Coronavirus disease 2019 in pregnancy: consider thromboembolic disorders and thromboprophylaxis

Check for updates

TO THE EDITORS: Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory distress syndrome coronavirus 2. This syndrome generally begins with respiratory symptoms that may progress to single-organ dysfunction (ie, respiratory failure) and then to multiorgan failure and death. In nonpregnant patients admitted to the intensive care unit with COVID-19 pneumonia, the frequency of venous thromboembolic disorders is 25% (20 of 81) detected by ultrasound examination of the lower extremities.[1] In another series of 184 patients with confirmed COVID-19 pneumonia, 31% of patients had venous or arterial thromboembolism (defined as acute pulmonary embolism, ischemic stroke, deep vein thrombosis, or myocardial infarction).[2] The mechanism whereby viral infection causes multiorgan dysfunction is believed to involve the release of inflammatory cytokines[3] that induce the production of tissue factor and activate thrombin. Elevated concentration of D-dimer (>1 μg/mL) is considered indirect evidence of increased thrombin generation and is associated with an increased risk of death (odds ratio, 18.4; 95% confidence interval, 2.6—128).[4] Anticoagulant treatment with low-molecular-weight heparin has been associated with improved prognosis in patients with severe COVID-19 infection, stratified by sepsis-induced coagulopathy score or D-dimer results.[5]

The optimal management of pregnant women with COVID-19 poses multiple challenges, ranging from screening for the virus on admission to labor and delivery, to management of the acutely ill parturient, anesthesia, and protection of healthcare personnel.[6] Although it was originally thought that pregnant women with COVID-19 were no more likely to develop severe morbidity or die, recent reports suggest that a subset may develop multiorgan failure and even die. Given that healthy pregnant women have evidence of increased generation of thrombin and a prothrombotic state, as well as increased intravascular inflammation that is exaggerated in the context of infection, such patients may be at an increased risk for thrombosis when affected by COVID-19. The International Society of Thrombosis and Haemostasis has generated a simple algorithm for the management of COVID-19 coagulopathy.[7] The recommendation has been made that low-molecular-weight heparin be considered in all such patients. This body of evidence should be considered by obstetricians caring for pregnant women with COVID-19. A coagulation profile to detect the presence of subclinical disseminated intravascular coagulation and the use of low-molecular-weight heparin for the prevention of thromboembolic disorders should be considered and discussed with physicians and patients. ∎

Gian Carlo Di Renzo, MD, PhD
Department of Obstetrics and Gynaecology
Centre for Perinatal and Reproductive Medicine
University of Perugia
Santa Maria della Misericordia University Hospital
06132 Perugia, Italy
Department of Obstetrics and Gynecology
I.M. Sechenov First Moscow State Medical University
Moscow, Russia
giancarlo.direnzo@unipg.it

Irene Giardina, MD, PhD
Department of Obstetrics and Gynecology
I.M. Sechenov First Moscow State Medical University
Moscow, Russia

The authors report no conflict of interest.

REFERENCES

1. Cui S, Chen S, Li X, Liu S, Wang F. Prevalence of venous thromboembolism in patients with severe novel coronavirus pneumonia. J Thromb Haemost 2020. [Epub ahead of print].
2. Klok FA, Kruip MJHA, van der Meer NJM, et al. Incidence of thrombotic complications in critically ill ICU patients with COVID-19. Thromb Res 2020. [Epub ahead of print].
3. Qin C, Zhou L, Hu Z, et al. Dysregulation of immune response in patients with COVID-19 in Wuhan, China. Clin Infect Dis 2020. [Epub ahead of print].
4. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet 2020;395:1054—62.
5. Tang N, Bai H, Chen X, Gong J, Li D, Sun Z. Anticoagulant treatment is associated with decreased mortality in severe coronavirus disease 2019 patients with coagulopathy. J Thromb Haemost 2020. [Epub ahead of print].
6. Ashokka B, Loh MH, Tan CH, et al. Care of the pregnant woman with COVID-19 in Labor and Delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel. Am J Obstet Gynecol 2020;223:66—74.
7. Thachil J, Tang N, Gando S, et al. ISTH interim guidance on recognition and management of coagulopathy in COVID-19. J Thromb Haemost 2020. [Epub ahead of print].

Preeclampsia—a disorder of uterine "stretch?"

Check for updates

TO THE EDITORS: In 1953, Sophian reported experiments inflating balloons in rabbit uteri and watching their kidneys turn white; he released the stretch, and renal blood flow was promptly restored.[1] Dividing the uterorenal nerves abolished the reflex. He proposed that activating uterorenal nerves (cf, cardiorenal, hepatorenal, lienorenal, etc) was the mechanism