Sarcouncil Journal of Medical Sciences

ISSN(Online): 2945-3526

Volume- 04| Issue- 03| 2025

Letter to the Editor

Received: 11-02-2025 | Accepted: 21-02-2025 | Published: 03-03-2025

Differential Causes Must Be Excluded Before Attributing Eclampsia in Pregnant Females to COVID-19

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Keywords: SARS-CoV-2 infection, COVID-19, seizures, eclampsia, pregnancy.

LETTER TO THE EDITOR

We read with interest Ozcan *et al*'s article about a 30-year-old pregnant female, gravida 5, para 4, gestation week 38, with eclampsia associated with SARS-CoV-2 infection [Ozcan, A. *et al*., 2022]. She was admitted because of headache, dizziness, arterial hypertension and seizures since one day before admission and underwent emergency cesarean section [Ozcan, A. *et al*., 2022]. Postoperatively, arterial hypertension persisted and was associated with sinus tachycardia, heart failure, hypoexemia, and elevated infection biomarkers, requiring intubation and mechanical ventilation [Ozcan, A. *et al*., 2022]. With adequate treatment, all abnormalities disappeared within 24h of admission [Ozcan, A. *et al*., 2022]. The study is impressive, but some limitations should be discussed.

The major limitation of the study is that the patient did not undergo cerebral imaging. Since the patient was admitted for headaches, dizziness, and seizures, was diagnosed with SARS-CoV-2 infection, and since SARS-CoV-2 infections are often complicated by central nervous system (CNS) disease [Finsterer, J. *et al*., 2021], it would have been mandatory to perform magnetic resonance imaging (MRI) with contrast agent and magnetic resonance angiography (MRA) to determine whether an acute cerebral disease was present. Common CNS complications of SARS-CoV-2 infections include stroke, bleeding, subarachnoid bleeding, venous sinus thrombosis (VST), immune or infectious encephalitis or meningitis, acute disseminated encephalomyelitis, acute, hemorrhagic leucoencephalitis (AHLE), and acute, hemorrhagic, necrotizing encephalopathy (AHNE) [Ozcan, A. *et al*., 2022]. Since D-dimer was significantly increased, VST in particular should have been excluded using magnetic resonance venography (MRV).

The second limitation is that no electroencephalogram was recorded to determine whether epileptiform discharges occurred and whether the patient required chronic treatment with anti-seizure drugs (ASDs). In this context, it would have been important to know what ASD treatment was administered to stop seizure activity upon admission.

The third limitation is that the patient was diagnosed with cardiomyopathy without specifying what type of cardiomyopathy was diagnosed and whether it was inherited or acquired. Since no previous illness has been identified in either the individual or family history, it was most likely an acute and acquired cardiomyopathy. The most common acute and acquired cardiomyopathy is Takotsubo syndrome (TTS), also known as stress cardiomyopathy. TTS is often triggered by CNS disease, particularly subarachnoid bleeding, seizures, and stroke [Perfilyeva, Y. V. *et al*., 2023]. Therefore, it would have been imperative to revise the echocardiography images for each of the four subtypes of TTS. Arguments for TTS, especially for the basal subtype, are that the patient was previously healthy, that she had seizures, that there was basal hypokinesia, reduced ejection fraction, markedly elevated proBNP, elevated CK-MB, elevated troponin, and that there was obviously spontaneous regression of the cardiomyopathy. We should know whether the patient underwent coronary angiography to rule out acute coronary syndrome or myocardial infarction and whether she met the Mayo Clinic criteria for the diagnosis of TTS.

A fourth limitation is that pulmonary embolism was not considered and ruled out using CT angiography of the pulmonary arteries. Because the patient was tachypneic, tachycardic, hypoxemic, had respiratory and metabolic acidosis, and had a markedly elevated D-dimer level, it would have been imperative to rule out pulmonary embolism. Pulmonary embolism has

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DOI-https://doi.org/10.5281/zenodo.14962807

been repeatedly reported as a complication of SARS-CoV-2 infections [4].

In summary, the excellent study has limitations that should be addressed before drawing final conclusions. Clarifying the weaknesses would strengthen the conclusions and could improve the study. Eclampsia in SARS-CoV-2 infected gravida should not be diagnosed until all differential causes of CNS disease have been sufficiently ruled out.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Finsterer, J. "Differential Causes Must Be Excluded Before Attributing Eclampsia in Pregnant Females to COVID-19." *Sarcouncil journal of Medical sciences* 4.3 (2025): pp 23-24.

Publisher: SARC Publisher