

Supplemental materials

Supplementary Information

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Supplementary Table S1. Baseline characteristics in the test cohort

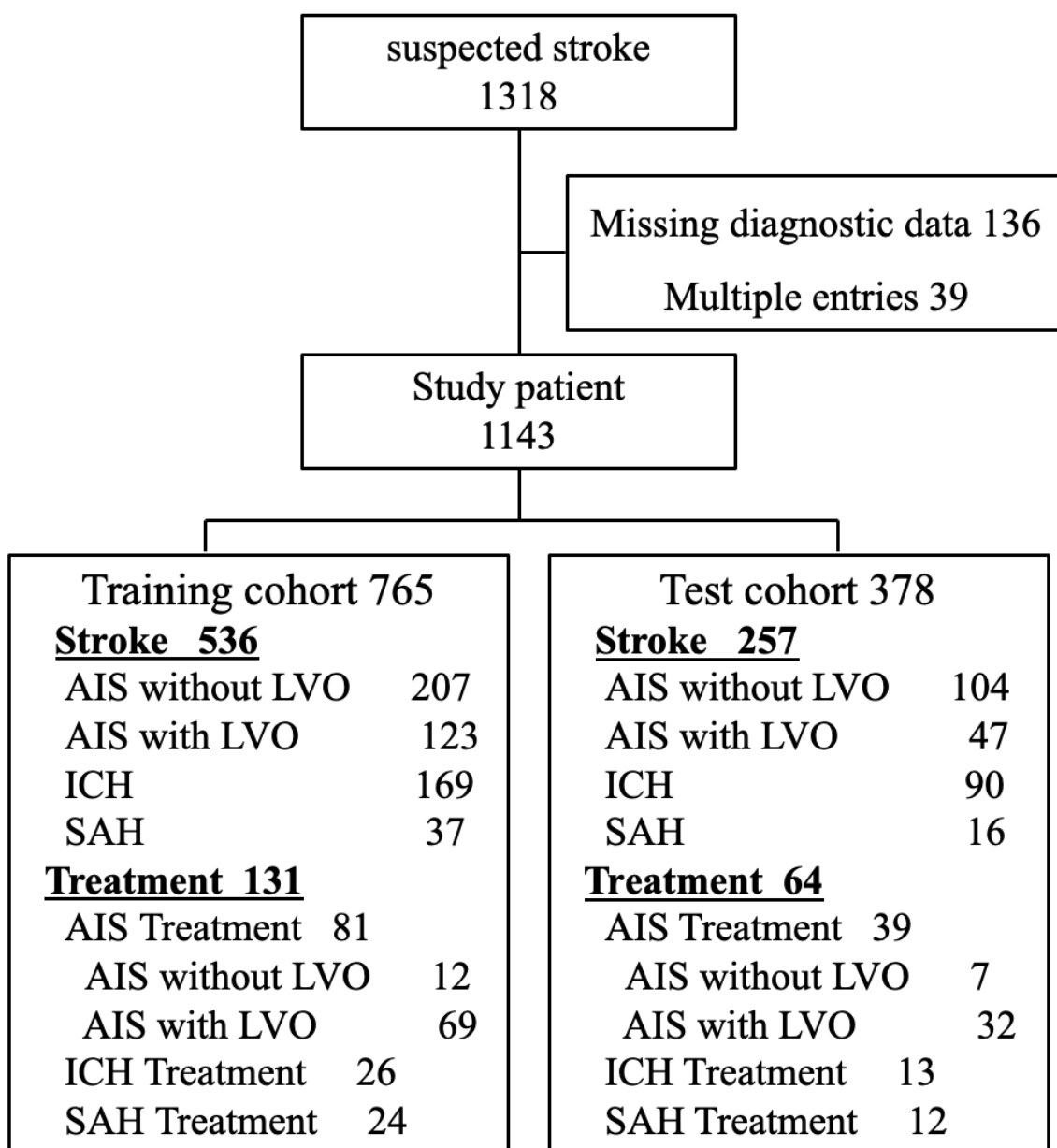
Supplementary Table S2. Level of consciousness in the test cohort

