

DATA SUPPLEMENT

Is a Picture-Perfect Thrombectomy Necessary in Acute Ischemic Stroke? Insights from STAR

Table I. Comparisons of baseline characteristics between unmatched mTICI 2c and 3 cohorts.

	mTICI 2c (n=519)	mTICI 3 (n=1923)	p-value	Standardized difference
Age, mean years	69.98 (14.7)	68.74 (14.7)	0.086	0.0177
Female, n (%)	242/519 (46.6%)	968/1922 (50.4%)	0.138	0.1717
White race, n (%)	235/353 (66.6%)	1149/1659 (69.3%)	0.343	0.058
Comorbidities, n (%)				
Diabetes mellitus	145/482 (30.1%)	499/1793 (27.8%)	0.333	-0.05
Hypertension	378/484 (78.1%)	1345/1793 (75.0%)	0.170	-0.0719
Atrial fibrillation	210/480 (43.8%)	652/1791 (36.4%)	0.004	-0.1517
Hyperlipidemia	226/481 (47%)	772/1793 (43.1%)	0.133	-0.0792
Prior stroke	70/328 (21.3%)	244/1547 (15.8%)	0.018	-0.1494
Pre-stroke mRS, median (IQR)	0 (1)	0 (1)	0.745	0
≤1, n (%)	287/346 (82.9%)	1180/1361 (86.7%)	0.083	0.1614
≤2, n (%)	315/346 (91.0%)	1262/1361 (92.7%)	0.307	0.0636
Admission NIHSS, mean (SD)	15.3 (6.6)	15.4 (6.7)	0.969	0
Onset to puncture, mean min	379.0 (479.1)	358.1 (343.6)	0.384	0.0138
Primary occlusion location, n (%)			0.388	-0.074
ICA	125/511 (24.5%)	412/1887 (21.8%)		
M1	291/511 (56.9%)	1077/1887 (57.1%)		
M2	84/511 (16.4%)	349/1887 (18.5%)		
M3/4	7/511 (1.4%)	37/1887 (2.0%)		
A1/A2	4/511 (0.8%)	12/1887 (0.7%)		
ASPECTS, median (IQR)	9 (3)	9 (3)	0.335	0
ASPECTS ≥6, n (%)	398/433 (91.9%)	1074/1166 (92.1%)	0.917	0.0145
IV-tPA, n (%)	247/501 (49.3%)	918/1797 (51.1%)	0.511	0.0357
MT Technique, n (%)			<0.001	0.0585
Contact aspiration	194/503 (38.6%)	642/1639 (39.2%)		
Stent Retriever	50/503 (9.9%)	492/1639 (30.0%)		
Primary Combined	254/503 (50.5%)	493/1639 (30.1%)		
Other	5/503 (1%)	12/1639 (0.7%)		
IA-tPA, n (%)	54/501 (10.8%)	163/1600 (10.2%)	0.737	-0.0194
Balloon guide catheter, n (%)	55/500 (11%)	260/1385 (18.8%)	<0.001	0.2092
Attempts, median (IQR)	2 (1)	1 (1)	0.052	-0.1701
Procedure Time, mean min	41.9 (30.6)	45.6 (38.6)	0.026	0.0997

mTICI=modified Thrombolysis in Cerebral Ischemia; n=number; IV-tPA=intravenous tissue plasminogen activator; IA-tPA=intraarterial tissue plasminogen activator; NIHSS=National Institute of Health Stroke Scale; ASPECTS=Alberta Stroke Program Early CT Score; MT=mechanical thrombectomy; IQR=interquartile range; ICA=internal carotid artery; SD=standard deviation; mRS=modified Rankin Scale

Table II. Predictors of the primary outcome (mRS 0-2 at 90 days).

