

Time Is Brain: A Call to Action to Support Stroke Centers in Low- and Middle-Income Countries during the COVID-19 Pandemic

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Dear Editor,

COVID-19 infections may affect other noncommunicable diseases, such as stroke, both directly and indirectly. Stroke may increase the probability of severe infection and mortality in COVID-19 infections. COVID-19 may lead to cardiac injury, arrhythmia, myocarditis, coagulopathy, and consequently stroke [1]. As an example, in Iran, neurologists identified some stroke cases among COVID-19 cases.

Given the health infrastructure differences, economic differences, and previous differences in the burden of stroke between low- and middle-income (LMICs) versus high-income countries [2, 3], LMICs, in particular, may face a considerable strain with a possible negative impact on the healthcare delivery system. While we are globally fighting COVID-19, we need to implement feasible approaches to prevent or at least minimize any breakdown in the previous preventive and treatment approaches. We here recommend some suggestions and a call to action in LMICs.

Healthcare professionals are at a higher risk of COVID-19 than the normal population [4]. Given the previous staff shortages in healthcare in many LMICs, providing

personal protection equipment should be prioritized. We encourage international organizations, such as the World Federation of Neurology (WFN) and World Stroke Organization (WSO), to help provide personal protection equipment for LMICs.

Social isolation does not mean lack of social interactions. We recommend health policymakers to authorize telemedicine technology in LMICs. Many important aspects of acute stroke management, from EMS dispatch to the selection of eligible cases for intravenous thrombolysis or endovascular therapy, can be performed via Telestroke [5].

Expensive telemedicine and telerehab programs are not appropriate for many LMIC situations. Low-priced, accessible, and secured cross-platform mobile applications can facilitate telemedicine/telerehab usage. Institutions may explore with the Ethics Committee and Institutional Review Board whether commercially available low-cost smartphone applications can substitute in locations where Telestroke networks are not available. Besides, the security and confidentiality of telemedicine systems should be assured and perhaps funded by social media companies.

Early supported discharge services should be organized in LMICs [6]. Stroke centers need to practice 24/7 outpatient support using secured video-audio applications or at least telephone questionnaires to address vascular risk factors and assure medication compliance. Important screening questions with simple preventive measures to reduce the chance of deep vein thrombosis, falls, urinary tract infections, and pneumonia could be sent using Bluetooth/email to patients or the next of kin instead of paper-based documents. Based on anecdotal data, some crucial investigations such as formal swallowing assessments were reduced in some centers for fear of contagion.

All unnecessary diagnostic activities should be summarized or merged for the sake of decreasing the rate of, or at least the fear of, COVID-19. If possible, it is crucial to separate CT units of COVID-19 cases from all other cases. Neurologists can send Holter monitoring to selected patients along with installation instructions or a telephone call for installation and a prepaid envelope to mail it back.

Finally, stroke centers in the world need to support each other. Worldwide prestigious neurology centers, for

example, WSO or WFN, can host a network of centers to share the best policies and experiences. LMICs need to be supported to continue fighting against stroke. Neurology is a big but close-knit family.

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