

Stroke in COVID-19 and SARS-CoV-1

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There has been a recent report of large artery ischaemic stroke among young patients with coronavirus disease 2019 (COVID-19) in the USA [1]. The cause is felt to include coagulopathy and vascular endothelial dysfunction [2]. There have been other reports of cerebrovascular events among COVID patients in China [3] and another coronavirus infection that led to severe acute respiratory syndrome in Singapore [4]. The 3 case series are illustrated for comparison (Table 1). It can be seen that the patients are older in China and Singapore than in the USA, there is no consistent sex predilection, some may not have stroke risk factors, there is a variable range of time between illness and stroke onset (although in Singapore times were reported only after hospital admission, all in intensive care), and most were severely ill/had a moderate or severe stroke, with high subsequent mortality and morbidity. Cardioembolic mechanisms may have a causative role, but intravenous immunoglobulin given for severe acute respiratory syndrome has also been implicated [4]. Acute interventions included thrombolysis and thrombectomy [1]. Antiplatelets and anticoagulants were used for secondary prevention.

More data are needed to better understand the mechanisms and treatment of stroke during coronavirus infections, even more so as those with prior stroke have worse outcome when they develop COVID-19 [5, 6]. The editors invite *extra-expedited submissions* of papers on an increasingly important topic *Stroke and the COVID-19 infections*.

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Author Contributions

N.V. conceptualized and wrote the manuscript. M.G.H. conceptualized the manuscript and gave critical feedback.

Table 1. Comparative table of ischaemic stroke in COVID-19 and SARS

Infection	COVID-19	COVID-19	SARS
Country	USA	China	Singapore
Ischaemic stroke cases/COVID-19 or SARS cases, <i>n</i>	5	11/214	5/206 (national)
Age, years, median (range)	39 (33–49)	75 (37–91)	63 (39–68)
Sex, female/male	1/4	6/5	3/2
<i>Vascular risk factors</i>			
Nil	2		3
Hypertension	1		1
Diabetes mellitus	2	5 (FBG >10 mmol/L)	1
Hyperlipidaemia	1		1
Smoking		2	
<i>Heart disease</i>			
Previous stroke	1		
COVID-19/SARS symptoms till stroke onset (range)	2 – asymptomatic 1 – 1 wk 2 – NA	9 d (0–28 d)	19 d (15–24) (after admission)
Stroke severity	NIHSS median 16 (13–23)	9/11 (“severe”)	4 on ventilator for SARS
<i>Mechanism</i>			
Large artery occlusion	5	5	2
Small vessel disease		2	
Cardioembolism		4	3 (1 marantic, 2 recent NSTEMI)
<i>Outcome</i>			
Died		4	3
Intensive care unit	1		
Stroke unit	1		
Rehabilitation	2		
Home	1		2 (1 well, 1 bed-bound)
<i>Secondary prevention</i>			
Antiplatelets	2	6	2
Anticoagulants/NOAC	3	5	
		Another case of intracerebral haemorrhage and cerebral venous sinus thrombosis not included	

COVID-19, coronavirus disease 2019; SARS, severe acute respiratory syndrome; FBG, fasting blood glucose; NIHSS, National Institutes of Health Stroke Scale; NOAC, novel oral anticoagulants; NSTEMI, non-ST elevation myocardial infarction; NA, not available.

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