	Non-imputed model		Imputed model	
	Adjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
mTICI 2c vs. 3	1.021 (0.736–1.415)	0.902	0.898 (0.576–1.401)	0.636
Age	0.968 (0.958–0.978)	< 0.001	0.962 (0.948–0.976)	< 0.001
Female sex	0.797 (0.617–1.029)	0.081	0.733 (0.511–1.051)	0.091
White race	1.593 (1.204–2.107)	0.001	1.619 (1.082–2.422)	0.019
Diabetes mellitus	0.612 (0.456–0.823)	0.001	0.624 (0.410–0.948)	0.027
Hypertension	0.869 (0.630–1.199)	0.393	0.970 (0.621–1.517)	0.895
Atrial fibrillation	0.835 (0.630–1.108)	0.212	0.897 (0.607–1.325)	0.585
Hyperlipidemia	1.316 (1.006–1.722)	0.045	1.123 (0.769–1.639)	0.548
Prior stroke	0.821 (0.550–1.224)	0.332	0.821 (0.493–1.367)	0.448
Pre-stroke mRS	0.652 (0.551–0.771)	< 0.001	0.578 (0.460–0.727)	< 0.001
Admission NIHSS	0.896 (0.877–0.915)	< 0.001	0.885 (0.860–0.911)	< 0.001
ASPECT score	1.238 (1.120–1.368)	< 0.001	1.215 (1.092–1.352)	< 0.001
IV-tPA	1.105 (0.835–1.463)	0.486	0.863 (0.587–1.270)	0.455
Onset to puncture	0.971 (0.948–0.995)	0.017	0.964 (0.935–0.994)	0.019
Technique				
Contact aspiration	Reference	Reference	Reference	Reference
Stent retriever	0.785 (0.556–1.107)	0.168	0.784 (0.441–1.393)	0.407
Primary Combined	0.661 (0.456–0.959)	0.029	1.073 (0.574–2.007)	0.825
Other	1.028 (0.179–5.898)	0.976	0.920 (0.144–5.887)	0.930
Attempts	0.887 (0.796–0.988)	0.030	0.883 (0.770–1.011)	0.071
Procedure time	0.996 (0.991–1.001)	0.094	0.995 (0.988–1.003)	0.207
Balloon guide catheter	1.299 (0.896–1.883)	0.168	2.435 (0.703–8.432)	0.160
IA-tPA	0.999 (0.658–1.514)	0.994	1.147 (0.620–2.122)	0.662
Complications	0.410 (0.210–0.803)	0.009	0.794 (0.296–2.132)	0.647

mTICI=modified Thrombolysis in Cerebral Ischemia; OR=odds ratio; CI=confidence interval; IV-tPA=intravenous tissue plasminogen activator; mRS=modified Rankin Scale; NIHSS=National Institute of Health Stroke Scale; ASPECT=Alberta Stroke Program Early CT; IA-tPA=intraarterial tissue plasminogen activator.

Table III. Comparisons of baseline characteristics between matched mTICI 2c and 3 cohorts.

	mTICI 2c (n=191)	mTICI 3 (n=191)	p-value	Standardized difference
Age, mean years	68.2 (13.0)	68.2 (13.1)	0.968	0
Female, n (%)	103/191 (53.9)	103/191 (53.9)	1.000	0
White race, n (%)	109/179 (60.9)	122/190 (64.2)	0.520	0.067
Comorbidities, n (%)				
Diabetes mellitus	59/191 (30.9)	64/191 (33.5)	0.661	0.045
Hypertension	150/191 (78.5)	150/191 (78.5)	1.000	0
Atrial fibrillation	73/191 (38.2)	73/191 (38.2)	1.000	0
Hyperlipidemia	85/191 (44.5)	85/191 (44.5)	1.000	0
Prior stroke	26/191 (13.6)	26/191 (13.6)	1.000	0
Pre-stroke mRS, median (IQR)	0 (1)	0 (1)	0.351	0.042
≤1, n (%)	153/179 (85.5)	158/183 (86.3)	0.880	0.040
≤2, n (%)	166/179 (92.7)	173/183 (94.5)	0.524	0.067
Admission NIHSS, mean (SD)	16 (7)	16 (7)	0.818	0.032
Onset to puncture, mean min	442.2 (554.6)	439.0 (433.0)	0.952	-0.006
Primary occlusion location, n (%)			0.636	0.162
ICA	49/191 (25.7)	39/191 (20.4)		
M1	99/191 (51.8)	99/191 (51.8)		
M2	39/191 (20.4)	46/191 (24.1)		
M3/4	3/191 (1.6)	5/191 (2.6)		
A1/A2	1/191 (0.5)	2/191 (1.0)		
ASPECTS, median (IQR)	9 (3)	9 (3)	0.824	0.005
ASPECTS ≥6, n (%)	143/157 (91.1)	130/145 (89.7)	0.700	-0.091
IV-tPA, n (%)	88/185 (47.6)	85/186 (45.7)	0.755	-0.041
MT Technique, n (%)			1.000	0
Contact aspiration	118/191 (61.8)	118/191 (61.8)		
Stent Retriever	16/191 (8.4)	16/191 (8.4)		
Primary Combined	56/191 (29.3)	56/191 (29.3)		
Other	1 (0.5)	1/191 (0.5)		
IA-tPA, n (%)	23/191 (12)	23/188 (12.2)	1.000	0
Balloon guide catheter, n (%)	15/191 (7.9)	15/191 (7.9)	1.000	0
Attempts, median (IQR)	2 (2)	1 (2)	0.213	-0.040
Procedure Time, mean min	36.6 (28.6)	32.5 (25.3)	0.143	-0.152

mTICI=modified Thrombolysis in Cerebral Ischemia; n=number; IV-tPA=intravenous tissue plasminogen activator; IA-tPA=intraarterial tissue plasminogen activator; NIHSS=National Institute of Health Stroke Scale; ASPECTS=Alberta Stroke Program Early CT Score; MT=mechanical thrombectomy; IQR=interquartile range; ICA=internal carotid artery; SD=standard deviation; mRS=modified Rankin Scale