LONGER TIME TO RECANALIZATION OCCURS IN INTERHOSPITAL TRANSFERS FOR MECHANICAL THROMBECTOMY AND IS ASSOCIATED WITH WORSE OUTCOME

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BACKGROUND AND AIMS

Interhospital transfers (IHT) for mechanical thrombectomy (MT) are essential for stroke patients with large vessel occlusion (LVO) to access the best treatment in high quality centers. IHT is a demanding process which needs to be continuously evaluated, along with its impact on the outcome of patients.

METHOD

Retrospective study of all ischemic stroke patients treated with MT after direct admission (DA) in a Stroke Center (Centro Hospitalar Vila Nova de Gaia/Espinho - CHVNG/E), or admitted in a Stroke Center after IHT from 2 referring hospitals for MT (Hospital de Braga - HB or Centro Hospitalar de Entre o Douro e Vouga - CHEDV), between January 2015 and July 2017. DA and IHT groups were compared.

RESULTS

Patient Characteristics	
Median age	74 (62-81)
Female sex	123 (51.7%)
Median NIHSS	17 (13-20)
Median ASPECTS (H1)	9 (8-10)
Previous intravenous thrombolysis	159 (66.8%)
Occlusion site	M1 = 137 (48.7%)

- ❖ Distal intracranial internal carotid artery (ICA) = 36 (15.1%)
- ❖ L-type ICA occlusion = 34 (14.3%)
- ❖ M2 = 27 (11.4%)
- ❖ Basilar artery = 18 (7.6%)
- ❖ T-type ICA occlusion = 4 (1.7%)
- ❖ Vertebral artery = 3 (1.3%)

	DA (n=101)	IHT (n=137)	p
Median age	76 (60.5-82.5)	74 (62.5-80)	0.126
Male Sex	45 (44.6)	70 (51.1)	0.359
Arterial hypertension	73 (72.3)	98 (71.5)	1.000
Dyslipidemia	55 (54.5)	72 (52.6)	0.794
Diabetes	25 (24.8)	34 (24.8)	1.000
Active smoking	14 (13.9)	16 (11.7)	0.694
Previous acute myocardial infarction	10 (9.9)	9 (6.6)	0.469
Congestive heart failure	24 (23.8)	16 (11.7)	0.022
Previous anticoagulant treatment	19 (18.8)	21 (15.3)	0.488
Wake-up stroke	26 (25.7)	12 (8.8)	0.001
NIHSS H1	16 (13-19.5)	17 (13-20)	0.543
Admission systolic pressure	140 (125-158)	144.5 (125.5-158)	0.297
Admission diastolic pressure	77 (67-85)	77.5 (65-89)	0.661
Admission blood glucose	124 (108-147)	126 (105-149)	0.837
ASPECTS H1	8 (8-10)	9 (8-10)	0.003
Previous intravenous thrombolysis	58 (57.4)	101 (73.7)	0.012
NIHSS H2	-	17 (12-18)	-
ASPECTS H2 (n = 118)	-	8 (7-9)	-
Any ASPECTS decrement (n=118)	-	71 (60.2)	-
Functional independence at 3 months ¹	57 (57)	72 (52.9)	0.597
Time symptoms-recanalization	251.5 (183-302)	355 (285-413)	<0.001

¹ 1 missing in each group

➤ Binomial logistic regression, multivariable, for functional independence at 3 months

	Odds ratio (IC 95%)	p
Age (1 year increase)	0.95 (0.92-0.98)	<0.001
Congestive heart failure	0.69 (0.29-1.64)	0.405
Wake-up stroke	1.16 (0.41-3.26)	0.776
Admission NIHSS (1 point increase)	0.92 (0.86-0.99)	0.018
Blood glucose (1mg/dL increase)	0.99 (0.99-1.00)	0.004
ASPECTS H1 (1 point increase)	1.51 (1.17-1.96)	0.02
Intravenous thrombolysis	1.21 (0.56-2.63)	0.628
Interhospital transfer	0.34 (0.16-0.70)	0.004

➤ Binomial logistic regression, multivariable, for functional independence at 3 months (after inclusion of time to recanalization in the model)

	Odds ratio (IC 95%)	p
Age (1 year increase)	0.92 (0.88-0.96)	<0.001
Congestive heart failure	0.75 (0.25-2.23)	0.598
Wake-up stroke	-	-
Admission NIHSS (1 point increase)	0.88 (0.81-0.95)	0.007
Blood glucose (1mg/dL increase)	0.99 (0.98-1.00)	0.003
ASPECTS H1 (1 point increase)	1.21 (0.87-1.69)	0.249
Intravenous thrombolysis	0.92 (0.36-2.37)	0.864
Interhospital transfer	0.59 (0.22-1.57)	0.289
Time symptoms-recanalization (15 minutos increase)	0.92 (0.86-0.99)	0.018

- ✓ After inclusion of time to recanalization in the model, IHT was **no longer predictive** of functional independence.
- ✓ Each **15-minute delay** in time to recanalization is associated with an **8% decrease** of probability of functional independence at 3 months.

CONCLUSION

Longer time to recanalization is associated with a lower likelihood of achieving 3-month functional independence in stroke with LVO. The organization of Stroke Centers/Units and the process of IHT must be optimized to maximize the clinical benefits of MT.