

Supplementary Materials – Data utilizing site assessment of occlusion locations

Table 1: Baseline and Procedural Characteristics

Per Core Lab Assessment of M1/M2 Location				Per Site Assessment of M1/M2 Location			
Characteristic	M1 MCA (N = 124)	M2 MCA (N = 37)	P-value	Characteristic	M1 MCA (N=139)	M2 MCA (N=22)	P-value
Age, years				Age, years			
N	124	37		N	139	22	
Mean ± SD	71.18 ± 13.21	71.14 ± 11.18		Mean ± SD	70.88 ± 13.29	72.64 ± 8.45	
Median (IQR)	74.00 (65.00, 80.00)	73.00 (66.00, 78.00)	0.625	Median (IQR)	73.00 (65.00, 80.00)	74.00 (69.00, 78.00)	0.996
Range	(27.00, 96.00)	(36.00, 89.00)		Range	(27.00, 96.00)	(53.00, 87.00)	
Age (< 80 years)	68.5% (85/124)	78.4% (29/37)	0.306	Age (< 80 years)	69.8% (97/139)	77.3% (17/22)	0.616
Female	59.7% (74/124)	59.5% (22/37)	1.000	Female	61.2% (85/139)	54.5% (12/22)	0.641
Diabetes	17.7% (22/124)	32.4% (12/37)	0.067	Diabetes	18.7% (26/139)	36.4% (8/22)	0.088
Atrial Fibrillation	38.7% (48/124)	35.1% (13/37)	0.846	Atrial Fibrillation	37.8% (51/135)	47.6% (10/21)	0.473
Hyperlipidemia	34.7% (43/124)	37.8% (14/37)	0.692	Hyperlipidemia	36.3% (49/135)	33.3% (7/21)	1.000

Systemic Hypertension	73.4% (91/124)	64.9% (24/37)	0.310	Systemic Hypertension	74.1% (103/139)	59.1% (13/22)	0.199
Angina/Coronary Artery Disease	5.6% (7/124)	10.8% (4/37)	0.280	Angina/Coronary Artery Disease	5.1% (7/138)	18.2% (4/22)	0.047
History of Smoking (Current or Former)	24.0% (29/121)	21.2% (7/33)	0.820	History of Smoking (Current or Former)	23.9% (32/134)	20.0% (4/20)	1.000
Occlusion location (right)	51.6% (64/124)	40.5% (15/37)	0.265	Occlusion location (right)	49.6% (69/139)	40.9% (9/22)	0.497
Pre-stroke Modified Rankin of 0	73.4% (91/124)	83.8% (31/37)	0.195	Pre-stroke Modified Rankin of 0	74.1% (103/139)	81.8% (18/22)	0.598
Baseline CT-ASPECT				Baseline CT-ASPECT			
N	103	34	0.984	N	116	21	0.973
Mean ± SD	8.7 ± 1.2	8.7 ± 1.3		Mean ± SD	8.7 ± 1.2	8.7 ± 1.3	
Median (IQR)	9.0 (8.0-10.0)	9.0 (8.0-10.0)		Median (IQR)	9.0 (8.0-10.0)	9.0 (8.0-10.0)	
Range	6.0–10.0	6.0–10.0		Range	6.0–10.0	6.0–10.0	
Baseline CT-ASPECT else				Baseline CT-ASPECT else			
MR DWI ASPECT				MR DWI ASPECT			
N	124	36	0.420	N	139	21	0.908
Mean ± SD	8.8 ± 1.3	8.6 ± 1.4		Mean ± SD	8.8 ± 1.3	8.7 ± 1.3	
Median (IQR)	9.0 (8.0-10.0)	9.0 (7.0-10.0)		Median (IQR)	9.0 (8.0-10.0)	9.0 (8.0-10.0)	
Range	5.0–10.0	6.0–10.0		Range	5.0–10.0	6.0–10.0	

