

Coronavirus Disease 2019 (COVID-19) in Pregnancy and the Risk of Hypertensive Disorders of Pregnancy: A Retrospective Cohort Study

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Abstract

Objective: To evaluate the association of COVID-19 status in pregnant women and hypertensive disorders of pregnancy. **Design:** Retrospective Cohort Study **Setting:** Multicenter study from a large metropolitan hospital system **Population:** Pregnant patients who tested positive for COVID-19 **Methods:** Patients who tested positive for COVID-19 during their pregnancy and delivered (index cases) were compared to the three subsequent deliveries of patients who tested negative (controls) at the same institution. We evaluated the impact of COVID-19 on the development of hypertensive disorders of pregnancy. We also evaluated the association of these disorders with maternal characteristics; demographics; prior pregnancy complications; current pregnancy complications; COVID-19 severity; laboratory values and inflammatory markers; and maternal and fetal outcomes. Univariable analysis was conducted with Student's t-test, the chi-squared test and analysis of variance. Multivariable analyses were done using linear and logistic regression models. **Main Outcome Measures:** The incidence of hypertensive disorders of pregnancy in SARS-CoV-2 positive patients compared to SARS-CoV-2 negative patients. **Results:** Compared with pregnancies negative for SARS-CoV-2 infection, maternal SARS-CoV-2 infection was associated with an increased risk for hypertensive disorders of pregnancy (OR 3.68, 95% CI 1.67 -8.10). Overall rates of preeclampsia with severe features were significantly higher in patients with a COVID-19 diagnosis (18.6% vs 7.1%, p=0.006). An early SARS-CoV-2 infection (prior to 32 week's gestation) conferred a higher risk of hypertensive disorders in pregnancy compared to SARS-CoV-2 infections diagnosed after 32 weeks' gestation (OR=6.29, CI 1.64-24.07; p=0.007). **Conclusion:** COVID-19 is a risk factor for hypertensive disorders of pregnancy. **Funding:** None **Conflicts of Interest:** None

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