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COVID-19 in Pregnancy: Consider Thromboembolic Disorders and Thromboprophylaxis

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Letter to Editor

The disease caused by severe acute respiratory distress syndrome coronavirus 2 (SARS-CoV-2) is now termed coronavirus disease 2019 or COVID-19. This syndrome generally begins with respiratory symptoms, which may progress to single organ dysfunction (i.e. respiratory failure) and then to multiple organ failure, and death. In non-pregnant patients admitted to the intensive care unit with COVID-19 pneumonia, the frequency of venous thromboembolic disorders is 25% (20/81) ascertained by ultrasound examination of the lower extremities (1). In another series of 184 patients with proven COVID-19 pneumonia, 31% 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 multi-organ dysfunction is thought to involve the release of inflammatory cytokines (3) which induce the production of tissue factor and activate thrombin. Elevated concentrations of D-dimer (greater than 1 microgram/mL) is considered indirect evidence of increased thrombin generation, and is associated with an increased risk of death [OR 18.4; 95% CI (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 the 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, management of the acutely ill parturient, anesthesia, and protection of healthcare personnel (6). Although 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 multiple organ failure and even die. Given that normal pregnant women have evidence of increased generation of thrombin and a prothrombotic state, as well as increased intravascular inflammation which 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 Hemostasis 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 affected by 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.

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