Baseline NIHSS				Baseline NIHSS			
N	124	37		N	139	22	
Mean ± SD	15.25 ± 5.60	15.25 ± 6.73	0.697	Mean ± SD	15.42 ± 5.90	13.73 ± 6.15	0.302
Median (IQR)	16.00 (10.50-20.00)	16.00 (10.00-19.00)		Median (IQR)	16.00 (10.00-20.00)	16.00 (9.00-18.00)	
Range	2.00 – 24.00	3.00 – 36.00		Range	2.00 – 36.00	3.00 – 24.00	
NIHSS < 16	49.2% (61/124)	45.9% (17/37)		NIHSS < 16	49.6 % (69/139)	45.5% (10/22)	
NIHSS 16-20	30.6% (38/124)	32.4% (12/37)	0.749	NIHSS 16-20	28.8 % (40/139)	36.4% (8/22)	0.765
NIHSS >20	20.2% (25/124)	21.6% (8/37)		NIHSS >20	21.6 % (30/139)	18.2% (4/22)	
IV rt-PA prior to procedure	66.1% (82/124)	64.9% (24/37)	1.000	IV rt-PA prior to procedure	67.6% (94/139)	54.5% (12/22)	0.236
Catheters used for Penumbra System				Catheters used for Penumbra System			
ACE68	65.3% (81/124)	64.9% (24/37)		ACE68	61.9% (86/139)	77.3% (17/22)	
ACE64	32.3% (40/124)	29.7% (11/37)		ACE64	34.5% (48/139)	18.2% (4/22)	
ACE60	0.8% (1/124)	0%	1.000	ACE60	0.7% (1/139)	0%	0.153
3MAX	0.8% (1/124)	0%		3MAX	0.7% (1/139)	0%	
5MAX with Stent Retriever	0%	2.7% (1/37)		5MAX with Stent Retriever	0%	4.5% (1/22)	
ACE64 with Stent Retriever	0.8% (1/124)	0%		ACE64 with Stent Retriever	0.7% (1/139)	0%	
ACE68 with Stent Retriever	0%	2.7% (1/37)		ACE68 with Stent Retriever	1.4% (2/139)	0%	

Time from symptom onset to hospital admission (min)				Time from symptom onset to hospital admission (min)			
N	124	37		N	139	22	
Mean ± SD	116.63 ± 80.51	133.57 ± 85.62	0.207	Mean ± SD	118.01 ± 81.67	123.59 ± 85.61	0.633
Median (IQR)	91.50 (56.00-159.50)	125.00 (73.00-177.00)		Median (IQR)	95.00 (57.00-168.00)	122.50 (71.00-152.00)	
Range	0.00 – 351.00	0.00 – 340.00		Range	0.00 – 351.00	0.00 – 313.00	
Time from Onset to Admission ≤ 3 hours	79.8% (99/124)	75.7% (28/37)	0.647	Time from Onset to Admission ≤ 3 hours	79.1% (110/139)	77.3% (17/22)	0.785
Time from symptom onset to final angiogram (min)				Time from symptom onset to final angiogram (min)			
N	124	37		N	139	22	
Mean ± SD	255.77 ± 90.67	269.49 ± 87.62	0.184	Mean ± SD	256.40 ± 89.57	263.95 ± 95.75	0.241
Median (IQR)	250.50 (194.50-317.00)	266.00 (234.00-317.00)		Median (IQR)	250.00 (194.00-315.00)	277.50 (225.00-327.00)	
Range	5.00 – 507.00	14.00 – 425.00		Range	5.00 – 507.00	14.00 – 395.00	
Frontline ACE68/64 catheter passes				Frontline ACE68/64 catheter passes			
Mean ± SD	1.52 ± 0.85	1.22 ± 0.59	0.049	Mean ± SD	1.52 ± 0.83	1.05 ± 0.38	0.009
Median (IQR)	1.00 (1.00 - 2.00)	1.00 (1.00 – 1.00)		Median (IQR)	1.00 (1.00 - 2.00)	1.00 (1.00 – 1.00)	
Range	1.00 – 5.00	0.00 ^[1] – 3.00		Range	1.00 – 5.00	0.00 ^[1] – 2.00	

IQR, interquartile range; NIHSS, National Institutes of Health Stroke Scale; mRS, modified Rankin Scale.