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Figure S1. Study flowchart



AIS; acute ischemic stroke, LVO; large vessel occlusion, ICH; intracranial hemorrhage, SAH; subarachnoid hemorrhage

Table S1. Baseline characteristics in the test cohort

	Treatment (N=64)	No treatment (N=314)	p value
Age, years	73.0 (62.0-81.5)	73.0 (61.0-82.0)	0.945
Male sex, n(%)	37 (57.8%)	197 (62.7%)	0.550
Past medical history			
Intracranial haemorrhage, n(%)	2 (3.4%)	18 (6.1%)	0.610
Anticoagulant/Antiplatelet therapy, n(%)	3 (5.9%)	34 (12.3%)	0.275
ADL independent, n(%)	50 (83.3%)	273 (89.8%)	0.221
Atrial fibrillation, n(%)	7 (12.1%)	12 (4.1%)	0.032
Hypertension, n(%)	30 (50.0%)	150 (49.8%)	1.000
Diabetes mellitus, n(%)	7 (11.7%)	41 (13.8%)	0.821
Cerebral infarction, n(%)	9 (15.0%)	58 (19.5%)	0.523
Time course and onset timing			
Time from onset to emergency call	27.0 (9.0-67.0)	52.0 (11.0-276.8)	0.030
Onset timing Monday	10 (15.6%)	45 (14.3%)	0.942
Onset timing Tuesday	12 (18.8%)	50 (15.9%)	0.710
Onset timing Wednesday	11 (17.2%)	34 (10.8%)	0.222
Onset timing Thursday	5 (7.8%)	38 (12.1%)	0.442
Onset timing Friday	8 (12.5%)	48 (15.3%)	0.705
Onset timing Saturday	10 (15.6%)	40 (12.7%)	0.675
Onset timing Sunday	8 (12.5%)	59 (18.8%)	0.307

Data are presented as median and interquartile range for continuous variables.

P-values were calculated using Pearson's chi-square test or the Mann–Whitney U test.

Table S2. Level of consciousness in the test cohort

	Treatment (N=64)	No treatment (N=314)	p value
Japan Coma Scale			
JCS 0, n(%)	20 (31.2%)	161 (51.3%)	0.005
JCS I-1, n(%)	11 (17.2%)	34 (10.8%)	0.222
JCS I-2, n(%)	3 (4.7%)	27 (8.6%)	0.423
JCS I-3, n(%)	16 (25.0%)	46 (14.6%)	0.064
JCS II-10, n(%)	7 (10.9%)	8 (2.5%)	0.005
JCS II-20, n(%)	0 (0.0%)	1 (0.3%)	1.000
JCS II-30, n(%)	1 (1.6%)	3 (1.0%)	1.000
JCS III-100, n(%)	4 (6.2%)	10 (3.2%)	0.412
JCS III-200, n(%)	1 (1.6%)	12 (3.8%)	0.598
JCS III-300, n(%)	1 (1.6%)	9 (2.9%)	0.869
Glasgow Coma Scale			
GCS (E)=4, n(%)	44 (68.8%)	259 (82.5%)	0.019
GCS (E)=3, n(%)	13 (20.3%)	19 (6.1%)	<0.001
GCS (E)=2, n(%)	1 (1.6%)	9 (2.9%)	0.869
GCS (E)=1, n(%)	6 (9.4%)	26 (8.3%)	0.968
GCS (V)=5, n(%)	23 (35.9%)	169 (53.8%)	0.013
GCS (V)=4, n(%)	14 (21.9%)	53 (16.9%)	0.439
GCS (V)=3, n(%)	8 (12.5%)	21 (6.7%)	0.182
GCS (V)=2, n(%)	6 (9.4%)	22 (7.0%)	0.691
GCS (V)=1, n(%)	13 (20.3%)	44 (14.0%)	0.275
GCS (M)=6, n(%)	41 (64.1%)	250 (79.6%)	0.011
GCS (M)=5, n(%)	12 (18.8%)	23 (7.3%)	0.008
GCS (M)=4, n(%)	5 (7.8%)	12 (3.8%)	0.283
GCS (M)=3, n(%)	1 (1.6%)	3 (1.0%)	1.000
GCS (M)=2, n(%)	2 (3.1%)	5 (1.6%)	0.749
GCS (M)=1, n(%)	3 (4.7%)	15 (4.8%)	1.000

JCS (Japan coma scale), GCS (Glasgow coma scale).

