

**Supplement Material**

**Supplement Table 1:** Characteristics of included studies.

**Supplement Table 2:** Characteristics of the single-phase vs. multiphase CTA sub-cohorts within the collateral cohort.

**Supplement Table 3:** Outcomes of the single-phase vs. multiphase CTA sub-cohorts within the collateral cohort.

Supplement Table 1: Characteristics of included studies.

Study	Italian Registry	Prove-It	ESCAPE	ESCAPE-NAI	Beaumont Hospital Registry	Acute STroke Registry and Analysis of Lausanne (ASTRAL)	SNUBH
<b>Population</b>							
<b>Country</b>	Italy	North America, Europe, East Asia	North America, Europe, East Asia	North America, Europe, East Asia	Dublin, Ireland	Lausanne, Switzerland	Korea
<b>Sample Size</b>	184	35	24	93 (control arm only)	199	49	24
<b>Wake-up vs Witnessed</b>	Available	Available	Not Available	Not Available	Available	Available	Available
<b>Inclusion</b>	Onset to imaging >360 minutes	Onset to imaging >360 minutes	Onset to imaging >360 minutes	Onset to imaging >360 minutes	Onset to imaging >360 minutes	Onset to imaging >360 minutes	Onset to imaging >360 minutes
<b>Imaging Criteria Availability</b>							
<b>NCCT ASPECTS</b>	All patients	All patients	All patients	All patients	All patients	All patients	All patients
<b>Collateral assessment modality</b>	sCTA in 117 mCTA in 67	All mcta	All mcta	sCTA: 27 mCTA: 66	sCTA in 20 mCTA in 178	sCTA in all	mCTA in all
<b>Collateral scoring</b>	sCTA: 4-point scale poor (scores, 0–1) and good (scores, 2–3), mCTA: 6-point scale poor (grade, 0–3) and good (scores, 4–5)	Good, moderate, or poor	10-point scale. Moderate–good collateral grade was defined as ≥50% filling of the mca pial arterial circulation	Good, moderate, or poor	moderate–good collateral grade defined as ≥50% filling of the MCA pial arterial circulation	Graded based on the Tan score. 0=absent; 1=filling <50% of the occluded territory; 2=filling 50%-99% of the occluded territory; 3=filling 100% of the occluded territory; 4=exuberant filling; 5=not applicable (no prox. Occlusion)  Good = Score >1	moderate–good collateral grade defined as ≥50% filling of the MCA pial arterial circulation

Study	Italian Registry	Prove-It	ESCAPE	ESCAPE-NAI	Beaumont Hospital Registry	Acute Stroke Registry and Analysis of Lausanne (ASTRAL)	SNUBH
<b>Occlusion Site</b>	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)	ICA M1 M2 (tandem occlusion specified)
<b>CTP assessment</b>	All patients Mismatch (Y/N): core $\leq$ 50% of hypoperfusion extent or < 33% of the MCA territory according to Turk et al	27	2	55	50 (inadequate quality in 2 more)	38	24
<b>Core definition</b>	CBV <2.0 mL/100 g	relative CBF threshold volume, defined as Tmax>12.5			N/A	CBV <2.0 mL/100 g	rCBF <30% compared to the contralateral hemisphere (RAPID) rCBV <30% and DT >2 sec (OLEA)
<b>Penumbra definition</b>	MTT >145% of the contralateral side value	Tmax>9			N/A	MTT >145% of the contralateral side value	Tmax >6 sec (both RAPID and OLEA)
<b>Clinical Criteria</b>							
<b>Age</b>	All patients						
<b>Baseline NIHSS</b>	All patients						
<b>Time metrics:</b>	Onset to- presentation, -to imaging, -to puncture, -to reperfusion (all)						
<b>Intravenous Alteplase</b>	1 patient	None	5 patients	11 patients	16 patients	21 patients	11 patients
<b>Reperfusion</b>	2b-3 vs not	Prove-It: 2b-3 vs not	mTICI scores	eTICI scores	eTICI scores	mTICI scores	2b-3 vs not
<b>Outcomes</b>	sICH (binary) and 90-day mRS (scores for all, 25 missing mRS)						

mCTA    multiphase CTA

sCTA    Single phase CTA

**Supplement Table 2:** Characteristics of the single-phase (sCTA) vs. multiphase CTA (mCTA) sub-cohorts within the collateral cohort.

