autopsy for the neonate. Later, the blood culture obtained on the admission day revealed the patient had a coinfection with *Streptococcus parasanguinis*. The patient's health continued to deteriorate, requiring the combined supportive treatment of CRRT, ECMO, antibiotics and antiviral treatment, immunoglobulin, and steroids. Fortunately, she responded to the treatment, survived, and subsequently recovered, and she was discharged on March 17, 2020 ([Figure](#), C−F).

The surge in IL-6 and remarkably elevated levels of CRP, PCT, and D-dimer, accompanied with severe leucopenia, lymphopenia, and a rapid deterioration in clinical status, suggested the presence of a CSS in this patient. This case highlights the need to be vigilant for clinical and laboratory evidence of a cytokine storm triggered by COVID-19 in pregnant women. All pregnant women with COVID-19 should be closely observed and screened for hyperinflammation. The key to clinical improvement and survival of this pregnant woman with severe COVID-19 was the rapid identification and control of the hyperinflammatory response and the reduction of inflammatory mediators by using a combination of CRRT, ECMO, and other therapies. ∎

Xiaoping Wang, MD
Dongna Wang, MD

Shuming He, MD
Affiliated Xiaolan Hospital
Southern Medical University
No. 65, Jucheng Rd.
Xiaolan Town, Zhongshan City
528415, Guangdong Province, China
13703036288@139.com

All authors contributed equally to this work.

REFERENCES

1. Hantoushzadeh S, Shamshirsaz AA, Aleyasin A, et al. Maternal death due to COVID-19. Am J Obstet Gynecol 2020;223:109.e1−16.
2. Liu Y, Chen H, Tang K, Guo Y. Clinical manifestations and outcome of SARS-CoV-2 infection during pregnancy. J Infect 2020. [Epub ahead of print].
3. Hirshberg A, Kern-Goldberger AR, Levine LD, et al. Care of critically ill pregnant patients with coronavirus disease 2019: a case series. Am J Obstet Gynecol 2020. [Epub ahead of print].
4. Amorim MMR, Soligo Takemoto ML, Fonseca EBD. Maternal deaths with coronavirus disease 2019: a different outcome from low- to middle-resource countries? Am J Obstet Gynecol 2020. [Epub ahead of print].

Implementation of universal testing for severe acute respiratory syndrome coronavirus 2 in pregnant women with intended admission for delivery

TO THE EDITORS: The Cleveland Clinic Foundation recently implemented a policy of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) testing for all pregnant patients with planned delivery or admitted for labor at obstetrical units in Ohio. We present our experience with the feasibility of testing, issues of patient autonomy, and prevalence rates. In contrast to a recent report[1] on universal screening of pregnant women residing in an area with a high prevalence of disease, our experience is derived from a population experiencing a low prevalence of active disease.

Patients with planned delivery were tested 3 to 5 days before admission using a Centers for Disease Control−approved real-time polymerase chain reaction testing platform. Preadmission testing was available at 2 sites. Patients presenting in spontaneous labor were tested using a rapid platform (Xpert Xpress SARS-CoV-2; Cepheid, Sunnyvale, CA). Testing was "opt-in." Patients who declined preadmission testing were offered a rapid test at the time of admission.

From May 1, 2020, to May 15, 2020, 518 women were admitted for delivery. All 518 women had orders for testing placed. Overall, 492 results were obtained within the time frame intended for clinically relevant decision making (164 for preadmission testing and 328 for rapid testing). Twenty-six patients did not have results available within a clinically relevant time frame (12 opted out, 7 presented in rapid labor with delivery <2 hours after admission, and 7 had undetermined reasons). There were 10 patients (2%) with positive results, only 3 of whom were symptomatic. Of the 10 positive cases identified in this testing protocol, only 2 had significant medical comorbidities (both with a body mass index of >30 kg/m^2). None of the 7 asymptomatic patients developed any coronavirus disease 2019 (COVID-19)−related symptoms or obstetrical complications during the delivery hospitalization.

