

Introduction

Most mechanical thrombectomy (MT) trials required advanced neuroimaging including either CT or MR based angiography and perfusion for patient selection prior to randomization. However, in practice, centers may offer MT based on favorable findings (ASPECT score > 6) on non-contrast head CT (HCT) alone. We compared outcomes between patients who underwent MT based on HCT alone versus additional neuroimaging (HCT+).

Methods

Case records of all patients who underwent MT at our center between Jun 2012 – Jun 2017 were reviewed. Patient demographics, risk factors, presentation, pretreatment scan findings, and clinical outcomes were compared. Favorable outcome is defined as mRS of 2 or less at 90-days.

Demographics and Risk Factors			
	HCT	HCT+	p value
Mean age (years)	71.7	69.9	0.16
Male (%)	42.0	49.1	0.11
Hypertension (%)	81.0	82.9	0.59
Diabetes Mellitus (%)	33.5	24.5	0.03
Atrial Fibrillation (%)	45.0	41.9	0.49
Smoking (%)	20.0	26.2	0.10
Coronary Artery Disease (%)	35.0	29.0	0.15
NIHSS	19.3	15.7	<0.01
ASPECT score	8.5	8.4	0.41
IV tPA (%)	56.5	39.6	<0.01
Stent Retriever (%)	56.5	55.8	0.88
Only Aspiration (%)	31.5	33.3	0.66
Transfer from OSH (%)	60.3	46.9	<0.01

Table 1: Comparison of demographics and risk factors of all patients who underwent MT between Jun 2012-Jun 2017

Results

A total of 528 patients were identified, of which 46.4% were male. There were 201 (38.1%) patients who underwent MT based on findings on HCT alone; while the remaining 327 (61.9%) also underwent either CTA (184/528; 34.8%), CTA plus CTP (113/528; 21.4%) or MRI brain 22/528; 4.2%) prior to MT. Median age (71.7 vs. 69.9, p=0.2) and baseline ASPECT scores (8.5 vs. 8.4, p=0.4) were comparable between the HCT alone and HCT+ groups. The HCT alone patients had a higher NIHSS (19.3 vs. 15.7, p<0.01), however presented earlier with faster onset -to-recanalization (316.3 vs. 436.0 minutes, p<0.01). TICI 2b/3 recanalization (80.5 vs 79.3, p=0.7) was comparable. A significant trend towards a more favorable outcome in the HCT+ group was noted (37.7% vs 48.5%, p=0.03).

Outcomes			
	HCT	HCT+	p value
Onset to Recanalization (min)	316.3	436.0	<0.01
TICI 2b/3 Recanalization (%)	80.5	79.3	0.71
Favorable Outcome (%)	37.7	48.5	0.03
Hemorrhagic Transformation (%)	27.6	26.2	0.53
Parenchymal Hemorrhage (%)	8.5	6.2	0.53

Table 2: Comparison of outcomes for all patients who underwent MT between Jun 2012-Jul 2017

Conclusions

Our findings suggest that only HCT (ASPECT score) based selection could be suboptimal when compared to more advanced imaging for MT patient selection. Further prospective studies are warranted.

Learning Objectives

- By the conclusion of this session, participants should be able to:
- 1) Explore the advantages of additional neuroimaging in obtaining favorable clinical outcomes.
 - 2) Compare the advantages and disadvantages of obtaining additional neuroimaging.

References

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3) Wintermark M, Reichhart M, Thiran J P, Maeder P, Chalaron M, Schnyder P. et al. Prognostic accuracy of cerebral blood flow measurement by perfusion computed tomography, at the time of emergency room admission, in acute stroke patients. Ann Neurol. 2002;51:417–32.