



Comprehensive Stroke Management in the Era of COVID-19: Mind the Team

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Stroke is the second cause of death and the third cause of disability worldwide, with an annual incidence of about 16 million people [1]. Stroke Unit is considered the specific standard of care required for patients, to give a prompt and suitable response to time-dependent needs [2]. In light of this, Primary Nursing (PN) represents a multidisciplinary approach to the patients in Stroke Unit, based on tailored and organized aid, an optimized partnership among health workers, integrated treatment algorithm [3]. In particular, hyperacute treatment such as thrombolysis and thrombectomy must be timely, precise, and effective to achieve the best clinical outcomes, through rapid assessment and treatment, maintenance of high-performing team dynamics, management of cognitive load affecting providers, and factors impacting team communication [4].

In the context of the current coronavirus disease 2019 (COVID-19) pandemic caused by the SARS-CoV-2 virus, the ability to deliver timely and efficacious care must be balanced with the risk of infectious exposure to the clinical team [5]. In fact, in addition to usual stroke care, the team has to take into account the infectious disease control and the likelihood of the need for intensive care due to a potential COVID-19. Thus, in case of a high likelihood of large vessel occlusion and need for advanced respiratory support and critical care, patients suffering from an acute ischemic stroke should be referred to comprehensive stroke centers [6].

On the other hand, several national associations have faced vascular emergencies with the risk of COVID-19, sometimes reporting a decrease in numbers of stroke cases. For example, Indian authors stated that stroke management guidelines would need to be followed with concessions made for changes in accessibility, with the inevitable shift of setting of acute therapy from larger centers to peripheral hospitals and from endovascular to more intravenous thrombolysis during the COVID-19 crisis. The same authors suggest that, especially in the case of suspected situations of hyperacute strokes, optimal use of telemedicine facilities would help ensure the

services of stroke specialists even in peripherally located COVID-19-designated centers [7].

The actual change in the number of strokes during the COVID-19 pandemic is a relevant matter of debate among stroke teams. In this regards, data by Spanish authors show a reduction by a quarter the stroke admissions and thrombectomies performed at the Barcelona Comprehensive Stroke Center, without affection of the quality of care metrics (timing of diagnostic and treatment steps, clinical and reperfusion outcome scores); these results were associated to a 330% mean increment in the number of calls, but fewer Stroke code activations, and a significant reduction in the mean age of admitted patients [8]. Based on these data, it can be suggested that the reduction is the effect of a selection of patients to admit to the Stroke code, considering the pandemic limitations.

Our group has observed that COVID-19 did not reduce stroke emergencies admitted to and treated in our Comprehensive Stroke Center. Moreover, since COVID-19 patients are affected by enhanced coagulopathy, which is accompanied by a higher risk of arterial and venous thromboembolism, an increased number of COVID-19-specific or COVID-19-mediated strokes could be reported. Stroke networks should, therefore, be adjusted to minimize the risk of infection for health professionals and patients when suspected or confirmed COVID-19 patients with stroke are treated. It thus becomes even more

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important to increase awareness among health professionals and the members of the public, especially those who are at high risk, of how to recognize a stroke and help launch the network to avoid significant delays in management [9].

The risk of infectious exposure to clinical teams should be mitigated by adopting ad hoc procedures. For example, defined and designated areas for all stroke patients and screening in the emergency room for suspected COVID-19 symptoms, with full protective gear (full-sleeved gown, surgical mask, eye protection (face shield and/or goggles), gloves, and head cover) have been proposed in Protected Code Stroke guidelines [5].

The general principles at the basis of this type of procedures may take into account specific strategies, as situational awareness, triage and prioritization, mitigation of cognitive load, team member role clarity, communication, and debriefing, to facilitate a consistent, safe, and efficacious care, evolving during this demanding pandemic challenge [4].

The advantage of such a model would be to preserve patient access and outcomes while decreasing potential COVID-19 exposure to patients and healthcare providers. At the same time, it could help in optimizing the use of personal protective equipment and spoke-hub stroke care paradigm [10].

The pivotal role of the Stroke Team Nurse should be highlighted in stroke care, especially in this challenging pandemic. Even if it is well known that general nurses are often reassigned by local nursing leadership to manage patients with COVID-19 in other units, nurses with unique expertise or experience, such as a nurse who used to work in the Stroke Unit may be confirmed in Stroke Teams, to minimize the timing of diagnostic and therapeutic steps, and emphasize the function of direct mentorship for practitioners and nurses deriving from intensive care unit [11].

In conclusion, the Stroke Team is confirmed to represent the gold standard for acute stroke treatment, also during the COVID-19 pandemic. General and specific procedures could be taken into account to guarantee the standard of care for patients, as well as minimize infective risk for healthcare providers. Any form of reorganization has to consider the exper-

tise and the unique role of stroke clinicians and nurses, to avoid affection in the standard of care. Thus, the team can be considered a key to solve the Rebus puzzle of COVID-19.

Disclosures

The authors have nothing to disclose in relationship to the present study.

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