



CLINICAL PROFILES AND OUTCOMES OF NEONATES BORN TO COVID-19 CONFIRMED MOTHERS IN A TERTIARY GOVERNMENT HOSPITAL IN NUEVA ECJA, PHILIPPINES: A TWO-YEAR RETROSPECTIVE STUDY

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BACKGROUND

- COVID-19 is an acute respiratory illness affected patients of all age groups worldwide¹
- Pregnant women are among the populations susceptible to SARS COV-2 and are more prone to experiencing severe complications²
- Neonates are uniquely vulnerable population demographic with varying levels of risk and susceptibility to COVID-19 infection.³
- According to a local study, most all of the COVID-19-infected mothers' neonates were full-term stable babies and generally discharged improved.⁴
- The effects of COVID-19 on newborns are tackled in this study.

OBJECTIVES

- GENERAL OBJECTIVE:
 - To determine the clinicodemographic profile and outcomes of neonates born to COVID-19 confirmed mothers
- SPECIFIC OBJECTIVES:
 - To describe the demographic profile of neonates to COVID-19 confirmed mothers according to age of gestation, sex, birthweight, birth length, head circumference, singularity of birth
 - To describe clinical presentation of neonates according to: APGAR scores, activity, respiratory symptoms, color, amniotic fluid characteristics, oxygen saturation at birth.
 - To describe the profile of neonates according to laboratory findings: complete blood count with platelet count, chest X-ray, COVID-19 NPS RTPCR and
 - Maternal health and COVID-19 status.

METHODS

This is a retrospective chart review of neonates born to COVID-19 confirmed mothers delivered in a tertiary government hospital from March 2020 to March 2022

RESULTS

- Of the 242 neonates, majority were born full term (97.5%), male (55.8%), singletons (98.8%), with weigh appropriate for gestational age (92.6%), and normal head circumference and birth length.
- Upon delivery, the majority were active (96.7%), asymptomatic (95.5%), had 95-100% oxygen saturation (97.5%), and clear amniotic fluid (74.3%).
- Majority were asymptomatic (n=179, 74%) and discharged immediately, while 63 (26%) had tachypnea, grunting, and alar flaring.
- Only 17 (7%) were tested for COVID-19 with negative results, 10 (4.1%) had pneumonia on chest x-rays, and majority (94%) had normal complete blood count results.
- Most of the mothers had no comorbidities (n=222, 91.7%), more than half were asymptomatic (n=130, 53%) while the rest only had mild symptoms (n=112, 46.3%) of COVID-19 infection.

Table 1. Profile of neonates born to COVID-19 confirmed mothers by age of gestation, sex, birth length, head circumference and singularity of birth

CHARACTERISTICS	N=242	PERCENTAGE	
AGE OF GESTATION	Term	236	97.5%
	Preterm	6	2.5%
SEX	Female	107	44.2%
	Male	135	55.8%
BIRTH WEIGHT	AGA	224	92.6%
	LGA	1	0.4%
	SGA	17	7.0%
BIRTH LENGTH	<40 cm	4	1.7%
	46-50 cm	77	31.8%
	>50 cm	142	58.7%
	41-45 cm	2	7.9%
HEAD CIRCUMFERENCE	34-36 cm	88	36.4%
	31-33 cm	120	49.6%
	<30 cm	22	9.1%
SINGULARITY OF BIRTH	>36 cm	12	5.0%
	Singleton	239	98.8%
	Multiple/twin	3	1.2%

Table 2. Clinical presentation of neonates born to COVID-19 confirmed mothers

CHARACTERISTICS	N=242	PERCENTAGE	
APGAR 1 ST MINUTE	More than 7	234	96.7%
	Less than 7	8	3.3%
APGAR 5 TH MINUTE	More than 7	239	98.8%
	Less than 7	3	0.1%
ACTIVITY	Active	234	96.7%
	Limp	8	3.3%
	None	231	95.5%
RESPIRATORY SYMPTOMS	Grunting	6	2.5%
	Alar flaring	3	1.2%
	Chest retractions	2	0.8%
COLOR	Pinkish	235	97.1%
	Cyanotic	3	1.2%
	Pale	4	1.7%
AMNIOTIC FLUID CHARACTERISTICS	Clear	180	74.3%
	Meconium stained	62	25.7%
OXYGEN SATURATION AT BIRTH	95 - 100%	231	97.5%
	90 - 94%	4	1.7%
	85 - 89%	6	2.5%
	84% and below	1	0.4%

Table 3. Clinical Profiles according to Laboratory findings, Chest X-Ray and COVID-19 RT PCR

