medical Center with PCR-confirmed COVID-19 and proved pregnancy, from February 1, 2020 to January 31, 2022. Through the epidemiological investigation report, the patient's medical history, obstetric history, date of diagnosis and variants of COVID-19, and vaccination history were collected. Clinical symptoms, oxygen demand, chest imaging, treatment, perinatal complications, fetal conditions, delivery results, and complications were collected through medical records.

Results

A total of 104 pregnant women with PCR-confirmed COVID-19 were hospitalized. The age at the time of diagnosis was 33 ± 4.24 (Mean \pm SD) years, and 4 patients (3.8%) were vaccinated with the COVID-19 vaccine. During hospital stay, the most common complaints were cough (99 patients, 95.2%) and fever (85 patients, 81.7%). Oxygen was applied in 40 patients (38.5%), and in 19 patients (18.3%) in severe cases. Thirty-seven patients (35.6%) delivered during isolation treatment. Critical COVID-19 patients' group has statistically significant higher rate of preterm delivery compared with mild COVID-19 patient group (31.6 % versus 6.3 %, $p=0.009$). One patient died from septic shock caused by multidrug-resistant *Acinetobacter baumannii* during treatment. A total of 39 babies were born, of which 4 received postnatal oxygen therapy.

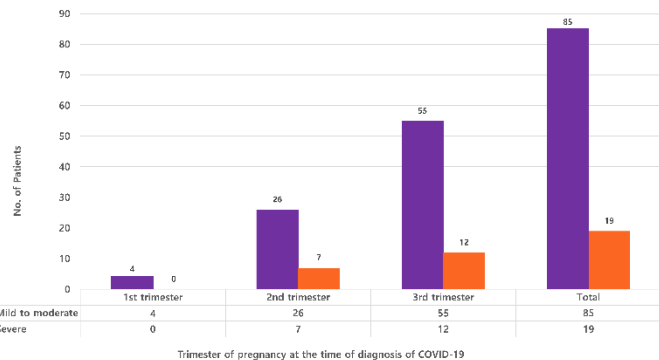
Conclusion

Pregnant women with COVID-19 had higher mortality rates, aggravation rates, and premature birth rates compared to non-pregnant patients of the same age. In a situation where effective and safe COVID-19 treatments for pregnant women are limited, it is necessary to increase the vaccination rate to prevent undesired outcomes in both mother and child.

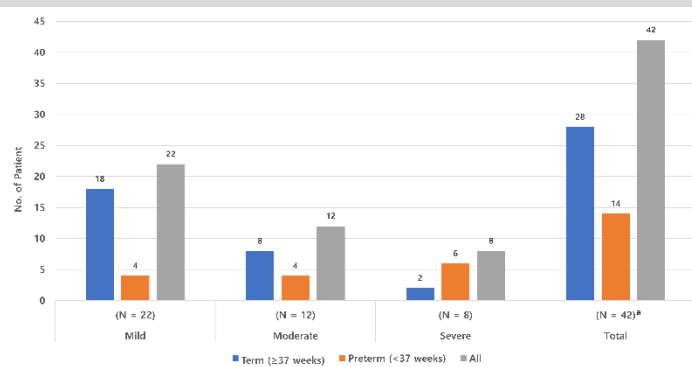
Gestational age at delivery	Disease severity			Total (n=42)
	Mild (n=22)	Moderate (n=12)	Severe (n=8)	
Full term (≥ 39 weeks)	8 (19%)	2 (5%)	0 (0%)	10 (24%)
Early term (37+0 to 38+6 weeks)	10 (24%)	6 (14%)	2 (5%)	18 (43%)
Late preterm (34+0 to 36+6 weeks)	2 (5%)	3 (7%)	4 (10%)	9 (21%)
Early preterm (< 34 weeks)	2 (5%)	1 (2%)	2 (5%)	5 (12%)
All ^a	22 (52%)	12 (29%)	8 (19%)	42 (100%)

◀ Table 1.
Perinatal outcomes according to COVID-19 severity

^a $P=0.007$
for the overall outcomes



▲ Figure 1. Severity of COVID-19 according to gestational age at the time of diagnosis of COVID-19



▲ Figure 2. Perinatal Outcomes according to COVID-19 Severity