Data are presented as median and interquartile range for continuous variables.

P-values were calculated using Pearson's chi-square test or the Mann–Whitney U test.

Table S3. Vital signs and symptoms in the test cohort

	Treatment (N=64)	No treatment (N=314)	p value
Vital signs			
Heart rate	78.0 (65.0-90.0)	84.0 (74.0-96.0)	0.002
Arrhythmia	21 (38.9%)	46 (17.2%)	<0.001
Systolic blood pressure	164.0 (147.5-191.0)	172.0 (150.0-195.0)	0.441
Diastolic blood pressure	96.0 (79.2-104.0)	96.0 (82.0-114.0)	0.409
Body temperature	36.4 (36.0-36.6)	36.5 (36.2-36.8)	0.063
Oxygen Saturation	97.5 (96.0-99.0)	98.0 (96.0-98.0)	0.899
Symptoms			
Vomiting, n(%)	14 (22.6%)	38 (12.3%)	0.055
Dizziness, n(%)	8 (17.0%)	27 (10.5%)	0.299
Numbness, n(%)	6 (13.6%)	53 (22.5%)	0.264
Convulsion, n(%)	0 (0.0%)	17 (5.6%)	0.113
Upper limb paralysis, n(%)	43 (76.8%)	159 (55.0%)	0.004
Hemiparalysis, n(%)	34 (59.6%)	117 (39.9%)	0.009
Conjugate deviation, n(%)	16 (30.2%)	37 (13.3%)	0.004
Facial palsy, n(%)	22 (51.2%)	72 (32.7%)	0.033
Aphasia, n(%)	15 (34.1%)	51 (21.0%)	0.088
Dysarthria, n(%)	20 (55.6%)	105 (49.1%)	0.589
Unilateral spatial neglect, n(%)	4 (21.1%)	8 (6.1%)	0.071
Sudden headache or unconsciousness, n(%)	44 (68.8%)	115 (36.6%)	<0.001
Sudden headache, n(%)	17 (33.3%)	13 (6.7%)	<0.001

Data are presented as median and interquartile range for continuous variables.

P-values were calculated using Pearson's chi-square test or the Mann–Whitney U test.

Table S4. Comparison with other machine learning algorithms.

	AUROC	Accuracy	Sensitivity	Specificity	F1-score
Training cohort					
Logistic	0.735	0.638	0.763	0.611	0.419
Regression	(0.691- 0.781)	(0.607-0.671)	(0.689- 0.835)	(0.576-0.648)	(0.365-0.476)
Random	0.882	0.766	0.862	0.746	0.558
Forest	(0.853- 0.913)	(0.735-0.795)	(0.796- 0.924)	(0.711-0.779)	(0.499-0.619)
SVM(RBF)	0.727	0.647	0.710	0.634	0.408
	(0.682- 0.770)	(0.614-0.682)	(0.633- 0.790)	(0.597-0.673)	(0.351-0.468)
Test cohort					
Logistic	0.743	0.613	0.750	0.586	0.397
Regression	(0.682- 0.801)	(0.561-0.667)	(0.642- 0.847)	(0.530-0.648)	(0.317-0.474)
Random	0.765	0.722	0.719	0.722	0.467
Forest	(0.703- 0.824)	(0.677-0.767)	(0.606- 0.825)	(0.673-0.772)	(0.382-0.544)
SVM(RBF)	0.638	0.608	0.531	0.624	0.310
	(0.569- 0.706)	(0.558-0.659)	(0.403- 0.653)	(0.571-0.680)	(0.234-0.393)

AUROC; area under the receiver operating characteristic curve.

Table S5. Prehospital stroke prediction for intervention using SPSS.

AUROC	Accuracy	Sensitivity	Specificity	F1-score
0.587	0.481	0.747	0.427	0.329

Shonan Prehospital Scale; SPSS, AUROC; area under the receiver operating characteristic curve.