CHARACTERISTICS	N=17	PERCENTAGE	
Complete blood count	WBC		
	<4x10 ⁹ cells/L	0	0%
	Normal	17	100%
	>30x10 ⁹ cells/L	0	0%
	Hemoglobin		
	<14g/dl	1	5.9%
>14g/dl	16	94.1%	
Chest X-Ray	Platelet		
	<100x10 ⁹ cells/L	1	5.9%
	>100x10 ⁹ cells/L	16	94.1%
Pneumonia	Pneumonia	10	58.9%
	Respiratory distress syndrome	4	23.5%
	Normal	3	17.6%
COVID-19 NPS RT PCR	Positive	0	0%
	Negative	17	100%

WBC=white blood cell, NPS= Nasopharyngeal swab, RT PCR= Reverse transcriptase polymerase chain reaction

Table 4. Profile of newborns by outcome and length of stay

CHARACTERISTICS	N=242	PERCENTAGE	
OUTCOME	Directly discharged	179	74%
	Refused admission	46	19%
	Recovered	6	2.4%
	Died	10	4.1%
	Went home per request	1	0.4%
LENGTH OF STAY	0 to 3 days	233	96.2%
	4 to 6 days	3	1.2%
	7 days and above	6	2.5%

Table 5. Profile of newborns by maternal healthy and COVID-19 status

CHARACTERISTICS	N=242	PERCENTAGE	
MATERNAL HEALTH STATUS	No co-morbidity	222	91.7%
	Hypertension	17	7.0%
	Diabetes mellitus	3	1.2%
MATERNAL COVID-19 STATUS	Asymptomatic	130	53.7%
	With mild symptoms	112	46.3%



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CONCLUSION

- In summary, majority of the neonates born to COVID-19 confirmed mother were male, term, and born singleton.
- Furthermore, most neonates born to COVID-19 confirmed mother had birth weights appropriate for gestational age.
- Majority had a head circumference of 31 to 33 cm and a birth length above 50 cm.
- Additionally, most neonates born to COVID-19 confirmed mother had APGAR scores of 7-10 in both 1st and 5th minute of life.
- Clinically, neonates were active and had no respiratory difficulties at birth, and mostly were pinkish in color with 95-100% oxygen saturation and had no other symptoms exhibited.
- Also, the amniotic fluid characteristic was clear of majority of neonates upon delivery, and most of the neonates were discharged from the hospital after 1 to 3 days upon delivery.
- This study revealed that COVID-19 confirmed mothers were mostly asymptomatic and majority had no comorbidities.
- In general, Maternal COVID-19 infection was not associated with morbidity, mortality or increase in the length of hospital stay of the neonates after delivery.

RECOMMENDATIONS

- According to the study's findings, neonates born to COVID 19 confirmed mothers have a favorable outcome.
- Essential newborn care may still be done without delay even if the mother is positive with COVID-19 infection.
- The routine hearing test and newborn screening should be facilitated before discharge from hospital.
- Close follow-up is recommended for further evaluation of the newborn on its neonatal period

REFERENCES

- Zamaniyan, M., Ebadati, A., Aghajani, S., Rahmani, Z., Haghshenas, M., & Azizi, S. (2020). Preterm delivery, maternal death, and vertical transmission in a pregnant woman with COVID-19 infection. *Prenatal diagnosis*, 40(13), 1759-1761. <https://doi.org/10.1002/pnd.5713>
- Juan, J., Gil, M. M., Rong, Z., Zhang, Y., Yang, H., & Poon, L. C. (2020). Effect of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcome: systematic review. *Ultrasound in obstetrics & gynecology: the official journal of the International Society of Ultrasound in Obstetrics and Gynecology*, 56(1), 15-27. <https://doi.org/10.1002/ulog.24389>
- Troutman De Rose, D. U., Plesigili, F., Ronchetti, M. P., Santisi, A., Bersani, I., Datta, A., Danhaive, O., Auriti, C., & Study Group of Neonatal Infectious Diseases of The Italian Society of Neonatology (SIN) (2020). Novel Coronavirus disease (COVID- 19) in newborns and infants: what we know so far. *Italian journal of pediatrics*, 46(1), 56. <https://doi.org/10.1186/s13052-020-00920-y>
- Maternal and Neonatal Outcomes of Pregnant Women with Clinically Confirmed COVID-19 Admitted at the Philippine General Hospital. (2021). *Acta Medica Philippina*, 55 No 2 (Philippine General Hospital COVID -19 Issue). <https://doi.org/10.47782/actm.552.2863>