

## Supplementary Materials:

**Table S1.** Comparison of baseline clinical/imaging characteristics, treatment and post-treatment clinical characteristics between patients with favorable (90-day mRS $\leq$ 2) and unfavorable (90-day mRS $>$ 2) long-term clinical outcome. For each feature number(%population) or median(IQ1-IQ3) are reported. Missing values are provided as number(%population). Mann-Whitney U test and Fisher/Chi-Square tests ( $\alpha = 0.05$ ) were performed to compare continuous and binary/categorical variables respectively between patients with different clinical outcome.

Characteristic		Favorable functional outcome (90-day mRS≤2) n = 93	Unfavorable functional outcome (90-day mRS>2) n = 71	p-value
Age		68 (61-76)	73 (66-83)	<0.01
Male sex		56 (60.2%)	35 (49.3%)	0.20
Baseline clinical and imaging characteristics				
Previous ischemic stroke		12 (12.9%)	11 (15.5%)	0.66
Atrial fibrillation		2 (2.2%)	9 (12.7%)	0.01
Diabetes Mellitus		7 (7.5%)	10 (14.1%)	0.20
Hypertension		42 (45.2%)	36 (50.7%)	0.53
Glucose		6.3 (5.4-7.4)	6.8 (5.9-8.2)	0.02
Systolic Blood Pressure		145.0 (135.0-160.0)	150.0 (130.0-165.5)	0.30
Baseline NIH Stroke Scale		15.0 (9.0-19.0)	17.0 (11.0-21.0)	0.01
ASPECTS		9.0 (8.0-10.0)	9.0 (9.0-10.0)	0.24
Collateral score	Absent	2 (2.2%)	8 (11.3%)	0.01
	<50%	17 (18.3%)	24 (33.8%)	
	50-100%	44 (47.3%)	24 (33.8%)	
	100%	27 (29.0%)	14 (19.7%)	
	Missing	3 (3.2%)	1 (1.4%)	
Ipsilateral extracranial carotid tandem lesion	n (%)	18 (19.4%)	15 (21.1%)	0.84
	Missing	4 (4.3%)	4 (5.6%)	
Right hemisphere stroke		42 (45.2%)	32 (45.1%)	1.00
Occlusion location	M1	56 (60.2%)	44 (62.0%)	0.77
	M2	15 (16.1%)	9 (12.7%)	
	ICA	22 (23.7%)	17 (23.9%)	
	Other	0 (0.0%)	1 (1.4%)	
Pre-stroke modified Rankin Scale	0	83 (89.2%)	45 (63.4%)	<0.01
	1	9 (9.7%)	17 (23.9%)	
	2	1 (1.1%)	9 (12.7%)	
	>3	0 (0.0%)	0 (0.0%)	
Treatment and post-treatment characteristics				
Treatment allocation (EVT alone)		53 (57.0%)	35 (49.3%)	0.35
Onset to randomisation (minutes)		104.0 (64.0-145.0)	93.0 (68.0-151.5)	0.45
Onset to needle (minutes)	Median (IQR)	104.5 (64.0-158.5)	95.0 (76.0-160.0)	0.32
	Missing	53 (57.0%)	36 (50.7%)	
Door to groin (minutes)	Median (IQR)	63.0 (49.8-78.0)	59.0 (49.0-69.5)	0.13
	Missing	1 (1.1%)		
Door to needle (minutes)	Median (IQR)	28.0 (17.8-48.0)	29.0 (21.5-40.5)	0.27
	Missing	53 (57.0%)	36 (50.7%)	
Onset to groin (minutes)	Median (IQR)	133.0 (99.0-176.3)	130.0 (105.5-180.5)	0.49
	Missing	1 (1.1%)		
Needle to groin (minutes)	Median (IQR)	23.0 (16.5-37.0)	28.0 (18.5-38.5)	0.26
	Missing	54 (58.1%)	36 (50.7%)	
24-hour NIH Stroke Score		3.0 (1.0-5.0)	12.0 (7.0-16.0)	<0.01

**Table S2.** Comparison of baseline clinical/imaging characteristics, treatment and post-treatment clinical characteristics between included and excluded patients from MR CLEAN-NO IV trial. For each feature number(%population) or median(IQ1-IQ3) are reported. Missing values are provided as number(%population). Mann-Whitney U test and Fisher/Chi-Square tests were performed to compare continuous and binary/categorical variables respectively between included and excluded patients. This table also shows the statistics of the same characteristics for the whole MR CLEAN-NO IV population to indicate potential differences in our sub-population. Although there are few statistically significant differences between some clinical characteristics when comparing the sample and the original population, none of these was selected among the best predictive features by the TreeSHAP algorithm.

