

## COVID-19: A Relationship between Stress and Stroke in Younger Population

Sir,

Coronavirus disease 2019 (COVID-19) presents a complicated disease pattern, similar to pneumonia. While the early manifestations of the disease are restricted to the pulmonary system, the virus can also attack other systems, particularly the cardiovascular and the neurological system. This can lead to a possibly lethal combination known as a stroke. The occurrence of cerebrovascular disease in patients with COVID-19 amounts to be around 1–6%, suggesting a potentially high number of patients at risk as the pandemic keeps on surging in most countries.<sup>[1]</sup>

Even though there is no concrete evidence establishing a single primary cause for patients with COVID-19 to contract stroke, numerous theories have surfaced in the past explaining the exact process. Proposed mechanisms claim that viral particles have been isolated from various endothelial tissues, including the brain, which can cause viral-induced endotheliitis, potentially leading to angiopathic thrombosis. Other mechanisms suggest that patients can experience an immune-mediated response and can suffer from a hypercoagulable state arising from systemic inflammation.<sup>[1]</sup> Along with these mechanisms, psychological factors such as stress can escalate the risk of a stroke<sup>[2]</sup> by modulating sympathomimetic activity, affecting coagulation or heart rhythm.

A study pointed out that stroke incidence in patients being treated for COVID-19 was close to 5%, with the youngest to have been diagnosed with a stroke being a 55-year old.<sup>[3]</sup> It is known that the younger population is more prone to psychological stress.<sup>[4]</sup> Hence, we believe that financial instability caused by the pandemic can provoke stress and, in turn, may lead to a stroke in the younger population. During April 2020, the United States alone suffered a loss of 20 million jobs, causing a 15% spike in the unemployment rate.<sup>[5]</sup>

Although stress in the past has been an underrated cause of stroke in the younger population, this pandemic allows us to explore its association with cerebrovascular disease in COVID-19 patients. The involvement of a control group can aid further research. It also calls for medical health professionals to provide conservative management for stress due to the financial instability during the COVID-19 pandemic to reduce preventable complications, such as stroke.

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### Conflicts of interest

There are no conflicts of interest.

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