

Preeclampsia (PE) Like Syndrome in Patients with COVID-19

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ABSTRACT

The clinical manifestations of the current pandemic of coronavirus disease-2019 (COVID-19) are diverse. Initially thought to be a disease of the respiratory system, more diverse clinical manifestations surfaced over time after extensive study of the mode of action of infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in pregnancy, the underlying pathogen of the COVID-19. Pregnant women are prone to the adverse effects of SARS-CoV-2 infection. Infection with SARS-CoV-2 in pregnancy is associated with preeclampsia (PE). There are reports of increased incidence of PE in pregnant women than general population infected with severe SARS CoV-2. However, in most cases: there is misdiagnosis as the clinical features of PE and COVID-19 overlap, making the differential diagnosis challenging. Therefore, physicians, specifically those caring for pregnant women, must be aware of the preeclampsia-like syndrome in pregnant women infected with SARS CoV-2 and managed accordingly as the condition resolve spontaneously once the infection subsides.

Keywords: Pre-eclampsia; COVID-19; SARS CoV-2; SARS CoV-2; Pandemic

EDITORIAL

The ongoing pandemic of COVID-19 started in late December 2019, Wuhan, China, caused by severe acute respiratory syndrome corona virus-2 (SARS CoV-2). World Health Organization (WHO) declare COVID-19, a pandemic on March 11, 2020 [1]. Globally there are millions of infections and mortality so far and the virus can infect anyone irrespective of race and ethnicity. Pregnancy brings many complications including PE. If pregnancy is complicated by SARS CoV-2 infection, it acts as a two-edged sword, producing a preeclampsia-like syndrome that mimics the findings of PE. PE is defined by the American College of Obstetricians and Gynecologists' task force on hypertension in pregnancy as new onset of high blood pressure (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg) or worsening of previous high blood pressure in addition to new-onset proteinuria (protein to creatinine ratio >300) or worsening of the previous proteinuria or to at least one of the following signs and symptoms of severe PE: cerebral or visual symptoms, elevation of liver enzymes to twice normal concentration, platelet count $<100\ 000/\mu\text{l}$, serum creatinine concentrations >1.1 mg/dl or pulmonary oedema [2].

SARS-CoV-2 can cause direct endothelial damage, dysregulation of immune responses, thromboinflammation, and alterations in angiotensin-converting enzyme 2 (ACE-2) - related pathways [3]. PE causing endothelial damage and an antiangiogenic state that leads to hypertension and proteinuria [4]. Similar multi-organ effects are

seen in pregnant with severe COVID-19 [5]. There are reports of increased incidence of PE in pregnant women with severe SARS CoV-2 infection as compared to the general population [6]. Similarly, PE-like syndrome is seen in pregnant women with severe SARS CoV-2 infection. The PE-like syndrome should be distinguished from the actual PE by soluble fms-like tyrosine kinase-1/placental growth factor (sFlt-1/PlGF), LDH, and uterine artery pulsatility index (UtAPI) assessment and may not be an indication of earlier delivery [7]. The applicability of these measurements to use as an assessment tool to diagnose PE-like syndrome is challenging due to not only the unavailability of skilled staff but difficulty to apply in resource scarce centers.

The drawback of these calculations is its applicability at centers with less trained staff and resource scarcity and difficulty to apply in skilled staff and resource scarcity.

In summary, physicians, especially those responsible for pregnant women with COVID-19 management, must be aware of this uncommon complication of the SARS CoV-2 infection. These patients should be managed with national and point-of-care guidelines, keeping the point in mind that the clinical features subside once the infection is over.

CONFLICT OF INTEREST

There is no conflict of interest to declare.

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