		Collateral cohort		
		Overall collateral cohort (n= 229)	sCTA (n=37)	mCTA (n= 192)
<b>Age</b>	mean (SD)	68.9 (14)	70.9 (16)	68.4 (13.5)
	median (IQR)	70 (20)	71.4 (18)	70 (19)
<b>Sex</b>	Females	122 (53.3%)	20 (54.1%)	102 (53.1%)
	Males	107 (46.7%)	17 (45.9)	90 (46.9%)
<b>NIHSS</b>	median (IQR)	15 (11)	16 (8)	15 (8)
<b>Time (minutes) median (IQR)</b>	Onset/LKW to ED	555 (278)	592 (363)	552 (268)
	ED to imaging	28 (34)	25 (29)	29 (33)
	Imaging to puncture	106 (115)	176 (155)	99 (104)
	puncture to reperfusion	24 (23)	34 (33)	22 (21)
	onset/LKW to reperfusion	723 (281)	766 (271)	718 (290)
	ED to reperfusion	182 (123)	204 (172)	178 (212)
<b>NCCT ASPECTS</b>	median (IQR)	8 (2)	8 (2)	8 (2)
	ASPECTS 2-5, n (%)	6 (2.6%)	0	6 (3.1%)
	ASPECTS 6, n (%)	20 (8.8%)	4 (10.8%)	16 (8.4%)
	ASPECTS 7, n (%)	48 (21.1%)	7 (18.9%)	41 (21.5%)
	ASPECTS 8, n (%)	67 (29.4%)	15 (40.5%)	52 (27.2%)
	ASPECTS 9, n (%)	52 (22.8%)	6 (16.2%)	46 (24.1%)
	ASPECTS 10, n (%)	35 (15.4%)	5 (13.5%)	30 (15.7%)
<b>Imaging</b>	mCTA, n(%)	192 (83.8%)	N/A	ALL
	CTP, n(%)	N/A	N/A	N/A
	Favorable CTP profile	N/A	N/A	N/A
	Favorable collateral profile	195 (86.3%)	25 (69.4%)	170 (89.5%)
<b>Occlusion</b>	Terminal ICA, n(%)	49 (21.4%)	9 (24.3%)	40 (20.8%)
	M1-MCA, n(%)	144 (62.9%)	20 (54.1%)	124 (64.6%)
	M2-MCA, n(%)	19 (8.3%)	5 (13.5%)	14 (7.3%)
<b>Tandem cervical ICA</b>		36 (15.7%)	7 (18.9%)	29 (15.1%)
<b>Intravenous Alteplase administration</b>		19 (8.3%)	4 (10.8%)	15 (7.8%)
<b>Final TICl score</b>	2b-3, n(%)	199 (86.9%)	31 (83.8%)	168 (87.5%)
<b>Symptomatic ICH</b>	n(%)	36 (18.8%)	7 (19.4%)	29 (18.6%)
<b>90-Day mRS **</b>	median (IQR)	3 (4)	4 (5)	3 (4)
	0-1, n(%)	66 (30.9%)	9 (25.7%)	57 (31.8%)
	0-2, n(%)	94 (44%)	10 (28.6%)	84 (46.9%)

mCTA : multiphase CTA

ICH : intracranial hemorrhage

mRS: modified Rankins' Scale

sCTA : Single phase CTA

ICA: internal carotid artery

TICl: Thrombolysis in cerebral infarction

**Supplement Table 3:** Outcomes of the single- vs multiphase CTA groups in the collateral cohort \*

	mCTA Coll +		mCTA Coll -		sCTA Coll +		sCTA Coll -	
	n	%	n	%	n	%	n	%
<b>90-Day mRS</b>								
<b>0, n(%)</b>	34	21.4%	0	0.0%	5	21.7%	2	18.2%
<b>1, n(%)</b>	18	11.3%	4	21.1%	2	8.7%	0	0.0%
<b>2, n(%)</b>	25	15.7%	2	10.5%	1	4.3%	0	0.0%
<b>3, n(%)</b>	27	17.0%	1	5.3%	3	13.0%	3	27.3%
<b>4, n(%)</b>	17	10.7%	2	10.5%	3	13.0%	1	9.1%
<b>5, n(%)</b>	10	6.3%	3	15.8%	4	17.4%	1	9.1%
<b>6, n(%)</b>	28	17.6%	7	36.8%	5	21.7%	4	36.4%
<b>0-1, n(%)</b>	52	32.7%	4	20.0%	7	30.4%	2	18.2%
<b>0-2, n(%)</b>	77	48.4%	6	30.0%	8	34.8%	2	18.2%
	<b>159</b>		<b>19</b>		<b>23</b>		<b>11</b>	

Coll+ Favourable collateral profile

Coll - Unfavourable collateral profile

mCTA multiphase CTA

sCTA Single phase CTA

\* Outcomes missing for 15 patients .