Could COVID-19 represent a negative prognostic factor in patients with stroke?

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To the Editor—Coronavirus infectious disease 2019 (COVID-19) is a highly contagious disease that has become a worldwide pandemic. Coronaviruses (CoVs), positive-stranded RNA viruses, are known to cause respiratory or intestinal infections in humans and animals. Coronaviruses are known to affect the cardiovascular system.

The SARS-CoV-2 virus uses the enzyme 2 receptor (ACE2) to gain entry into cells, and these receptors have been revealed in the neuronal and glial cells of the human brain. Thus, they may be a potential target of SARS-CoV-2, which might explain the death of olfactory cells in patients with COVID-19. CoVs can enter the central nervous system through 2 distinct pathways: retrograde neuronal diffusion or hematogenous diffusion. The spread of SARS-CoV-2 through the cribriform plaque of the ethmoid bone during an initial or subsequent infection phase can lead to brain involvement. In the systemic circulation, the presence of ACE2 receptors on both capillary and neuronal endothelial cells could be responsible for the subsequent spread and damage to the cerebral nervous system without substantial inflammation. The presence of CoVs in the cerebral nervous system has been confirmed in the cerebrospinal fluid and brain tissues of patients during autopsies.

Several symptoms indicative of CNS involvement are present in approximately one-third of COVID-19 patients: dizziness, headache, impaired consciousness, ataxia, epilepsy, and acute cerebrovascular disease. Changes in the coagulation system (ie, D-dimer and platelet abnormalities) and in inflammatory biomarkers (eg, interleukin-6, C-reactive protein, and ferritin) have been reported in COVID-19 patients. In patients with stroke, the presence of COVID-19 could be a potential extrinsic factor in the genesis or worsening of stroke. Infection or high levels of proinflammatory biomarkers indicate significantly increased risk of ischemic stroke, especially in the elderly. The onset or worsening of a stroke in these patients could be caused either by direct damage of the CoVs on the nervous system and/or by an activation of the

References
Early phases of COVID-19 management in a low-income country: Bangladesh

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To the Editor—The World Health Organization has emphasized the importance of diagnostic testing in tracking and managing COVID-19, and most high-income economies have adopted widespread population testing schemes. The United States now leads the way, with >370,000 tests performed as of March 26, 2020.1 This level of testing starkly contrasts with low-income economies such as Bangladesh, where an almost contrarian strategy seems to be adopted that is arguably masking the true national spread of the virus.

From the first reported case of COVID-19 in Bangladesh on March 8 until March 28, 1,068 samples were tested by the Institute of Epidemiology, Disease Control and Research (IEDCR) in Dhaka.2 The IEDCR was the sole institute in Bangladesh for COVID-19 testing. On March 26, two facilities were given testing rights. Centralized testing in these underresourced public institutions has been unable to effectively respond to the wave of suspected COVID-19 patients.

Even at this initial stage with limited confirmed cases, busy telephone hotlines and lack of timely testing for symptomatic patients raised concerns regarding Bangladesh’s preparedness. In addition, the Bangladesh government has not sought to proactively limit community transmission from primary cases thus far. With a population of 161 million and a total of 1,169 ICU beds,3 this inadequate strategy could potentially devastate Bangladesh’s health system with multiple outbreaks.

This risk is compounded by thousands of Bangladeshi workers returning from COVID-19–struck countries and poor adherence to self-quarantine recommendations due to limited education and monitoring mechanisms. This situation is particularly problematic for Bangladesh because a significant portion of returning workers (ie, significant sources of SARS-CoV-2) reside in rural areas outside Dhaka and thus carry the virus to some of the most vulnerable and ill-equipped communities. This situation was likely worsened by the government declaring a 10-day holiday without travel restrictions from March 26 to April 5, which encouraged millions of city workers to leave Dhaka and return to their rural communities.4

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