

Severe COVID-19 infection and associated laboratory abnormalities and perinatal outcomes

Nguyen, P. , El-Kady, D. , Rosner, J. , Dinglas, C. ,
Mount Sinai South Nassau, OCEANSIDE, United States

Objective

Clinical severity of COVID-19 infection has demonstrated an increased risk of maternal and perinatal complications. Among the general population, COVID-19 patients requiring hospitalization have been found to have significant laboratory abnormalities and have been associated with disease severity. In pregnancy, these lab abnormalities are not well-studied. Our objective is to compare laboratory features and perinatal outcomes in severe cases versus mild-moderate cases and negative controls.

Methods

This is an IRB-exempt, retrospective chart review of all PCR confirmed COVID-19 positive obstetrical patients admitted to our hospital from March 30th, 2020 to July 1st, 2021. They were then categorized based on severity of COVID-19 infection. Severe and critical cases were characterized as patients with lower respiratory tract disease requiring inpatient hospitalization for respiratory support to maintain oxygen saturation levels 95% or greater. Severe cases were aged matched (+/- 5 years) and BMI matched (+/- 5 kg/m²) to mild-moderate cases as well as negative controls in a 1: 2 ratio. One-way ANOVA and T-test was performed evaluating baseline labs on admission for COVID-19. Additionally, birth outcomes were compared between mild-moderate COVID-19 infection versus severe and critical COVID infection in pregnant patients using Chi-square analysis.

Results

104 patients had a positive COVID-19 PCR test upon hospital admission. 11 patients were hospitalized for severe or critical COVID-19 infection: 10 were severe, and 1 was considered critical. Patients with severe infection demonstrate a lower WBC, higher neutrophil count, lower lymphocyte count and N/L ratio ($P < 0.05$) with no difference in platelet count or liver function tests. There was an increased risk of fetal growth restriction associated with severe COVID-infection (Table).

Conclusion

Admission laboratory findings may predict severity of COVID-19 infection, specifically neutrophil and lymphocyte counts and is also associated with fetal growth restriction.