The Case Is Much More Baffling than We Think

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Dear Editor,

Morelli et al. [1] reported decreased prevalence of stroke during the COVID-19 pandemic era according to their observation from a single center (Guglielmo da Saliceto Hospital, Piacenza, northern Italy). They considered phobia of admission in COVID-affiliated hospitals and the probability of missing minor strokes in seriously involved respiratory distress patients. Meanwhile, they hypothesized that increased interleukin-6 and thrombocytopenia may result in decreased prevalence of stroke. They concluded that the association of stroke and viral infection, which has been reported previously [2], might not be true for SARS-CoV-2 infection.

Contrary to their conclusion, there are some reports about increased risk of stroke in COVID-19 infection [3]. It has been shown that SARS-CoV-2 infection has not only respiratory manifestations but may also have hematological, cardiac, and nervous system involvement [4, 5]. COVID-19 infection can lead to myocarditis [6] and abnormalities in the coagulation cascade and vascular endothelial function [7]. Han et al. [8] evaluated the importance of the difference in some blood coagulation parameters between patients with COVID-19 infection and healthy controls. They found blood coagulation in pa-

tients with COVID-19 to be obviously deranged [8]. Therefore, it seems that routine monitoring of blood parameters can be helpful in predicting disease progression. In addition, due to the presence of angiotensin-converting enzyme 2 receptors on blood vessels, one of the main targets of the virus are blood vessels. In this way, the virus can lead to the formation of blood clots, or ample bleeding that may be a result of consuming clotting factors. Recently, Oxley et al. reported a 7-fold increase in the risk of stroke incidence by finding large vessel stroke in five COVID-19 patients with age <50 years over a 2-week period (as a letter published online April 28 in the *New England Journal of Medicine*. DOI: 10.1056/NEJMc2009787).

Considering the anecdotal and unpublished reports of stroke subsequent to COVID-19 infection, at the present time, it is too early to consider the “cause and effect,” but further prospective and large-volume studies are warranted. We think that the decreasing trend of stroke in Morelli et al.’s [1] center is mostly related to delayed or cancelled access of the stroke victims and their family due to phobia of COVID-19 infection. Further, people tend to ignore symptoms other than those of COVID-19 in this condition. This issue has been

mentioned in other disciplines as well. Similarly in Italy, a 73–88% decrease in emergency visits for the pediatric age-group at the time of the COVID-19 pandemic has been noted in comparison to that in the same time period in the previous years [9]. Only international multicenter studies may lead us to find the changes in trend of different types of cerebrovascular diseases during the COVID-19 pandemic.

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Author Contributions

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