P-values for categorical variables are based on Fisher's test. P-values for numerical variables are based on independent T-test else Mann-Whitney U test based on normality of the data.

[1] One patient with failure to access

IQR, interquartile range; NIHSS, National Institutes of Health Stroke Scale; mRS, modified Rankin Scale.

P-values for categorical variables are based on Fisher's test. P-values for numerical variables are based on independent T-test else Mann-Whitney U test based on normality of the data.

[1] One patient with failure to access

Table 2: Safety and Efficacy Outcomes

Per Core Lab Assessment of M1/M2 Location				Per Site Assessment of M1/M2 Location			
Outcome	M1 MCA, % (n/N)	M2 MCA, % (n/N)	P-value	Outcome	M1 MCA (N=139)	M2 MCA (N=22)	P-value
mTICI 2b-3 Post-Penumbra System aspiration: per core laboratory*	69.4% (86/124)	67.6% (25/37)	0.842	mTICI 2b-3 Post-Penumbra System aspiration: per core laboratory*	67.6% (94/139)	77.3% (17/22)	0.461
Treated with stent retriever post-Penumbra System (rescue)	22.6% (28/124)	21.6% (8/37)	1.000	Treated with stent retriever post-Penumbra System (rescue)	23.0% (32/139)	18.2% (4/22)	0.786
- mTICI 2b-3 post-Stent Retriever after Penumbra System (rescue)	82.1% (23/28)	87.5% (7/8)	1.000	- mTICI 2b-3 post-Stent Retriever after Penumbra System (rescue)	81.3% (26/32)	100% (4/4)	1.000
mTICI 2b-3 at post procedure: per core laboratory*	92.7% (115/124) ^δ	91.9% (34/37) ^ϕ	1.000	mTICI 2b-3 at post procedure: per core laboratory*	92.1% (128/139) ^δ	95.5% (21/22)	1.000
mRS 0-2 at 90 days†	57.0% (69/121)	70.3% (26/37)	0.181	mRS 0-2 at 90 days†	58.1% (79/136)	68.2% (15/22)	0.484

Device-related SAEs at 24 hours: per CEC	1.6% (2/124)	0.0%	1.000	Device-related SAEs at 24 hours: per CEC	1.4% (2/139)	0.0%	1.000
Device and procedure-related SAEs at 24 hours: per CEC	3.2% (4/124)	5.4% (2/37)	0.622	Device and procedure-related SAEs at 24 hours: per CEC	3.6% (5/139)	4.5% (1/22)	0.592
Device and procedure-related SAEs at 30 days: per CEC	4.0% (5/124)	8.1% (3/37)	0.386	Device and procedure-related SAEs at 30 days: per CEC	5.0% (7/139)	4.5% (1/22)	1.000
All-cause mortality at 90 days‡	6.6% (8/121)	2.7% (1/37)	0.686	All-cause mortality at 90 days‡	5.8% (8/139)	4.5% (1/22)	1.000
Symptomatic intracranial hemorrhage at 24 hours: per CEC §	1.6% (2/124)	2.7% (1/37)	0.546	Symptomatic intracranial hemorrhage at 24 hours: per CEC §	2.2% (3/139)	0.0%	1.000
Time from arterial puncture to revascularization (min)				Time from arterial puncture to revascularization (min)			
N	124	37		N	139	22	
Mean ± SD	38.93 ± 26.89	36.68 ± 26.94	0.497	Mean ± SD	38.36 ± 26.70	37.50 ± 29.40	0.694
Median (IQR)	31.00 (20.00-46.50)	25.00 (20.00-49.00)		Median (IQR)	31.00 (20.00-47.00)	25.00 (20.00-50.00)	
Range	4.00 – 130.00	3.00 – 135.00		Range	3.00 – 130.00	7.00 – 135.00	

