

LETTER TO THE EDITOR

Neurological disease in pregnant females with COVID-19 may not only be attributable to SARS-CoV-2

To the Editor

We read with interest the review article by Magalhães et al. about 18 SARS-CoV-2-infected pregnant females who developed neurological complications and were published until the November 25, 2021.¹ Central nervous system (CNS) complications from the SARS-CoV-2 infection diagnosed in these cohort included delirium ($n = 1$), posterior reversible encephalopathy syndrome (PRES) ($n = 4$), ischemic stroke ($n = 1$), venous sinus thrombosis (VST) ($n = 1$), acute disseminated encephalomyelitis (ADEM) ($n = 1$), and acute necrotizing encephalopathy ($n = 1$).¹ Peripheral nervous system disease diagnosed in this cohort included Guillain Barre syndrome (GBS) ($n = 5$), Bell's palsy ($n = 3$), and rhabdomyolysis ($n = 1$).¹ The study is appealing but has limitations that raise concerns that need to be discussed.

Several reports about pregnant SARS-CoV-2-positive females experiencing neurological complications were not included.

A case of a pregnant female patient who developed SARS-CoV-2-associated GBS during pregnancy was not discussed.² The article was published in August 2021 and refers to a 29-year-old primigravida in the 18th month of pregnancy with mild COVID-19 who developed sensory disturbances in all four limbs and paraparesis of the lower limbs 10 days after onset of the SARS-CoV-2 infection.² In the lower limbs, muscle force was M2, tendon reflexes were absent, and vibration sense was reduced.² Upon the clinical presentation and nerve conduction studies (NCSs), acute demyelinating polyneuropathy (AIDP) was diagnosed.² The patient profited significantly from intravenous immunoglobulins (IVIG).²

A second patient not included in the review although published in October 2021 is a 32-year-old pregnant female in her 8th month of gestation who was admitted for headache, tingling, and quadriparesis and was tested SARS-CoV-2 positive on admission.³ Six hours after emergency cesarean section, she developed bradycardia and respiratory insufficiency requiring resuscitation and mechanical ventilation.³ Upon neurological examination revealing quadriplegia, truncal and neck weakness, hypotonia, external ophthalmoplegia, facial diplegia, areflexia, and absent plantars and NCSs, she was diagnosed with AIDP and IVIG were started with a beneficial effect leading to incomplete recovery at the 2 weeks follow-up.³

A third patient not included is an 18-year-old female in her 7th week of pregnancy who experienced sudden onset left hemiparesis

due to a subtotal infarction in the territory of the right middle cerebral artery.⁴ She arrived too late for thrombolysis but made an incomplete recovery upon administration of acetyl-salicylic acid and clopidogrel.⁴ Several other pregnant and SARS-CoV-2-positive females experiencing neurological CNS or PNS disease during pregnancy have been reported after November 2021.

A second limitation of the review is that a causal relation between SARS-CoV-2 and the neurological complication could not be unequivocally established in each case. Particularly, VST, PRES, and GBS can complicate pregnancies also in the absence of a SARS-CoV-2 infection.

Overall, the interesting review has limitations that call the results and their interpretation into question. Clarifying these weaknesses would strengthen the conclusions and could improve the status of the study. The number of pregnant and SARS-CoV-2-positive females experiencing neurological disease during the viral infection is higher than presented in the review. Causality between COVID-19 and neurological compromise in pregnant females remains unproven in several cases.

AUTHOR CONTRIBUTION

JF involved in design, literature search, discussion, first draft, critical comments, and final approval.

ACKNOWLEDGEMENT

None.

CONFLICTS OF INTEREST

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

ETHICAL APPROVAL

Ethics approval was in accordance with ethical guidelines. The study was approved by the institutional review board.

CONSENT TO PARTICIPATE

It was obtained from the patient.

CONSENT FOR PUBLICATION

It was obtained from the patient.

Josef Finsterer 

Neurology & Neurophysiology Center, Vienna, Austria

Correspondence

Josef Finsterer, Postfach 20 1180 Vienna, Austria.

Email: fifigs1@yahoo.de

ORCID

Josef Finsterer  <https://orcid.org/0000-0003-2839-7305>

REFERENCES

1. Magalhães JE, Sampaio-Rocha-Filho PA. Pregnancy and neurologic complications of COVID-19: a scoping review. *Acta Neurol Scand.* 2022;146(1):6-23. doi:10.1111/ane.13621
2. Mehrpour M, Arab M, Hadavand F, Khalafi M, Khalafi M. A case report of Guillain-Barré syndrome in a pregnant woman infected by COVID-19. *Acta Neurol Belg.* 2021;121(4):1079-1080. doi:10.1007/s13760-021-01696-0
3. Somkuwar AS, Shende D, Arbat S, Bakamwar S. Guillain-Barre syndrome in COVID-19 pregnancy-first case report. *Ann Indian Acad Neurol.* 2021;24(5):804-805. doi:10.4103/aian.AIAN_1272_20
4. Ballmick NA, Kubac JF, Akhondi H. Acute ischemic stroke as the presenting feature of COVID-19 in the young and pregnant. *HCA Healthc J Med.* 2020;1:379-383.