

Longitudinal Impact of COVID-19 on Maternal, Obstetric and Neonatal Outcomes Within a Single Healthcare System

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Abstract

BACKGROUND: Coronavirus disease 2019 (COVID-19) during pregnancy is associated with adverse maternal and neonatal outcomes. The negative impact on pregnant women is not well understood. Our primary objective was to describe and compare the longitudinal maternal, obstetric, and neonatal outcomes Pre- and Post-COVID-19 pandemic onset within a single healthcare system.

METHODS: We performed a retrospective chart review of electronic medical records at 4 hospitals for pregnant women who gave birth between March 1, 2019-March 30, 2022. The data was divided into Pre-COVID-19 (March 1, 2019-February 29, 2020) and Post-COVID-19 (March 1, 2020-March 31, 2022). Outcomes for the two groups were compared using a t-test. $P \leq 0.05$ was considered significant.

RESULTS: The total number of births is $N=18956$. There were 6166 pregnant women included in the Pre-COVID-19 group and 12790 in the Post-COVID-19 group. The baseline characteristics, including mean maternal age (28.1 vs 28.2 years, $p=0.275$) and race, were similar. Notably, Post-COVID-19 there were more pregnancies complicated by: gestational diabetes (2.3% vs 2.9%, $p=0.015$), preterm birth (22.2% vs 23.5%, $p=0.039$), preeclampsia (1.4% vs 2.2%, $p=0.001$), HELLP (0.0% vs 0.1%, $p=0.043$), excessive bleeding (0.1% vs 0.3%, $p=0.042$), cephalopelvic disproportion (0.3% vs 0.5%, $p=0.022$), fetal intolerance to labor (4.2% vs 6.1%, $p=0.000$), and readmission for vaginal bleeding (4.0% vs 7.2%, $p=0.049$).

DISCUSSION & CONCLUSION: The COVID-19 pandemic is associated with worse maternal and neonatal outcomes even if no diagnosis was made at the delivery episode. The large number of patients included, and the population health approach our study followed, are strengths that allow for counseling on pregnancy outcomes in the Post-COVID-19 era. Our study emphasized the epidemiological impact of the pandemic on the pregnant population at our institution and highlights the need for further studies to delineate its underlying pathophysiology.