Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

and colleagues[2] also reported in the *American Journal of Obstetrics & Gynecology* that it is unknown whether severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can be transmitted from the mother to the fetus.[2]

The 2019 novel coronavirus (2019-nCoV) is considered as SARS-CoV-2 owing to the similar structure to the SARS-CoV. There is a possibility that the 2019-nCoV can be distributed to the entire body via the circulatory system. Furthermore, the 2019-nCoV potentially works by binding to the angiotensin-converting enzyme 2 (ACE2) receptor, which was previously proven by the Anat Levy group that the placentas constitute important sources of ACE2 during pregnancy.[3] We hypothesize that the 2019-nCoV is able to target the placenta directly by inducing viremia to infect the fetus through maternal-fetal vertical transmission. In addition, immunoglobulin M (IgM)-capture enzyme-linked immunosorbent assay (ELISA) provides an earlier and more efficient approach to the definite diagnosis of viral infection than RNA-based molecular tests.[4] Combining these 2 methods may improve the accuracy to confirm neonatal infection.

To confirm the assumption of no intrauterine vertical transmission of SARS-CoV-2 infection, the researchers should first confirm viremia and then quantify the load of virus in the blood. Concurrently, the RNA-based molecular tests should be used in the placenta and along with quantitative analysis of ACE2 expression to determine whether the virus interacts directly with placental tissue. The combination of RNA-based molecular tests and IgM-capture ELISA should be applied to diagnose infection in cord blood, gastric swab, rectal swab, and throat swab after the neonates are born.

Because of the 2019-nCoV outbreak, pregnant women may suffer severe obstetrical outcomes after 2019-nCoV infection. Therefore, more rigorous evidence should be provided to verify the potential vertical transmission of the virus to prevent the spread of infection and to improve the obstetrical outcomes. ■

Ping Li, MD
Mingkun Xie, MD
Weishe Zhang, MD, PhD
Department of Obstetrics
Xiangya Hospital
Central South University Changsha
Changsha 410008, Hunan, China
Hunan Engineering Research Center of Early Life Development and Disease Prevention
Xiangya Hospital
Central South University
Changsha, Hunan, China
1471674914@qq.com

The authors report no conflict of interest.

This work was supported by a research grant from New Coronary Pneumonia Special Project of Changsha Science and Technology Department Hunan Province China (kq2001051).

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 http://dx.doi.org/10.1016/j.ajog.2020.08.059

Antenatal corticosteroids and COVID-19: balancing benefits and harms

Check for updates

TO THE EDITORS: In a recent article, Rasmussen et al[1] recommend against the routine use of antenatal corticosteroids for fetal lung maturity in pregnant women with coronavirus disease 2019 (COVID-19). We believe this recommendation warrants further discussion. First, we would like to highlight that the impact of corticosteroid treatment in nonpregnant patients with COVID-19 is currently unclear, precluding conclusions about likely maternal harm in the context of COVID-19. Second, we argue that in these unique circumstances, decision-making about the use of antenatal corticosteroids should keep in mind that the absolute benefits of antenatal corticosteroids for fetal lung maturity changes on a week-by-week basis during pregnancy.

Rasmussen et al[1] supported their recommendation against routine administration of corticosteroids for fetal lung maturation by citing evidence that outside of pregnancy, corticosteroids were not beneficial for the treatment of the Middle East respiratory syndrome (MERS) and may have led to decreased MERS coronavirus clearance.[2] We believe it is important to better acknowledge the evolving state of evidence regarding corticosteroids in the treatment of COVID-19. A metaanalysis of observational data examining patients with viral pneumonia and acute respiratory distress syndrome

(ARDS) before this pandemic suggests corticosteroids may increase mortality[3]; however, these findings are likely due to confounding by indication (sicker patients were more likely to receive corticosteroids). In contrast, among 201 patients who tested positive for COVID-19 with ARDS in China, of whom approximately 40% (n=84) received corticosteroids, treatment was associated with lower mortality (hazard ratio, 0.38; 95% confidence interval [CI], 0.20−0.72).[4] A randomized trial investigating corticosteroid use in patients with severe COVID-19 is currently ongoing, suggesting there is still equipoise in this issue.[5]

As the evidence regarding corticosteroid treatment for COVID-19 evolves, decision-making on the use of antenatal corticosteroids for fetal lung maturation in the context of COVID-19 will be aided by clear information on the fetal benefits it is being weighed against. It is important to recognize that the absolute benefits of antenatal corticosteroids differ on a week-by-week basis as gestational age advances and the baseline risks of neonatal morbidity decrease. In births of <34 weeks' gestation, the absolute risk reduction of neonatal respiratory distress syndrome associated with antenatal corticosteroids is 128 fewer cases per 1000, from a baseline risk of 310 per 1000.[6] In contrast, we recently estimated that the absolute risk reduction of neonatal ventilation of >6 hours associated with antenatal corticosteroids in those born at 34 weeks' gestation is 24 fewer cases per 1000 (95% CI, 14−35), from a US population baseline risk of 64 per 1000, and at 36 weeks' gestation, it is 7 fewer cases per 1000 (95% CI, 4−9), from a baseline risk of 17 per 1000.[7,8]

As obstetrical care providers strive to provide the best care in these unique circumstances, considering week-by-week absolute benefits of antenatal corticosteroids allows us to best weigh potential harms and benefits of this treatment alongside our critical care colleagues. These conversations will be crucial to minimizing maternal harm while reducing the burden of neonatal respiratory morbidity in a time when ventilation resources are of paramount importance. ■

Jessica Liauw, MD, MHSc
Department of Obstetrics & Gynaecology
BC Women's Hospital
University of British Columbia
C420-4500 Oak St.
Vancouver V6H 3N1, British Columbia, Canada
jessica.liauw@medportal.ca

Serena Gundy, MD
Department of Medicine
Obstetric Medicine
McMaster University
Hamilton, Ontario, Canada

Bram Rochwerg, MD, MSc
Department of Medicine
McMaster University
Hamilton, Ontario, Canada

Department of Health Research Methods, Evidence, and Impact
McMaster University
Hamilton, Ontario, Canada

Jennifer A. Hutcheon, PhD
Department of Obstetrics & Gynaecology
University of British Columbia
Vancouver, British Columbia, Canada

J.A.H. is supported by a Canada Research Chair in Perinatal Population Health. This organization had no involvement in the writing of this letter or in the decision to submit the manuscript. The authors report no conflict of interest.

This letter cites research that was presented in a poster at the Society for Maternal-Fetal Medicine 40th Annual Pregnancy Meeting, Grapevine, TX, February 3−8, 2020.

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REPLY

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We greatly appreciate the interest in our work and the opportunity to respond to the issues raised. The letters by Sriwijitalai and Wiwanitkit and by Li and colleagues raise the issue of transplacental transmission of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1,2] Since the publication of our paper online on February 24, 2020,[3] several papers addressing this issue have been published, including a paper by Vivanti et al[4] that provides strong evidence for transplacental transmission of SARS-CoV-2. In this case report, the mother presented to the hospital at 35 weeks' gestation with symptoms of coronavirus disease 2019