Furthermore, none of the 3 symptomatic patients required medical treatment beyond standard obstetrical therapies during the delivery hospitalization. Our finding that most COVID-19—positive patients were asymptomatic is similar to the findings of Khalil et al.[2] In addition, our finding that COVID-19—positive patients generally experience uncomplicated delivery and postpartum courses is similar to the findings reported for a cohort from New York City.[3] As experience accumulates, perinatal risks of infection from asymptomatic patients will become clearer.

Our experience indicates that a policy of universal testing for SARS-CoV-2 before delivery is feasible, well accepted by patients, and can be performed in a clinically relevant time frame to assist in appropriate use of personal protective equipment and assignment of hospital resources. Of the 10 cases, the finding of positive test results in 7 asymptomatic patients (70%) suggests the need for such a protocol, even in areas experiencing a low prevalence of disease. ▪

Kathleen M. Berkowitz, MD
Oluwatosin Goje, MD

Jennifer Eaton, DO
Maternal-Fetal Medicine
Cleveland Clinic
Cleveland, OH
berkowk@ccf.org

The authors report no conflict of interest.

REFERENCES

1. Vintzileos WS, Muscat J, Hoffmann E, et al. Screening all pregnant women admitted to labor and delivery for the virus responsible for coronavirus disease 2019. Am J Obstet Gynecol 2020. [Epub ahead of print].
2. Khalil A, Hill R, Ladhani S, Pattisson K, O'Brien P. Severe acute respiratory syndrome coronavirus 2 in pregnancy: symptomatic women are only the tip of the iceberg. Am J Obstet Gynecol 2020. [Epub ahead of print].
3. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal screening for SARS-CoV-2 in women admitted for delivery. N Engl J Med 2020;382: 2163–4.

Potential challenges in managing obstetrical patients with coronavirus disease 2019

TO THE EDITORS: We read with great interest the article by Yan et al.[1] The authors must be congratulated for their robust analysis of 116 obstetrical patients with coronavirus disease 2019 (COVID-19), in which no maternal deaths and a low rate of spontaneous preterm birth were reported.

Although they are reassuring, we must not take for granted the largely optimal outcomes reported. Being the largest series of pregnant patients with COVID-19 to date, the authors present the most comprehensive analysis we have witnessed so far on this distinct group of patients. However, their findings must be interpreted with the caveats they have highlighted. Only slightly over half of the included patients had laboratory-diagnosed COVID-19, among which there was a substantially higher rate of preterm delivery before 37 weeks' gestation (32.0% vs 10.2% in clinically diagnosed patients). Furthermore, although no association was identified between COVID-19 and risk of spontaneous preterm birth, the authors found an increased risk of any preterm birth before 37 weeks' gestation. This was despite the fact that among the 18 cases that had presented before 34 weeks' gestation, 14 were still ongoing at the point of study completion.

It is recognized that physiological maternal adaptations to pregnancy predispose pregnant patients to a more severe case of pneumonia and hence to higher maternal-fetal morbidity and mortality, especially owing to their inadvertent immunosuppressed state. Increased complication rates have been reported in pregnant patients with swine flu (H1N1) and severe acute respiratory syndrome coronavirus (SARS-CoV) infection.[2] At present, little is known regarding the interplay between COVID-19 and pregnancy, but there is a possibility of COVID-19 following a similar clinical course as SARS-CoV and even H1N1.

In general, peripartum women are susceptible to disease progression to acute respiratory disease syndrome. Mechanical ventilation in pregnant patients can be technically challenging because of the difficulty with prone positioning. Extracorporeal membrane oxygenation (ECMO) has been shown to have favorable maternal and fetal survival rates in peripartum patients and should be considered early as a salvage therapy.[3] Another potentially challenging complication is acute kidney injury (AKI). Outcomes of continuous renal replacement therapy for AKI in pregnancy are poor. Furthermore, renal complications for pregnant patients on ECMO have been shown to be a risk factor for poor survival outcome.[4]

Nonetheless, on a more optimistic note, Yan et al[1] have managed an impressive feat in their analysis of the 116 obstetrical patients with COVID-19. The current study has laid the groundwork for future research to build upon and address the questions that remain on this topic. ▪

Kyla Ng Yin
Barts and the London School of Medicine and Dentistry