



Perinatal outcomes according to past and present COVID-19 infection in pregnancy



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OBJECTIVE

The COVID-19 pandemic has led to unprecedented global health crisis. The objective of this study was to investigate maternal and perinatal outcomes according to past and present COVID-19 infection in pregnancy.

METHODS

- Retrospective study in Kangwon National University Hospital
- From March to April 2022
- Exclusion criteria :**
 - Preterm birth
 - Multiple pregnancy
- Total 105 pregnant women with singleton pregnancy delivered at 37 to 41 weeks of gestation**
 - Group 1 (non-infection) : 63 pregnant women (60.0%)
 - Group 2 (current infection) : 23 pregnant women (21.9%)
 - Group 3 (past infection) : 19 pregnant women (18.1%)

Table 1. Demographic characteristics of pregnant women in study population

Variables	Non-infection (Group 1) n=63	Present infection (Group 2) n=23	Past infection (Group 3) n=19	p-value (Group 1 vs. 2)	p-value (Group 1 vs. 3)	p-value (Group 2 vs. 3)
Maternal Age (years)	32.10 ± 4.33	32.00 ± 4.65	32.47 ± 3.94	0.996	0.946	0.940
Body weight (kg)	70.94 ± 14.43	76.10 ± 8.50	70.72 ± 19.16	0.343	0.998	0.486
Height (cm)	162.33 ± 5.46	161.95 ± 7.40	161.26 ± 3.60	1.000	0.362	0.495
BMI (kg/m ²)	26.75 ± 4.99	28.75 ± 2.82	27.33 ± 7.24	0.280	0.911	0.670
Gestational age (weeks)	38.60 ± 0.83	38.70 ± 1.09	38.64 ± 0.94	0.897	0.988	0.972
Birth weight (g)	3225.4 ± 381.0	3288.9 ± 390.9	3208.4 ± 352.4	0.789	0.985	0.791
Parity						
0	40 (63.5)	9 (39.1)	10 (52.6)	0.078	0.535	0.677
1	18 (28.6)	9 (39.1)	6 (31.6)			
2+	5 (7.9)	5 (21.7)	3 (15.8)			
Mode of delivery						
Vaginal delivery	17 (27.0)	2 (8.7)	2 (10.5)	0.070	0.136	0.841
Caesarean section	46 (73.0)	21 (91.3)	17 (89.5)			

*Note; Data are presented as Mean ± standard deviation or numbers (%).
* BMI, body mass index

- Perinatal outcomes**
 - Obstetrical complications (preeclampsia, gestational diabetes, premature rupture of membrane, others), maternal hospital days
 - Neonatal complications (transient tachypnea of newborn(TTN), hyperbilirubinemia), APGAR score, neonatal hospital days

RESULTS

- There were no significant differences in obstetrical complications, but maternal hospital day is longer than group 1 in group 2 (5.10 vs. 6.04, $p=0.014$).
- Group 2 had a higher neonatal complication than groups 1 and 3 (14.3% vs. 56.5%, $p<0.001$; 56.5% vs. 15.8%, $p=0.007$).
- In the case of TTN, group 2 was higher than group 1 (7.9% vs. 30.4%, $p=0.008$), and there was no difference between groups 2 and 3.
- As a result of comparing hyperbilirubinemia, group 2 was higher than groups 1 and 3 (9.5% vs. 30.4%, $p=0.017$; 30.4% vs. 0.0%, $p=0.008$).
- In the neonatal hospital day, group 2 was hospitalized longer than group 1.

Table 2 Perinatal outcomes according to past and present COVID-19 infection in pregnancy

Variables	Non-infection (Group 1) n=63	Present infection (Group 2) n=23	Past infection (Group 3) n=19	p-value (Group 1 vs. 2)	p-value (Group 1 vs. 3)	p-value (Group 2 vs. 3)
Obstetrical complication	7 (11.1)	2 (8.7)	3 (15.8)	0.746	0.585	0.480
Pre-eclampsia	2 (3.2)	0 (0.0)	0 (0.0)			
Gestational diabetes	1 (1.6)	0 (0.0)	2 (10.5)			
Premature rupture of membrane	4 (6.3)	1 (4.3)	0 (0.0)			
Others	0 (0.0)	0 (0.0)	1(5.3)			
Maternal hospital day	5.10 ± 1.24	6.04 ± 1.67	5.53 ± 0.96	0.014	0.453	0.443
Neonatal complication	9 (14.3)	13 (56.5)	3 (15.8)	<0.001	0.871	0.007
TTN	5 (7.9)	7 (30.4)	3 (15.8)	0.008	0.312	0.267
Hyperbilirubinemia	6 (9.5)	7 (30.4)	0 (0.0)	0.017	0.162	0.008
APGAR score						
1min	8.65 ± 0.79	8.26 ± 0.75	8.68 ± 0.58	0.106	0.985	0.193
0-4	1 (1.6%)	0 (0.0%)	0 (0.0%)	0.543	0.581	-
5min	9.67 ± 0.60	9.26 ± 0.62	9.74 ± 0.45	0.019	0.898	0.033
0-6	0 (0.0%)	0 (0.0%)	0 (0.0%)	-	-	-
Neonatal hospital day	5.44 ± 2.63	7.39 ± 2.50	5.58 ± 1.31	0.006	0.978	0.058

Values are given as the mean ± standard deviation or number (%)

TTN, transient tachypnea of newborn

CONCLUSION

In full-term singleton pregnant women, there was no significant difference in obstetric complications, but it was found that the TTN and hyperbilirubinemia of newborns were higher in newborns delivered during COVID-19 infection. It is better to delivery in a hospital that can prepare for the complications of the newborn.