



Bridging The Gap: Improving Acute Ischemic Stroke Outcomes With Intravenous Thrombolysis Preceding Mechanical Thrombectomy



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BACKGROUND

Current guidelines recommend intravenous thrombolysis (IVT) followed by mechanical thrombectomy (MT) for patients with acute ischemic stroke (AIS) caused by large vessel occlusion (LVO). This combined approach, known as bridging therapy (BT), is believed to increase the likelihood of a favorable functional outcome when administered within 4.5 hours of symptom onset. However, the benefits of BT over direct mechanical thrombectomy (d-MT) remain debated. This study aimed to compare the outcomes of AIS-LVO patients undergoing MT within 6 hours of symptom onset, with and without prior IVT.

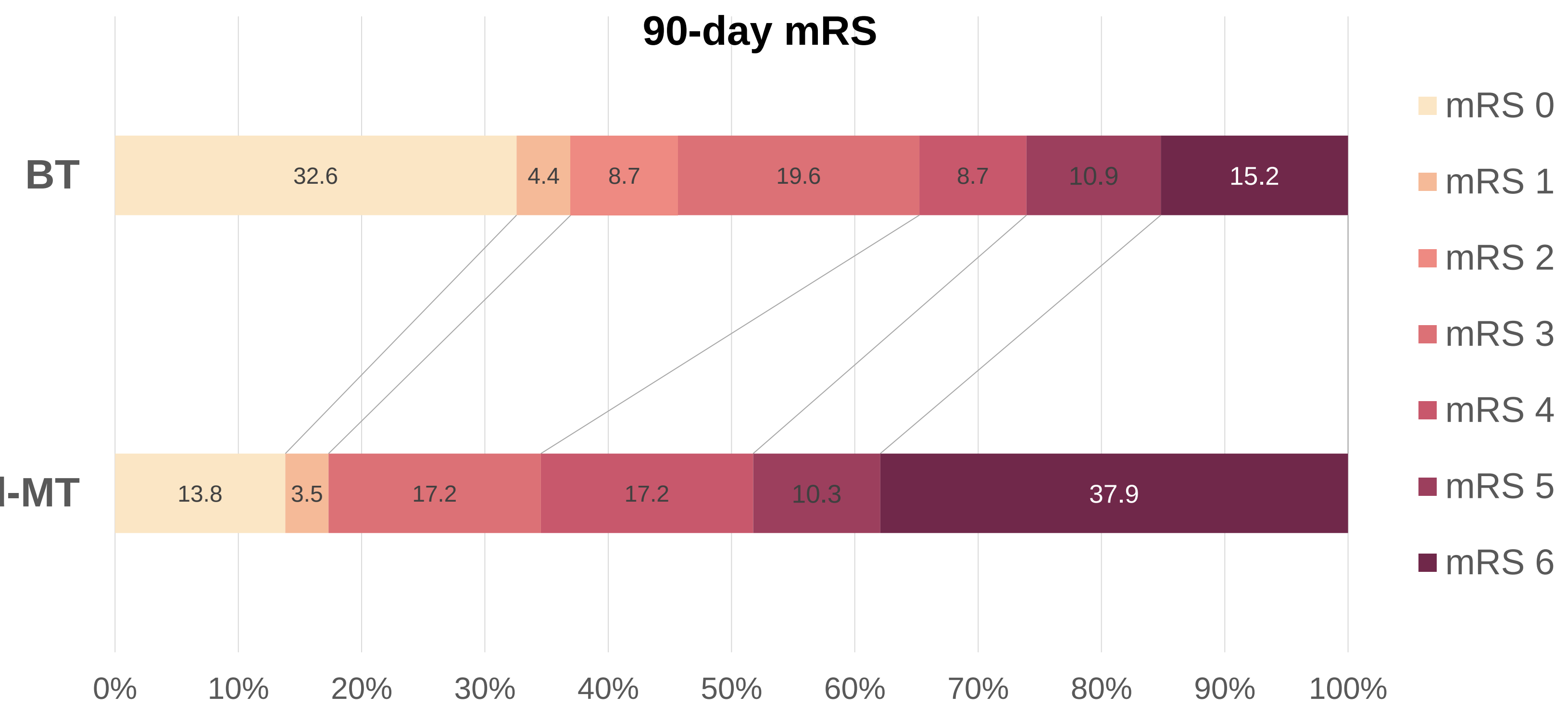
RESULTS

Of 82 patients, 51 (62.2%) received BT, while 31 (37.8%) underwent d-MT. The BT group showed a significantly higher rate of functional independence (45.7% vs. 17.2%, $p=0.014$) and a lower 90-day mortality rate (13.7% vs. 35.5%, $p=0.029$). Multivariate analysis revealed that IVT was independently associated with favorable functional outcome ($p=0.011$) and reduced mortality ($p=0.021$). No significant differences were observed in terms of clinical improvement at 72 hours, successful recanalization, thrombus migration, or hemorrhagic transformation between the groups.