Time from arterial puncture to revascularization \leq 1 hour	82.3% (102/124)	83.8% (31/37)	1.000	Time from arterial puncture to revascularization \leq 1 hour	82.7% (115/139)	81.8% (18/22)	1.000
Time from symptom onset to revascularization (min)				Time from symptom onset to revascularization (min)			
N	124	37		N	139	22	
Mean \pm SD	246.66 \pm 86.48	260.65 \pm 84.94	0.201	Mean \pm SD	247.40 \pm 85.74	257.45 \pm 93.77	0.231
Median (IQR)	243.00 (185.00-307.00)	260.00 (227.00-304.00)		Median (IQR)	244.00 (185.00-304.00)	270.50 (215.00-324.00)	
Range	5.00 – 480.00	14.00 – 425.00		Range	5.00 – 480.0	14.00 – 385.00	
<p>CEC, Clinical Events Committee; CI, confidence interval; IQR, interquartile range; mRS, modified Rankin Scale; mTICI, modified Thrombolysis in Cerebral Infarction; SAE, serious adverse event.</p> <p>P-values for categorical variables are based on Fisher's test. P-values for numerical variables are based on independent T-test else Mann-Whitney U test based on normality of the data.</p> <p>* For 2 patients missing Core Lab DSA review due to vessel not visualized, PI assessment of mTICI score carried over.</p> <p>δ Three subjects revascularized at final angiogram, post-PS without further intervention, 3 subjects revascularized post-PS with further intervention (1 with</p>				<p>CEC, Clinical Events Committee; CI, confidence interval; IQR, interquartile range; mRS, modified Rankin Scale; mTICI, modified Thrombolysis in Cerebral Infarction; SAE, serious adverse event.</p> <p>P-values for categorical variables are based on Fisher's test. P-values for numerical variables are based on independent T-test else Mann-Whitney U test based on normality of the data.</p> <p>* For 2 patients missing Core Lab DSA review due to vessel not visualized, PI assessment of mTICI score carried over.</p> <p>δ Five subjects revascularized at final angiogram, post-PS without further intervention, 3 subjects revascularized post-PS with further intervention (1 subject</p>			

<p><i>stent post-PS, 1 with SOFIA plus post-PS, 1 with microcatheter guidewire disruption post-PS)</i></p> <p><i>φ Two subjects revascularized at final angiogram post-PS without further intervention</i></p> <p><i>† Four patients withdrew prior to the 90-day follow up and were excluded from 90-day mRS analysis.</i></p> <p><i>‡ Mortality assigned as 90-day mRS 6.</i></p> <p><i>§ Defined as 24-hour CT evidence of an ECASS-defined intracranial hemorrhage associated with a 4-point or more worsening of the NIHSS score.</i></p> <p><i>// Time to mTICI 2b-3, else final angiogram.</i></p>	<p><i>with stent treatment post-PS, 1 subject SOFIA plus post-PS, 1 subject with microcatheter guidewire disruption post-PS)</i></p> <p><i>† Four patients withdrew prior to the 90-day follow up and were excluded from 90-day mRS analysis.</i></p> <p><i>‡ Mortality assigned as 90-day mRS 6.</i></p> <p><i>§ Defined as 24-hour CT evidence of an ECASS-defined intracranial hemorrhage associated with a 4-point or more worsening of the NIHSS score.</i></p> <p><i>// Time to mTICI 2b-3, else final angiogram.</i></p>
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Table 3: Analyses for 90 day mRS 0-2

