THROMBOLYSIS IN THE ELDERLY: DECISION-MAKING IN A "REAL LIFE" SETTING AFTER THE IST-3

S RICCI[1], R ORNELLO[2], M TURAZZINI[1], R DEL COLLE[1], A LUPATO[1], A POLO[1]

[1]Department of Neurology, "Mater Salutis" Hospital, Legnago (VR)
[2]Department of Neurology, University of L'Aquila, L'Aquila

Background: Given the results of the most recent trials, Italian guidelines recommend i.v. thrombolysis for patients with ischemic stroke (IS) within 4.5 hours from symptoms onset, without any limits regarding age or stroke severity. Aim of this study was to assess the factors, beyond age and stroke severity, that are considered in the thrombolysis decision-making process in clinical practice.

Methods: We retrospectively evaluated the electronic medical records of patients aged >80 years with diagnosis of acute IS, consecutively admitted to the Department of Neurology of Legnago Hospital from January 2013 to March 2015. We considered how baseline and demographic characteristics influenced the decision regarding treatment in patients who met the most recent eligibility criteria for i.v. thrombolysis. Data were analyzed using the chi-squared test, Mann-Whitney test, and multivariate logistic regression analysis.

Results: Among 188 patients with IS, 100 were excluded because of ineligibility for i.v. thrombolysis; among 88 potentially eligible, 22 (25%) underwent i.v. thrombolysis and 66 (75%) standard treatment. The mean±SD age was 82.3±2.1 in thrombolysed patients and 87.2±4.1 in non-thrombolysed patients (P<0.001); there were no gender differences. Univariate analysis showed that thrombolysed patients had a higher likelihood of having atrial fibrillation (77.3%vs50.0%, odds ratio [OR] 2.58, 95%CI 1.05-6.38, P=0.02) and a lower likelihood of having hypertension (54.5% vs 89.4%; OR 0.29, 95%CI 0.15-0.55, P<0.001) and dementia (4.5 vs 42.4%; OR 0.10, 95%CI 0.01-0.69, P=0.001); distribution of diabetes, hypercholesterolemia, ischemic heart disease, and previous cancer was similar between the two groups (Tab. 1). Thrombolysed patients had a lower pre-stroke disability with respect to non-thrombolysed patients (Barthel Index score 20 [IQR 18-20] vs 8.5 [IQR 4-12] P>0.001); no differences were found in stroke severity on admission (Tab. 1). Case-fatality at discharge was 18.1% in thrombolysed patients and 6.1% in non-thrombolysed (P=0.199), with a favorable outcome (mRS≤2) in 36.4% of thrombolysed patients and 16.7% of non-thrombolysed (P=0.052). In multivariable analyses, younger age (OR 0.36 per year increase, 95% CI 0.15-0.88, P=0.026) and high Barthel Index (OR 4.06 per point increase, 95% CI 1.38-11.94, P=0.011) were independent predictors for thrombolytic treatment (Tab. 2).

Conclusions: Our data suggest that in clinical practice history of dementia and high pre-stroke disability are considered as exclusion criteria for iv thrombolysis in the elderly. In these patients the key-question seems not to be the age at stroke onset but rather the presence of age-related disability. Future research is needed to determine whether that factor may reduce the overall benefit from thrombolytic treatment.

	Thrombolysed (n=22)	Not thrombolysed (n=66)	OR (95% CI)	P
Women, n (%)	13 (59.1)	46 (69.7)	0.89 (0.67-1.17)	0.359
Arterial hypertension, n (%)	12 (54.5)	59 (89.4)	0.29 (0.15-0.55)	<0.001
Diabetes mellitus, n (%)	4 (18.7)	15 (22.7)	0.81 (0.31-2.10)	0.654
Atrial fibrillation, n (%)	17 (77.3)	33 (50.0)	2.58 (1.05-6.38)	0.025
Hypercholesterolemia, n (%)	5 (22.7)	18 (27.3)	0.83 (0.35-2.00)	0.674
Ischemic heart disease, n (%)	4 (18.2)	17 (25.8)	0.71 (0.27-1.86)	0.573
Dementia, n (%)	1 (4.5)	28 (42.4)	0.10 (0.01-0.69)	0.001
Previous cancer, n (%)	4 (18.2)	25 (37.9)	0.45 (0.17-1.21)	0.118
Age (mean±SD)	82.3±2.1	87.2±4.1		<0.001
Barthel Index (median, IQR)	20 (18-20)	8.5 (4-12)		<0.001
NIHSS on admission (median, IQR)	14.5 (8-20)	10 (5-18)		0.136
NIHSS at discharge (median, IQR)	3 (1-13)	6 (2.5-15)		0.221
mRS on admission (median, IQR)	2 (1-3)	3 (3-4)		<0.001
mRS at discharge (median, IQR)	3 (2-5)	4 (3-5)		0.101
Support, n (%)				
Alone	6 (27.3)	12 (18.2)		
Partner	14 (63.6)	24 (36.4)		
Sons	2 (9.1)	17 (25.8)		0.041
Housekeeper	-	8 (12.1)		
Nursing home	-	5 (7.6)		
mRS on admission, n (%)				
0	-	-		
1	6 (27.3)	-		
2	9 (40.9)	16 (24.2)		<0.001
3	6 (27.3)	19 (28.8)		
4	1 (4.5)	19 (28.8)		
5	-	12 (18.2)		
mRS at discharge, n (%)				
0	-	-		
1	2 (9.1)	-		
2	6 (27.3)	11 (16.7)		
3	5 (22.7)	12 (18.2)		0.011
4	3 (13.6)	13 (19.7)		
5	2 (9.1)	26 (39.4)		
6	4 (18.2)	4 (6.1)		

IQR, interquartile range; mRS, modified Rankin Scale; NIHSS, National Institutes of Health Stroke Scale; OR, odds ratio

Table 1. Characteristics of thrombolysed and non-thrombolysed patients

	OR (95% CI)	P
Age (per year increase)	0.36 (0.15-0.88)	**0.026**
Arterial hypertension	0.77 (0.02-24.36)	0.882
Atrial fibrillation	12.36 (0.40-380.16)	0.150
Dementia	6.08 (0.12-300.46)	0.364
Barthel Index (per point increase)	4.06 (1.38-11.94)	**0.011**

OR: odds ratio

Table 2. Multivariate logistic regression analysis of thrombolysis predictors