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Preeclampsia treatment in severe acute respiratory syndrome coronavirus 2

TO THE EDITORS: We have all faced unprecedented challenges caring for pregnant women during the coronavirus 2019 (COVID-19) pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) because of limited experience and rapidly evolving guidelines. We took great interest in the article "Labor and Delivery Guidance for COVID-19" by Boelig et al[1] published in the *American Journal of Obstetrics and Gynecology*. They noted a paucity of experience with magnesium for neuroprotection or seizure prevention in patients who had a positive test result for SARS-CoV-2. Given the potential respiratory complications associated with magnesium sulfate, there is a theoretical concern that treatment could exacerbate SARS-CoV-2 infection.

We present the first reported case of management of severe preeclampsia with known maternal SARS-CoV-2 infection, which included magnesium sulfate administration.

A 26-year-old woman at 37 weeks' gestation diagnosed as having SARS-CoV-2 infection for symptoms of sore throat and "allergies" also received a diagnosis of preeclampsia based on sustained elevated blood pressures of >140/90 mm Hg and proteinuria.

Intrapartum, she reported dyspnea and a sensation of "drowning," although she maintained oxygen saturation greater than 97% on room air and lung examination was clear to auscultation bilaterally with no crackles or wheezes. She began to experience sustained severe-range blood pressures of 175/111 mm Hg and 166/101 mm Hg with mild headache. Serum labs were notable for aspartate transaminase, 131 U/L; alanine aminotransferase, 133 U/L; creatinine, 0.67 mg/dL; and platelets, 199 k/μL. Thromboelastography was notable for increased platelet and fibrinogen activity. There was a brief pause for consideration if intravenous labetalol could be given in patients with SARS-CoV-2 infection, given the recommendation to avoid with reactive airway disease owing to risk of bronchoconstriction.[2,3] Similarly, a quick literature review was conducted regarding magnesium sulfate infusion in this at-risk patient population given its possibility to worsen respiratory status.[4] Given normal oxygenation and benign lung examination, the decision was made to manage severe-range blood pressure with standard first-line agent of 20 mg of intravenous labetalol. Next, a loading dose of 4 g of intravenous magnesium sulfate was initiated for seizure prevention, followed by a maintenance rate of 2 g per hour infusion. Her blood pressure improved to 147/85 mm Hg and remained on average 130s/80s mm Hg after these interventions, and portable anteroposterior chest x-ray examination revealed no acute cardiopulmonary process. The patient had no reported exacerbation of pulmonary symptoms during magnesium sulfate administration and was able to maintain oxygen saturation greater than 97% on room air during treatment.

She progressed to 10-cm cervical dilation and pushed for 120 minutes with a category 2 fetal heart tracing owing to recurrent variable decelerations with slow return to baseline, with subsequent uncomplicated forceps-assisted vaginal delivery for fetal indication and maternal exhaustion.

She delivered a healthy male infant weighing 3042 g with 1- and 5-minute Apgar scores of 7 and 9, respectively. Delayed cord clamping was performed without placing infant skin-to-skin. The awaiting Pediatrics team took the infant to the neonatal intensive care unit (ICU) for assessment where the result of the SARS-CoV-2 test was negative. The patient declined separation from her infant; therefore, the infant remained in her postpartum isolation room in a bassinet 6 feet away from the bed. The patient initially hand expressed and then moved to breastfeeding after washing her hands well and while wearing a mask. The infant was incidentally noted to have penile torsion and was referred to outpatient Pediatric Urology.

Blood pressures remained in mild range after delivery, and intravenous magnesium sulfate therapy at a maintenance rate of 2 g per hour was continued for 24 hours after delivery. After evaluation by dedicated SARS-CoV-2 ICU team, the patient did not meet inclusion criteria for clinical trial or compassionate use of remdesivir given clinical stability. She was immediately ambulatory after delivery; thus, we elected against venous thromboembolism pharmacoprophylaxis in favor of mechanical prophylaxis. The patient was discharged home at postpartum day 2 with no symptoms suggestive of SARS-CoV-2 infection and did not require oral medication for blood pressure control.

There is currently a lack of data regarding the safety of magnesium sulfate administration in patients with SARS-CoV-2 infection. In this case, the patient had mild respiratory symptoms with normal oxygenation on room air and a normal clinical examination and chest x-ray. Given the severely elevated blood pressures with headache in the setting of preeclampsia, the decision was made to proceed with magnesium sulfate administration. We observed that this patient was able to tolerate a loading dose of 4 g of magnesium sulfate followed by 2 g per hour maintenance rate without issue. In addition, there was concern for administering intravenous labetalol for blood pressure control given the possibility of respiratory compromise; this drug was fortunately administered without adverse consequence and successfully lowered blood pressure with a 20 mg dose. Our limited clinical experience supports the authors' expert opinion that "Magnesium sulfate may be used as indicated in patients with mild/moderate symptoms" in SARS-CoV-2 infection.

Noor Joudi, MD
Department of Obstetrics and Gynecology
Stanford University
300 Pasteur Drive, HG 332
Stanford, CA 94305-5317
njoudi@stanford.edu

Andrea Henkel, MD
Stanford University Hospital
Stanford, CA

W. Scott Lock, MD
San Mateo Medical Center
San Mateo, CA

Deirdre Lyell, MD
Stanford University Hospital
Stanford, CA

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