Table 4. Functional and procedural results of the 31 patients in the d-MT group without contraindications for IVT and 51 patients treated with BT

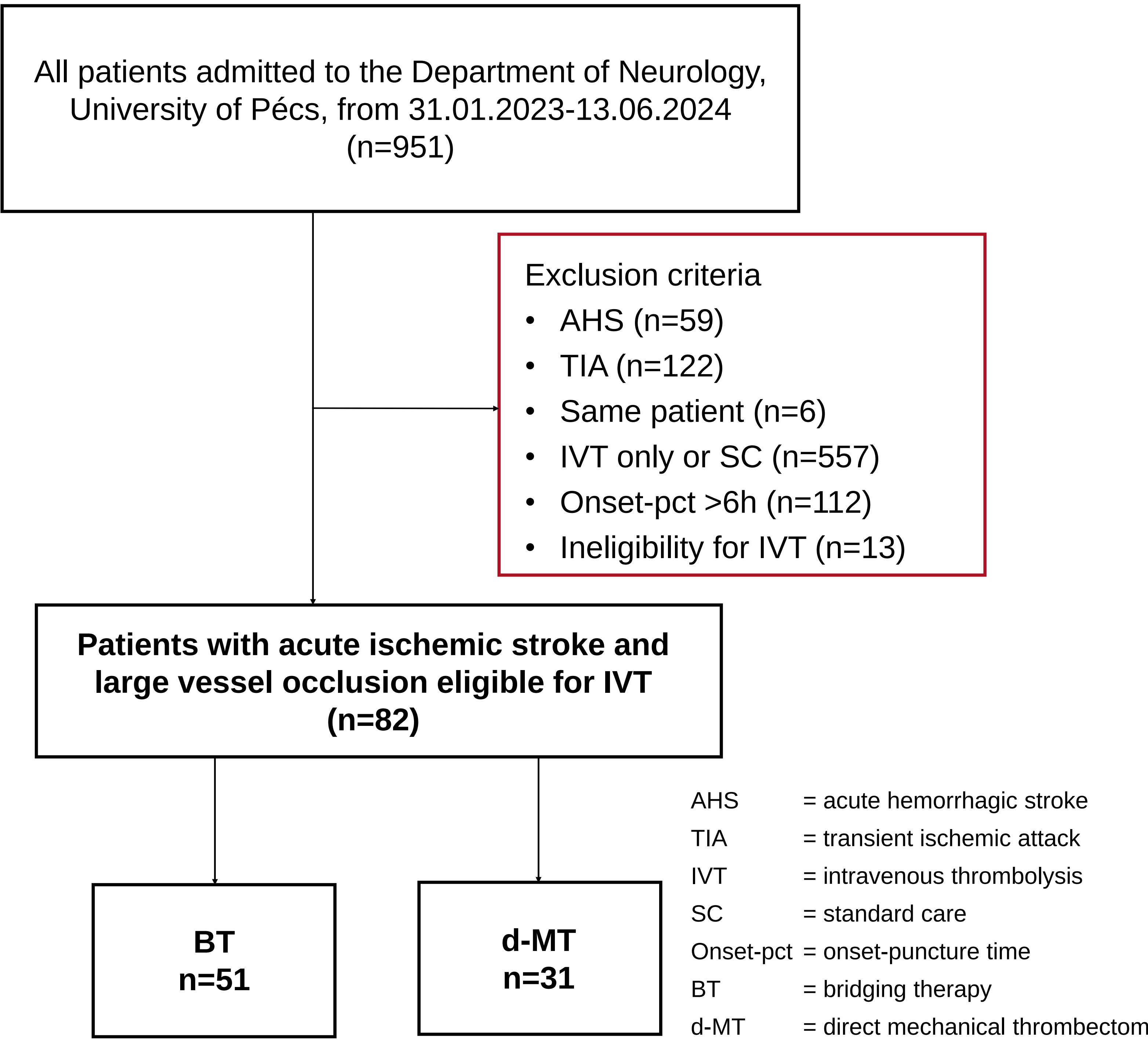
	BT (n=51)	d-MT (n=31)	p-value/OR [95% CI]
Primary endpoint			
90-day mRS score 0-2, n (%)	21 (45.7%) n=46	5 (17.2%) n=29	OR = 4.03 [1.31-12.4], p=0.014
0	15 (71.4%)	4 (80.0%)	OR = 3.02 [0.89-10.3], p=0.102
1	2 (9.5%)	1 (20.0%)	OR = 1.27 [0.11-14.7], p=1
2	4 (19.1%)	0 (0.0%)	p=0.154
Mortality at 90 days, n (%)	7 (13.7%)	11 (35.5%)	OR = 0.29 [0.10-0.86], p=0.029
Secondary endpoint			
72h NIHSS score, median (IQR)	3 (0-37)	9 (0-39)	p=0.095
NIHSS score ≤1, n (%)	17 (33.3%)	5 (16.1%)	OR = 2.60 [0.85-7.97], p=0.124
ΔNIHSS score ≥4, n (%)	23 (45.1%)	9 (29.0%)	OR = 2.01 [0.78-5.20], p=0.169
Successful recanalization (mTICI ≥2b), n (%)	44 (86.3%)	29 (93.6%)	OR = 0.43 [0.08-2.23], p=0.472
2b	5 (9.8%)	7 (22.6%)	OR = 0.40 [0.11-1.42], p=0.200
2c	13 (25.5%)	7 (22.6%)	OR = 1.32 [0.45-3.84], p=0.789
3	26 (51.0%)	15 (48.4%)	OR = 1.35 [0.52-3.47], p=0.632
First-pass complete reperfusion, n (%)	28 (54.9%)	15 (48.4%)	OR = 1.30 [0.53-3.18], p=0.651
Safety outcome			
Thrombus migration, n (%)	9 (17.7%)	3 (9.7%)	OR = 2.00 [0.50-8.04], p=0.521
ICH, n (%)	2 (3.9%)	4 (12.9%)	OR = 0.28 [0.05-1.60], p=0.193
HI	0 (0.0%)	1 (25.0%)	p=1
PH	1 (50.0%)	2 (50.0%)	OR = 1.00 [0.03-29.8], p=1
SAH	1 (50.0%)	1 (25.0%)	OR = 2.00 [0.05-81.0], p=1