Characteristic		NO-IV population (n = 539)	Included in study population No (n = 375)	Yes (n =164)	p-value
Age		71(62-79)	71(61-79)	71(63-78)	0.93
Male sex		305(57%)	214(57%)	91(55%)	0.78
Baseline clinical and imaging characteristics					
Previous ischemic stroke		91(17%)	68(18%)	23(14%)	0.26
Atrial fibrillation		58(11%)	47(13%)	11(7%)	0.05
Diabetes mellitus		90(17%)	73(19%)	17(10%)	0.01
Hypertension	n (%)	260(48%)	182(49%)	78(48%)	0.85
	Missing	1 (0.19%)	1(0.27%)	0	
Glucose	Median (IQR)	6.7(5.9-7.9)	6.8(6.0-8.0)	6.0(5.6-7.6)	0.02
	Missing	7(1.30%)	7(1.87%)	0	
Systolic blood pressure	Median (IQR)	150(130-170)	150(134-170)	149(131-163)	0.14
	Missing	2(0.37%)	2(0.53%)	0	
Baseline NIH Stroke Scale		16(10-20)	16(10-20)	15(10-20)	0.61
ASPECTS		9(8-10)	9(8-10)	9(8-10)	0.10
Collateral score	Absent	32(6%)	22(6%)	10(6%)	0.62
	<50%	152(28%)	111(30%)	41(25%)	
	50-100%	223(41%)	155(41%)	68(41%)	
	100%	119(22%)	78(21%)	41(25%)	
	Missing	13(2.4%)	9(2.4%)	4(2.4%)	
Ipsilateral extracranial carotid tandem lesion	n (%)	88(16%)	55(15%)	33(20%)	0.16
	Missing	32(5.9%)	24(6.4%)	8(5%)	
Right hemisphere stroke		249(46%)	175(47%)	74(45%)	0.78
Occlusion location	M1	330(61%)	230(61%)	100(61%)	0.37
	M2	85(16%)	61(16%)	24(15%)	
	ICA	118(22%)	79(21%)	39(24%)	
	Other	5(1%)	4(1%)	1(0.6%)	
	Missing	1(0.19%)	1(0.26%)	0	
Pre-stroke modified Rankin Scale	0	374(69%)	246(66%)	128(78%)	0.01
	1	100(19%)	74(20%)	26(16%)	
	2	49(9%)	39(10%)	10(6%)	
	3	11(2%)	11(3%)	0	
	4	4(1%)	4(1%)	0	
	5	0	0	0	
	Missing	1(0.19%)	1(0.26%)	0	
Treatment and post-treatment characteristics					
Treatment allocation (EVT alone)		273(51%)	185(49%)	88(54%)	0.40
Onset to randomization (minutes)		93(71-145)	92(71-143)	96(65-150)	0.87
Onset to needle (minutes)	Median (IQR)	100(75-156)	100(80-150)	95(66-159)	0.22
	Missing	279(52%)	190(51%)	89(54%)	
Door to groin (minutes)	Median (IQR)	64(51-78)	65(52-79)	60(49-73)	0.02
	Missing	28(5%)	27(7%)	1(0.6%)	
Door to needle (minutes)	Median (IQR)	31(24-44)	33(25-44)	29(19-45)	0.12
	Missing	279(52%)	190(51%)	89(54%)	
Onset to groin (minutes)	Median (IQR)	133(105-180)	135(105-180)	130(103-180)	0.31
	Missing	28(5%)	27(7%)	1(0.6%)	
Needle to groin (minutes)	Median (IQR)	28(20-41)	29(20-43)	25(17-39)	0.13
	Missing	298(55%)	208(55%)	90(55%)	
24-hours NIH Stroke Score		6(1-14)	6(2-15)	15(10-20)	0.15
Unfavorable functional outcome (90-day mRS>2)		269(50%)	198(53%)	71(43%)	0.06