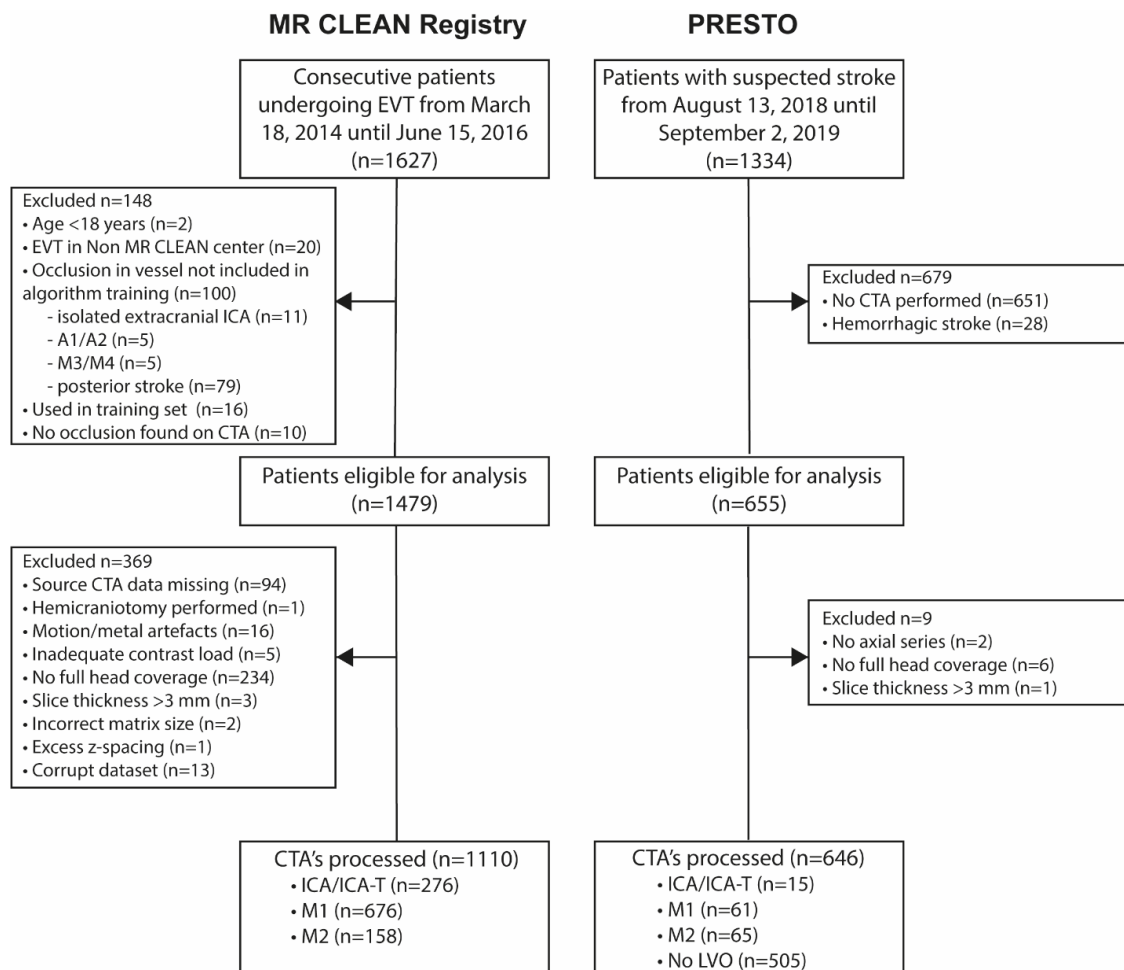


SUPPLEMENTARY MATERIAL



Supplementary Figure 1. Patient inclusion and exclusion flowchart EVT indicates endovascular treatment; CTA, computed tomography angiography; LVO, large vessel occlusion; ICA, internal carotid artery; ICA, internal carotid artery terminus; M1, M1 segment of the middle cerebral artery; M2, M2 segment of the middle cerebral artery; A1/A2, A1 or A2 segment of the anterior cerebral artery; M3/M4, M3 or M4 segment of the middle cerebral artery; MIP, maximum intensity projection; mm, millimeters

Supplementary Table 1. Patient characteristics per cohort

	MR CLEAN Registry (n=1110)	PRESTO (n=646)
Age , median (IQR)	71 (60-80)	73 (62-82)
Sex , male (%)	584 (52.6)	358 (55.4)
NIHSS at baseline , median (IQR)	16 (12-20)	4 (2-9)
ASPECTS , median (IQR)	9 (7-10)	n/a*
Occlusion side , left (%)	586 (52.8)	74 (45.7)†
Occlusion location (%)		
Extracranial ICA (isolated)	n/a	2 (1.2)†
Extracranial ICA (with tandem lesion)	37 (3.3)	3 (1.9)†
Intracranial ICA	19 (1.7)	5 (3.1)†
ICA-T	256 (23.1)	10 (6.2)†
M1	651 (58.6)	60 (37.0)†
M2	147 (13.2)	63 (38.9)†
M3/M4	n/a	2 (1.2)†
A1/A2	n/a	4 (2.5)†
Vertebral artery	n/a	2 (1.2)†
Basilar artery	n/a	6 (3.7)†
P1/P2	n/a	5 (3.1)†
No occlusion	0 (0.0)	484 (74.9)
Slice thickness , mm (%)		
<1	503 (45.3)	453 (70.1)
1-2	304 (27.4)	128 (19.8)
≥2	303 (27.3)	65 (10.1)
Slice overlap (%)		
Yes	821 (74.0)	481 (74.5)
No	289 (26.0)	165 (25.5)
Peak Kilovoltage , kV (%)		
≥120	553 (49.8)	319 (49.4)
<120	557 (50.2)	327 (50.6)
Scan phase (%)		
Early arterial	295 (26.6)	177 (27.4)
Peak arterial	187 (16.8)	316 (48.9)
Equilibrium	296 (26.7)	120 (18.6)
Peak venous	230 (20.7)	28 (4.3)
Late venous	102 (9.2)	5 (0.8)

