

Supplemental Material

Supplemental Table I- Prediction of functional outcome (mRS 0-3)

Univariate logistic regression analysis

Parameter	OR	95% CI	p value
Recanalization status	8.60	2.32 – 31.79	0.001
ASPECTS	1.28	0.79 – 2.08	0.325
Age (1 years)	0.93	0.89 – 0.97	0.002
NIHSS	0.79	0.68 – 0.92	0.003
Collateral score	2.68	1.60 – 4.49	<0.001
NWU in admission CT	0.90	0.79 – 1.02	0.120
NWU in follow-up CT	0.95	0.90 – 1.01	0.080

Multivariate logistic regression analysis

Parameter	OR	95% CI	p value
Recanalization status	12.18	1.85 – 80.18	0.009
Age	0.93	0.88 – 0.98	0.011
Collateral score	3.01	1.46 – 6.16	0.002

NIHSS: National Institute of Health Stroke Scale; ASPECTS= Alberta Stroke Program Early

CT Score; NWU: Net water uptake

Legends to supplemental Figures:**Supplemental Figure I – Threedimensional surface plot to display the probability for mRS 0-3**

A threedimension surface plot was created displaying the probability for good clinical outcome (mRS 0-3) for age and collateral score based on multivariate logistic regression and adjusted for recanalization status.

Supplemental Figure II– Impact of collateral status on clinical outcome in patients with successful recanalization

Multivariable logistic regression analysis (left side) displays the impact of collateral score in patients after vessel recanalization separately for patients up to 71 years (blue) or older than 71 years in orange (median age of recanalized patients).

Supplemental Figure III: Scatter plot to display the relationship of ASPECTS and corresponding collateral score

Distribution of collateral scores (y-axis) among the ASPECTS scale (x-axis).

Supplemental Figure IV – Impact of collateral score and recanalization status on edema formation

Impact of collateral scores (x-axis) and recanalization status on formation of ischemic edema in follow-up CT based on multivariate linear regression analysis.

Image Acquisitions

All patients received a comprehensive stroke imaging protocol on admission with NECT, CTA, and dynamic time-resolved CTP performed in equal order on 256 dual slice scanners (Philips iCT 256, Siemens Somatom Definition Flash). NECT: 120 kV, 280-340 mA, 5.0 mm slice reconstruction, 1 mm increment; CTA: 100-120 kV, 260-300 mAs, 5.0-mm slice reconstruction, 1-mm increment, 80 mL highly iodinated contrast medium and 50 mL NaCl flush at 4 mL/second; CTP: 80 kV, 200-250 mA, 5 mm slice reconstruction (max. 10 mm), slice sampling rate 1.50 s (min. 1.33 s), scan time 45 s (max. 60 s), biphasic injection with 30 ml (max. 40 ml) of highly iodinated contrast medium with 350 mg iodine/ml (max. 400 mg/ml) injected with at least 4 ml/s (max. 6 ml/s) followed by 30 ml sodium chloride chaser bolus. All datasets were inspected for quality and excluded in case of severe motion artifacts.

Subanalysis for ischemic core volume

The following subanalysis refers to the role of the early ischemic core volume based on parametric cerebral blood volume maps that have been analyzed using manual volumetric assessments (Analyze 11.0, Biomedical Imaging Resource, Mayo Clinic, Rochester, MN).

The mean ischemic core volume was 58 mL (95%CI: 49 – 67 mL). The mean core volume in patients with a modified Ranking Scale score of 0-3 was 53 mL (SD 41 mL), and the mean core volume for patients with a modified Ranking Scale score of 4-6 was 59 mL (SD 35 mL), which was not significantly different ($p=0.6$).

In multivariable logistic regression analysis with good clinical outcome (mRS 0-3) as dependent variable and recanalization status, collateral score, ischemic core volume, and age as independent parameter using backwards selection. Ischemic core volume was not significantly associated with clinical outcome. The results of this analysis can be found in the following table.

Parameter	Coefficient	Odds ratio	95% CI	P Value
Age	-0.06	0.94	0.89 – 0.99	0.03
Collateral Score	0.90	2.46	1.23 – 4.91	0.01
Recanalization Status	2.33	10.23	1.65 – 64.43	0.01
Ischemic core volume	**	**	**	Not significant

Secondly, the impact of recanalization status and collateral scores were analyzed separately for patients with an ischemic core volume of >50 mL and >70 mL using univariable and multivariable logistic regression analyses.

Univariable logistic regression analysis

Dependent variable: mRS 0-3

Patients with an ischemic core volume >50 mL

Parameter	Coefficient	Odds ratio	95% CI	P Value
Recanalization Status	2.89	18.0	1.84-176.57	0.01
Collateral Score	1.63	5.14	1.26 – 21.0	0.02

Patients with an ischemic core volume >70 mL

Parameter	Coefficient	Odds ratio	95% CI	P Value
Recanalization Status	2.17	8.8	0.77 – 100.3	0.08
Collateral Score	1.83	6.23	1.11 – 34.89	0.04

Multivariable logistic regression analysis

Dependent variable: mRS 0-3

Patients with an ischemic core volume > 50 mL

Parameter	Coefficient	Odds ratio	95% CI	P Value
Recanalization Status	2.86	17.5	1.39 – 219.6	0.03
Collateral Score	1.62	5.1	1.1 – 25.2	0.04

Patients with an ischemic core volume > 70 mL

Parameter	Coefficient	Odds ratio	95% CI	P Value
Recanalization Status	N.s.	N.s.	N.s.	N.s.
Collateral Score	1.83	6.23	1.11 – 34.89	0.04