

In Reply: Outcomes and Spectrum of Major Neurovascular Events Among COVID-19 Patients: A 3-Center Experience

To the Editor:

We would like to thank the authors¹ for their interest in our study, “Outcomes and Spectrum of Major Neurovascular Events Among COVID-19 Patients: A 3-Center Experience,”² as well as the editor for inviting us to respond.

The authors¹ remind clinicians that the most common neurological manifestations of coronavirus disease-2019 (COVID-19) tend to be mild and self-limited (eg, anosmia, headaches, dizziness), and that cerebrovascular events are rare. The goal of our research² was to focus on and bring awareness to the spectrum of potentially devastating neurovascular events that are likely to be seen in practice by neurosurgeons, neurologists, and neurointensivists who care for COVID-19 patients.

With regard to COVID-19 patients with ischemic stroke, particularly those with large-vessel occlusions (LVOs), we are in agreement with the author’s statement that stroke mostly occurs in patients who are older or who have conventional risk factors for stroke (eg, hypertension, smoking)—indeed, these accounted for 13/15 of our LVO cases. However, we remind the clinician that a unique feature of COVID-19 is that, although rare, LVOs may occur in young, otherwise healthy patients, as reported in our series and previously.³ Furthermore, we wanted to highlight our clinical observation that COVID-19 patients with LVO had a higher case fatality rate than expected (56% in our series), even if treated with a mechanical thrombectomy. Nearly identical outcomes were found in a regional study from Paris, where the figure was 60%.⁴

The authors provide a succinct review of the postulated mechanisms by which the neurotropic severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) affects, and infects, the nervous system, both directly and indirectly. Among the likely multiple mechanisms of injury, we have strong clinical suspicion for a coagulopathic, proinflammatory state that leads to vascular endothelial dysfunction and resulting cerebrovascular sequelae. There may be disruption of previously stable lesions, similar to those described in our study or the case of a destabilized internal carotid artery plaque cited by the authors.⁵

Now 1 yr into the COVID-19 pandemic, we hope that larger, population-based data, as well as in Vitro studies, will further elucidate the mechanisms by which COVID-19 affects the neurovasculature, and allow us to more effectively treat this patient population.

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