

1 **Preeclampsia Treatment in SARS-CoV-2**

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39 We have all faced unprecedented challenges caring for pregnant women in the SARS-CoV-2 pandemic
40 with limited experience and rapidly evolving guidelines. We took great interest in AJOG's recent Boelig
41 *et al* "Labor and Delivery Guidance for COVID-19" (1). They note a paucity of experience with
42 magnesium for neuroprotection or seizure prevention in patients with SARS-CoV-2. Given potential
43 respiratory complications associated with magnesium sulfate, there is a theoretical concern that
44 treatment could exacerbate SARS-CoV-2 infection.

45

46 We present the first reported case of management of severe pre-eclampsia with known maternal SARS-
47 CoV-2 infection, including magnesium sulfate administration.

48

49 A 26-year-old woman at 37 weeks gestation diagnosed with SARS-CoV-2 for symptoms of sore throat
50 and "allergies" was also diagnosed with pre-eclampsia based on sustained elevated blood pressures
51 >140/90 and proteinuria.

52

53 Intrapartum, she reported dyspnea and a sensation of "drowning", although she maintained oxygen
54 saturation greater than 97% on room air and lung exam was clear to auscultation bilaterally with no
55 crackles or wheezes. She began to experience sustained severe range blood pressures of 175/111 and
56 166/101 with mild headache. Serum labs were notable for AST 131 U/L, ALT 133 U/L, creatinine 0.67
57 mg/dL, and platelets 199 k/uL. Thromboelastography (TEG) notable for increased platelet and
58 fibrinogen activity. There was brief pause for consideration if intravenous labetalol could be given in
59 patients with SARS-CoV-2, given the recommendation to avoid with reactive airway disease due to risk
60 of bronchoconstriction (2,3). Similarly, a quick literature review was conducted regarding magnesium
61 sulfate infusion in this at-risk patient population given its possibility to worsen respiratory status (4).
62 Given normal oxygenation and benign lung exam, the decision was made to manage severe-range blood
63 pressure with standard first-line agent of 20mg of intravenous labetalol. Next, a loading dose of 4g
64 intravenous magnesium sulfate was initiated for seizure prevention, followed by a maintenance rate of
65 2g per hour infusion. Her blood pressure improved to 147/85 and remained on average 130s/80s
66 following these interventions, and portable AP chest x-ray revealed no acute cardiopulmonary
67 process. The patient had no reported exacerbation of pulmonary symptoms during magnesium sulfate
68 administration and was able to maintain oxygen saturation greater than 97% on room air during
69 treatment.

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

73

74 She delivered a vigorous male infant weighing 3042g with Apgar scores of 7 and 9 at 1 and 5 minutes.
75 Delayed cord clamping was performed without placing infant skin-to-skin. The awaiting Pediatrics team
76 took infant to the NICU for assessment where SARS-CoV-2 testing resulted negative. The patient
77 declined separation from her infant; therefore, the infant remained in her postpartum isolation room in a
78 bassinet six-feet away from bed. The patient initially hand-expressed then moved to breastfeeding after
79 washing her hands well and while wearing a mask. The infant was incidentally noted to have penile
80 torsion and was referred to outpatient Pediatric Urology.

81

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

89

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

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