Abbreviations: BT = bridging therapy, d-MT = direct mechanical thrombectomy, OR = (common) odds ratio, mRS = modified Rankin Scale, NIHSS = National Institute of Health Stroke Scale, IQR = interquartile range, mTICI = modified Thrombolysis in Cerebral Infarction, ICH = intracranial hemorrhage, HI = hemorrhagic infarction, PH = parenchymal hemorrhage, SAH = subarachnoid hemorrhage



METHODS

Within the prospective TINL STROKE-registry, AIS-LVO patients admitted to the Department of Neurology, University of Pécs, between February 2023 and June 2024 were investigated. The primary endpoint was the proportion of patients reaching functional independence at 90 days, defined as a modified Rankin Scale (mRS) score of 0-2. Secondary endpoints included clinical improvement at 72 hours (National Institute of Health Stroke Scale [NIHSS] score of ≤1 or a change from baseline [ΔNIHSS] of ≥4) and successful recanalization (modified Thrombolysis in Cerebral Infarction [mTICI] score ≥2). Safety outcomes were evaluated based on thrombus migration and intracranial hemorrhage (ICH). Results were compared using linear and logistic regression analyses adjusted for baseline variables.



CONCLUSIONS

This study supports current guidelines recommending BT for thrombectomy-eligible AIS-LVO patients, offering new insights into the ongoing clinical debate.

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