*ASPECTS was not assessed in PRESTO

†Numbers between parentheses are percentages of total amount of patients with an occlusion (n=162)

NIHSS indicates National Institutes of Health Stroke Scale; ASPECTS, Alberta Stroke Program Early CT Score; ICA, internal carotid artery; ICA-T, internal carotid artery terminus; M1, M1 segment of the middle cerebral artery; M2, M2 segment of the middle cerebral artery; mm, millimeters; kV, kilovoltage.

Supplementary Table 2. Cross-table with occlusion location indicated by the algorithm (rows) versus reference (columns) in the MR CLEAN Registry

	Intracranial ICA/ICA-T	M1	M2	No LVO	Total
Intracranial ICA/ICA-T	243	5	0	0	248
M1	3	636	4	0	643
M2	0	0	113	0	113
No LVO	8	13	25	0	46
Box in affected hemisphere, but not on vessel	11	14	11	0	36
Box in unaffected hemisphere	11	8	5	0	24
Total	276	676	158	0	1110

ICA indicates internal carotid artery; ICA-T, internal carotid artery terminus; M1, M1 segment of middle cerebral artery; M2, M2 segment of middle cerebral artery; LVO, large vessel occlusion.

Supplementary Table 3. Cross-table with occlusion location indicated by the algorithm (rows) versus reference (columns) in PRESTO

	Extracranial ICA	Intracranial ICA/ICA-T	M1	M2	M3/M4	A1/A2	Vertebral artery	Basilar artery	P1/P2	No LVO	Total
Intracranial ICA/ICA-T	1	12	0	0	0	0	0	0	0	4	17
M1	1	0	58	0	0	0	0	0	0	20	79
M2	0	0	0	32	0	1	0	0	0	60	93
No LVO	0	2	0	27	2	3	1	6	4	376	421
Box in affected hemisphere, but not on vessel	0	1	0	3	0	0	0	0	1	0	29
Box in unaffected hemisphere	0	0	3	3	0	0	1	0	0	24†	7
Total	2	15	61	65	2	4	2	6	5	484	646

†Patients without LVO and no affected hemisphere

ICA indicates internal carotid artery; ICA-T, internal carotid artery terminus; M1, M1 segment of middle cerebral artery; M2, M2 segment of middle cerebral artery; LVO, large vessel occlusion.

Supplementary Table 4. Diagnostic performance for LVO detection according to imaging quality in pooled cohort (MR CLEAN Registry and PRESTO)

	LVO present/ LVO absent	Sensitivity (95% CI)	Specificity (95% CI)	AUC (95% CI)
Slice thickness, mm				
<1	603/353	86 (83-89)	80 (75-84)	0.83 (0.81-0.86)
1-2	331/101	89 (85-92)	81 (72-88)	0.85 (0.81-0.89)
≥2	317/51	88 (84-91)	55 (40-69)	0.71 (0.64-0.78)
Slice overlap				
Yes	932/370	87 (85-89)	80 (75-84)	0.84 (0.81-0.86)
No	319/135	88 (84-91)	72 (63-79)	0.80 (0.76-0.84)
Peak Kilovoltage, kv				
<120	633/251	87 (84-90)	78 (72-83)	0.82 (0.80-0.85)
≥120	618/254	88 (85-90)	78 (72-83)	0.83 (0.80-0.86)
Scan Phase				
Arterial	589/386	88 (85-90)	77 (72-81)	0.82 (0.80-0.85)
Equilibrium	323/93	90 (86-93)	84 (75-91)	0.87 (0.83-0.91)
Venous	339/26	84 (80-88)	65 (44-83)	0.75 (0.65-0.84)

Sensitivity and specificity are presented as percentages. LVO indicates large vessel occlusion; AUC, area under the curve; mm, millimeters; kV, kilovoltage.

Supplementary Table 5. Sensitivity per occlusion according to imaging quality in the MR CLEAN Registry

	ICA/ICA-T		M1		M2	
	N	Sensitivity (95% CI)	N	Sensitivity (95% CI)	N	Sensitivity (95% CI)
Slice thickness, mm						
<1	117	89 (82-94)	303	93 (89-95)	83	78 (68-87)
1-2	78	83 (73-91)	187	96 (92-98)	39	72 (55-85)
≥2	81	89 (80-95)	186	94 (90-97)	36	56 (38-72)
Slice overlap						
Yes	191	87 (82-92)	508	94 (92-96)	122	75 (66-82)
No	85	89 (81-95)	168	93 (89-97)	36	61 (43-77)
peak Kilovoltage, kV						
<120	132	86 (79-92)	344	94 (90-96)	81	74 (63-83)
≥120	144	90 (83-94)	332	95 (92-97)	77	69 (57-79)
Scan phase						
Arterial	108	89 (81-94)	298	96 (93-98)	76	79 (68-87)
Equilibrium	68	91 (82-97)	183	95 (90-97)	45	73 (58-85)
Venous	100	85 (76-91)	195	91 (86-95)	37	54 (37-71)

Sensitivity is presented as percentage. ICA indicates internal carotid artery; ICA-T, internal carotid artery terminus; M1, M1 segment of middle cerebral artery; M2, M2 segment of middle cerebral artery; mm, millimeters; kV, kilovoltage.

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