Per Core Lab Assessment of M1/M2 Location				Per Site Assessment of M1/M2 Location			
Univariable Analysis				Univariable Analysis			
Variable	Odds Ratio	95% CI	P-value	Variable	Odds Ratio	95% CI	P-value
M1 Location (vs. M2)	0.56	(0.25, 1.24)	0.153	M1 Location (vs. M2)	0.65	(0.25, 1.69)	0.374
Occlusion Location Left (vs. Right)	0.77	(0.41, 1.45)	0.417	Occlusion Location Left (vs. Right)	0.76	(0.40, 1.44)	0.401
Age (<80 years)	4.49	(2.16, 9.31)	<0.001	Age (<80 years)	4.30	(2.08, 8.91)	<0.001
Gender (Female)	0.58	(0.30, 1.12)	0.106	Gender (Female)	0.58	(0.30, 1.12)	0.105
Pre-Stroke Modified Rankin =0	3.56	(1.66, 7.63)	<0.001	Pre-Stroke Modified Rankin =0	3.66	(1.72, 7.82)	<0.001
NIHSS < 16 (vs. NIHSS >20)	6.13	(2.50, 15.02)	<0.001	NIHSS < 16 (vs. NIHSS >20)	6.51	(2.67, 15.89)	<0.001
NIHSS ≥16, ≤20 (vs. NIHSS >20)	3.51	(1.37, 9.00)	0.350	NIHSS ≥16, ≤20 (vs. NIHSS >20)	3.41	(1.33, 8.75)	0.441
History of Smoking (Current or Former)	1.96	(0.86, 4.45)	0.107	History of Smoking (Current or Former)	2.03	(0.90, 4.61)	0.090
History of Systemic Hypertension	0.51	(0.24, 1.08)	0.078	History of Systemic Hypertension	0.52	(0.25, 1.09)	0.084
IV tPA Administration	2.26	(1.16, 4.42)	0.017	IV tPA Administration	2.44	(1.24, 4.76)	0.009
Time from Onset to Admission = < 3 hours	2.30	(1.07, 4.98)	0.034	Time from Onset to Admission = < 3 hours	2.22	(1.03, 4.80)	0.042
Time from Puncture to Revascularization* = < 1 hour	1.97	(0.87, 4.49)	0.106	Time from Puncture to Revascularization* = < 1 hour	1.91	(0.84, 4.34)	0.124
Multivariable Analysis				Multivariable Analysis			
Variable	Odds Ratio	95% CI	P-value	Variable	Odds Ratio	95% CI	P-value
M1 Location (vs. M2)	0.59	(0.22, 1.62)	0.307	M1 Location (vs. M2)	0.66	(0.19, 2.31)	0.510
Age (<80 years)	6.45	(2.70, 15.43)	<0.001	Age (<80 years)	6.40	(2.67, 15.37)	<0.001
NIHSS < 16 (vs. NIHSS >20)	8.65	(3.07, 24.35)	0.003	NIHSS < 16 (vs. NIHSS >20)	9.27	(3.33, 25.82)	0.001
NIHSS => 16, =<20 (vs. NIHSS >20)	6.79	(2.20, 20.93)	0.058	NIHSS => 16, =<20 (vs. NIHSS >20)	6.90	(2.23, 21.38)	0.067
Time from Onset to Admission = < 3 hours	3.61	(1.40, 9.32)	0.008	Time from Onset to Admission = < 3 hours	3.39	(1.32, 8.68)	0.011
<i>mRS, modified Rankin Scale; NIHSS, National Institutes of Health Stroke Scale. Four patients withdrew prior to the 90-day follow up and were excluded from 90-day mRS analysis. Variables with univariable p-value < 0.20 were included for</i>				<i>mRS, modified Rankin Scale; NIHSS, National Institutes of Health Stroke Scale. Four patients withdrew prior to the 90-day follow up and were excluded from 90-day mRS analysis. Variables with univariable p-value < 0.20 were included for</i>			

multivariable predictor analysis. Stepwise selection process was used for variables, with alpha-to-remove criterion of 0.05.
**Time to mTICI 2b-3, else final angiogram.*

multivariable predictor analysis. Stepwise selection process was used for variables, with alpha-to-remove criterion of 0.05.
**Time to mTICI 2b-3, else final angiogram.*

