Letter regarding ‘Neurointervention for emergent large vessel occlusion strokes during the COVID-19 pandemic’

We read with great interest the recent article by Fiorella et al1 in which the authors discussed several practical points on neurointerventional management of large vessel occlusion (LVO) acute ischemic stroke (AIS) during the coronavirus 2019 (COVID-19) pandemic. Although we fully agree with Fiorella et al about considering aggressive measures in triaging during the endovascular treatment (EVT) of AIS patients in order to minimize severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection exposure and transmission to healthcare personnel (HCP), we are urging a more cautious and balanced approach.

While EVT is one of the most effective treatment in the management of LVO strokes, its impact is optimized if it is performed in a timely manner.2 It has been speculated that every 30-min delay from symptom onset to reperfusion (OTR) of the occluded vessel translates into a decrease in good functional outcome by 12%–21%.3,4 OTR time constitutes a symptom onset to reperfusion (OTR) time.5 It has been shown that the impact of this approach on patients’ outcomes was evaluated in a recent multi-institutional prospective study by Kasab et al of 458 patients from 28 North American centers.6 The authors reported significantly longer door to reperfusion time, higher in-hospital mortality, and lower likelihood of functional independence at discharge in patients who underwent intubation prior to EVT. Furthermore, two other studies by Taqi et al7 and Settecase et al8 investigated the impact of sedation modes on timing and the delay in reperfusion, and showed better functional outcome in patients who underwent conscious sedation compared with general anesthesia. This impact was attributed to shorter OTR times.

While pre-procedural intubation has been shown to have a negative impact on patients’ functional outcomes due to delaying the EVT, intubation itself is considered a high-risk procedure in terms of potential SARS-CoV-2 exposure and transmission caused by close contact with the patient’s airway before, during and after the procedure.9 Taking into consideration the concerns of stroke centers in terms of scarcity of resources during the pandemic,10–17 we propose an algorithm in which suspected or confirmed SARS-CoV-2-infected patients are categorized based on their individual risk factors in order to make a reasonable decision as to whether they require pre-procedural intubation. Risk factors include: diagnosis of LVO in the posterior circulation, severe stroke (National Institutes of Health Stroke Scale (NIHSS) score on admission >15) or Glasgow Coma Scale (GCS) <9, inability to follow commands due to aphasia, acute respiratory distress/hypoxemia (drop of O2 saturation by pulse oximetry (SpO2) <95%) or any signs of dyspnea (gasping, sweating, tachycardia, use of auxiliary respiratory muscles), persisting systolic blood pressure >180 mmHg and/or end-tidal CO2 >45 mmHg, active cough, active vomiting, severe agitation and seizures.12–20 For patients with any of the above-mentioned risk factors, endotracheal intubation should be performed in a negative-pressure room by an airway specialist with video-guided laryngoscopy and consideration of all precautionary measures before arrival to the angiography suite. Mitigating intubation-associated complications, particularly hypotension which is more common in SARS-CoV-2-infected patients,12 by using sympathomimetics and prescribing ketamine or etomidate to maintain cerebral perfusion pressure, are additional points that should be considered.13 The authors believe that proceeding with EVT using conscious sedation in a selected group of patients and those without the above-mentioned risk factors should be highly considered. This practice would ideally avoid further delay of the EVT in these patients and improve the long-term functional outcome, while limiting the exposure of HCP to SARS-CoV-2 infection.

Anahid Hamidianjahromi,1 Ashkan Mowla2
1Department of Neurology, Jahrom University of Medical Sciences, Jahrom, Iran (the Islamic Republic of)
2Department of Neurological Surgery, University of Southern California, Los Angeles, California, USA

Correspondence to Dr Ashkan Mowla, Department of Neurological Surgery, Keck School of Medicine, University of Southern California, Los Angeles, California, USA; mowla_a@yahoo.com

Contributors All authors contributed to the theoretical formalism, designing the study, data collection, data analysis and writing the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

This article is made freely available for use in accordance with BMJ’s website terms and conditions for the duration of the covid-19 pandemic or until otherwise determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.

REFERENCES
1 Fiorella D, Fargen KM, Leslie-Mazwi TM, et al. Neurointervention for emergent large vessel occlusion
Cerebral venous sinus thrombosis associated with COVID-19 infection: report of an international panel.

Interv Neuroradiol 2021;10:931.


