SUPPLEMENTARY MATERIAL

Clinical characteristics and outcomes of SARS-CoV-2-associated stroke: a large multicenter national cohort study

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Table 1S. Univariate analysis of predictors of in-hospital mortality in patients with COVID-19-associated stroke

Variable	Deceased (n=117)	Survivors (n=210)	p value	Included in multivariate model
Demographics				
Age (years), median [IQR]	67 [57- 75]	63 [56- 72]	0.013†	Yes
Male sex, n (%)	65 (55.6)	114 (54.3)	0.916‡	No
Baseline Comorbidities				
Hypertension, n (%)	84 (83.2)	122 (65.2)	0.002‡	Yes
Diabetes mellitus, n (%)	40 (39.6)	69 (36.9)	0.746‡	Yes
Atrial fibrillation, n (%)	8 (7.9)	5 (2.7)	0.080‡	Yes
Previous stroke, n (%)	22 (21.8)	22 (11.8)	0.037‡	Yes
Obesity, n (%)	10 (9.9)	19 (10.2)	1.000‡	No
Current/former smoking, n (%)	11 (10.9)	20 (10.7)	1.000‡	No
Cardiopathy, n (%)	26 (25.7)	29 (15.5)	0.051‡	No
Stroke characteristics				
NIHSS at admission, median [IQR]	18 [10- 24]	8 [4- 14]	<0.001†	Yes
Pre-stroke mRS, median [IQR]	0 [0- 1]	0 [0- 0]	0.001†	No
Ischemic stroke, n (%)	88 (75.2)	180 (85.7)	0.027‡	No
Hemorrhagic stroke, n (%)	12 (10.3)	15 (7.1)	0.441‡	No
Cerebral venous thrombosis, n (%)	7 (6.0)	11 (5.2)	0.976‡	No
Subarachnoid hemorrhage, n (%)	10 (8.5)	4 (1.9)	0.011‡	No
Wake-up stroke, n (%)	8 (6.8)	23 (11.0)	0.307‡	No
Time to admission (min), median [IQR]	226 [95- 610]	270 [120- 730]	0.470†	No
Laboratory parameters (admission)				
D-dimer (mg/L), median [IQR]	3.6 [1.3- 12.4]	1.8 [0.9- 4.2]	0.001†	Yes
Hemoglobin (g/dL), median [IQR]	13.1 [11.5- 14.4]	13.6 [12.1- 14.8]	0.089†	No
White blood cells ($\times 10^3/\mu L$), median [IQR]	10.8 [7.9- 14.2]	9.9 [7.2- 13.1]	0.152†	No
Platelet count ($\times 10^3/\mu L$), median [IQR]	235.5 [171- 301]	265.9 [207- 338]	0.002†	No
Creatinine (mg/dL), median [IQR]	1.2 [0.9- 1.8]	1.0 [0.8- 1.3]	<0.001†	No
Urea (mg/dL), median [IQR]	56.5 [38- 89]	36.5 [28- 52]	<0.001†	No
In-hospital complications				
Pneumonia, n (%)	58 (55.8)	61 (55.5)	1.000‡	No
Acute renal failure, n (%)	54 (51.9)	12 (10.9)	<0.001‡	No
Sepsis, n (%)	49 (47.1)	13 (11.8)	<0.001‡	No
Cardiac arrest, n (%)	57 (54.8)	1 (0.9)	<.001‡	No
Venous thromboembolism, n (%)	7 (6.7)	11 (10.0)	0.539‡	No
Delirium, n (%)	5 (4.8)	9 (8.2)	0.471‡	No

† Mann- Whitney U test (for continuous variables); ‡ χ^2 test or Fisher's exact test (for categorical variables).
IQR: interquartile range; NIHSS: National Institutes of Health Stroke Scale; mRS: modified Rankin Scale.

Variable selection for multivariate modeling:

- Variables with univariate $p<0.10$ were considered for entry into multivariate logistic regression models
- Stepwise backward elimination was used to derive final parsimonious models
- The final models included age, hypertension, diabetes mellitus, atrial fibrillation, previous stroke, National Institutes of NIHSS score at admission, and D-dimer levels.

Model adequacy:

- Mortality model: 117 events / 7 variables = 16.7 events per variable (EPV)
- Favorable outcome model: 95 events / 7 variables = 13.6 EPV
- Both exceed the recommended minimum of 10 EPV for logistic regression
- The variance inflation factors (VIFs) for all variables in the final models were <2.5, indicating no significant multicollinearity.
- Hosmer- Lemeshow goodness-of-fit test: $p>0.05$ for both models (indicating acceptable calibration)

Key findings:

- In total, 15 of 33 tested variables achieved statistical significance at $p<0.10$
- The strongest univariate predictors were in-hospital complications (cardiac arrest, renal failure, and sepsis) and acute severity markers (National Institutes of NIHSS score, D-dimer level, and urea level).
- Classical cardiovascular risk factors showed variable associations; hypertension ($p=0.002$) and previous stroke ($p=0.037$) were significantly associated with in-hospital complications but diabetes ($p=0.746$) was not.
- After multivariate adjustment, only NIHSS and D-dimer retained independent prognostic significance

Important notes:

- Sample sizes vary because of missing data for some variables (especially laboratory parameters)
- Complications listed are those occurring during hospitalization and thus could not be true “predictors” at admission; they are included here for completeness but were not entered into predictive models
- Baseline cardiovascular medication use (antiplatelets, anticoagulants, and statins) was not systematically collected and therefore could not be analyzed.