Table 4: Analyses for mTICI2b-3 Post Procedure

Per Core Lab Assessment of M1/M2 Location				Per Site Assessment of M1/M2 Location			
Univariable Analysis				Univariable Analysis			
Variable	Odds Ratio	95% CI	P-value	Variable	Odds Ratio	95% CI	P-value
M1 Location (vs. M2)	1.13	(0.29, 4.40)	0.863	M1 Location (vs. M2)	0.55	(0.07, 4.52)	0.581
Occlusion Location Left (vs. Right)	1.04	(0.32, 3.38)	0.947	Occlusion Location Left (vs. Right)	1.07	(0.33, 3.47)	0.911
Age (<80 years)	0.46	(0.10, 2.20)	0.332	Age (<80 years)	0.46	(0.10, 2.20)	0.331
Gender (Female)	4.53	(0.47, 4.96)	0.482	Gender (Female)	1.57	(0.48, 5.10)	0.454
Pre-Stroke Modified Rankin =0	1.05	(0.27, 4.07)	0.948	Pre-Stroke Modified Rankin =0	1.01	(0.26, 3.93)	0.990
NIHSS < 16 (vs. NIHSS >20)	1.46	(0.33, 6.50)	0.614	NIHSS < 16 (vs. NIHSS >20)	1.43	(0.32, 6.36)	0.591
NIHSS ≥16, ≤20 (vs. NIHSS >20)	1.15	(0.24, 5.51)	0.939	NIHSS ≥16, ≤20 (vs. NIHSS >20)	1.07	(0.22, 5.10)	0.856
History of Systemic Hypertension	1.88	(0.57, 6.26)	0.303	History of Systemic Hypertension	1.95	(0.58, 6.49)	0.278
IV tPA Administration	0.96	(0.28, 3.34)	0.950	IV tPA Administration	0.96	(0.28, 3.34)	0.950
Time from Onset to Admission = < 3 hours	1.98	(0.56, 7.03)	0.288	Time from Onset to Admission = < 3 hours	1.98	(0.56, 7.03)	0.289
Time from Puncture to Revascularization* = < 1 hour	3.91	(1.14, 13.34)	0.030	Time from Puncture to Revascularization* = < 1 hour	3.91	(1.14, 13.40)	0.030
Multivariable Analysis				Multivariable Analysis			
Variable	Odds Ratio	95% CI	P-value	Variable	Odds Ratio	95% CI	P-value
M1 Location (vs. M2)	1.43	(0.35, 5.92)	0.619	M1 Location (vs. M2)	0.62	(0.07, 5.26)	0.658
Time from Puncture to Revascularization* = < 1 hour	4.36	(1.23, 15.53)	0.023	Time from Puncture to Revascularization* = < 1 hour	4.39	(1.23, 15.63)	0.023
<i>mTICI, modified Thrombolysis in Cerebral Infarction; NIHSS, National Institutes of Health Stroke Scale. For 2 patients missing Core Lab DSA review due to vessel not visualized, PI assessment of mTICI score carried over. Variables with univariable p-value < 0.20 were included for multivariable predictor analysis. Stepwise selection process was used for variables, with alpha-to-remove criterion of 0.05. *Time to mTICI 2b-3, else final angiogram.</i>				<i>mTICI, modified Thrombolysis in Cerebral Infarction; NIHSS, National Institutes of Health Stroke Scale. For 2 patients missing Core Lab DSA review due to vessel not visualized, PI assessment of mTICI score carried over. Variables with univariable p-value < 0.20 were included for multivariable predictor analysis. Stepwise selection process was used for variables, with alpha-to-remove criterion of 0.05. *Time to mTICI 2b-3, else final angiogram.</i>			