Oral Abstracts

O-001 IMPACT OF RECANALIZATION IN PATIENTS WITH PRETREATMENT DWI-ASPECTS ≤6 TREATED WITH ENDOVASCULAR THERAPY

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Background and purpose In acute ischemic stroke (AIS) patients, a diffusion-weighted imaging (DWI) Alberta Stroke Program Early Computed Tomography Score (ASPECTS) is correlated with infarct volume and is an independent factor of functional outcomes. Patients with pretreatment DWI-ASPECTS ≤6 were excluded or underrepresented in the recent randomized endovascular therapy (EVT) trials. Our aim was to assess the impact of recanalization in patients with pretreatment DWI-ASPECTS ≤6 treated with EVT.

Methods We analyzed data collected between January 2012 and August 2015 in 2 prospective clinical registries of AIS patients treated with EVT. Every patient with a documented internal carotid artery or middle cerebral artery occlusion with pretreatment DWI-ASPECTS ≤6 was eligible for this study. The primary outcome was a favorable outcome defined by a modified Rankin Scale of 0 to 2 at 90 days.

Results Two hundred eighteen patients were included. Among them, 145 (66%) had a good recanalization (TICI ≥ 2 b) at the end of EVT. There was no statistically difference in the baseline clinical characteristics between recanalised and non-recanalised patients. Recanalized patients had an increased rate of favorable outcomes (38.7% vs 17.4%, p = 0.002) and a decreased rate of mortality at 3 months (22.5% vs 39.1%, p = 0.013) compared with non-recanalised patients. The symptomatic intracerebral hemorrhage rate was not different in the 2 groups (13% vs 14.1%, p = 0.83).

Conclusion Patients with a pretreatment DWI-ASPECTS ≤6 may still benefit of EVT when a good recanalization is achieved. In particular, EVT-induced recanalization was associated with a reduced rate of mortality without increased risk of symptomatic intracerebral hemorrhage.

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O-002 PRESENTING DIFFUSION-RESTRICTED CORE VOLUME, NOT TIME, PREDICTS FINAL INFARCT VOLUME AFTER THROMBECTOMY IN ANTERIOR CIRCULATION LARGE VESSEL OCCLUSION STROKE

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Purpose With thrombectomy for anterior circulation large vessel occlusion (ACLVO) stroke, time to recanalization is considered important, but collateral status may be a more important driver of outcome than time. Here we used data from an institutional cohort to test the hypothesis that small DWI core volume on presenting MRI, a biomarker of robust collateral perfusion, is the dominant predictor of favorable outcome after thrombectomy.

Methods A cohort of 56 ACLVO patients treated with thrombectomy at our institution between 11/1/2012 and 5/15/2015 was studied by logistic regression using final infarct volume ≤50 mL, a validated predictor of good clinical outcome, as the outcome variable. The following univariate predictor variables were assessed: age, NIHSS score, time to CTA, time to CTA ≤ 6 hours, presenting diffusion-restricting core volume, presenting core ≤ 50 mL, time to recanalization, time to recanalization ≤6 hours, time to recanalization ≤8 hours, and recanalization ≥ TICI2B. Finally, multiple logistic regression models were created comparing time and presenting core as predictors adjusting for age and TICI2B recanalization status.

Results Of the univariate predictors studied, only presenting core volume, presenting core volume ≤50 mL, age, and post procedure TICI ≥ 2 B were significant predictors of the outcome variable at the $\alpha = 0.15$ level (Table 1). Paradoxically, the administration of IV tPA was associated with larger core volumes in our dataset ($\beta = 1.53$, $p = 0.100$). Of the time-based predictors, time to recanalization and time to recanalization ≤8 hours performed best, although none of them approached significance at the $\alpha = 0.15$ level. The performances of time, core volume, age and TICI ≥ 2 B as predictors of small final infarct were then evaluated in a multiple logistic regression model. In that model, presenting core volume ≤50 mL, not time to recanalization, was the dominant predictor of small final infarct volume (OR 15.2 [95CI 1.3, 180] vs. 0.94 [95CI 0.78, 1.1]). Finally, a 3 variable logistic regression

Abstract O-002 Table 1

Predictor	Univariate *ß*	Univariate *p*	Multivariate *ß*	Multivariate *p*	Odds ratio	95 CI for Odds ratio	
						Lower	Upper
Presentation DWI Vol. (mL)	-0.07	<0.001	-0.06	0.005	0.94	0.90	0.98
Presentation DWI Vol. ≤50	3.06	0.007	2.72	0.032	15.21	1.26	182.98
Time to Recanalization (h)	-0.05	0.400	-0.06	0.561	0.94	0.78	1.14
Time to recanalization ≤8	0.68	0.242	0.24	0.774	1.26	0.26	6.28
Time to CTA (h)	0.01	0.869	–	–	–	–	–
Time to CTA ≤ 6	-0.12	0.836	–	–	–	–	–
Age (yr)	0.04	0.081	0.03	0.357	1.03	0.96	1.11
Post procedure TICI ≥ 2 B	0.96	0.140	1.24	0.244	3.46	0.43	28.01

model incorporating presentation core volume, age, and TICI ≥ 2 B as covariates was constructed. The resulting model was statistically significant $\chi^2(2) = 22.65$, ($p < 0.001$) and accounted for 52.9% of the variance in outcome with a percent accuracy of classification of 85.4%.

Conclusion Presentation volume of diffusion-restricted core was a strong predictor of final infarct volume post-thrombectomy in this cohort of ACLVO patients, whereas time-based covariates showed little if any significant predictive value. For every 1 mL increase in presentation infarct volume, the odds of a small completed infarct were reduced by about 6%. A presentation core volume ≤50 mL improved the odds of a small final infarct by at least 26%, probably more.

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O-003 TIME TO STROKE INTERVENTION IS REDUCED WHEN CT ANGIOGRAPHY IS PERFORMED IMMEDIATELY AFTER NON-CONTRAST CT

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Introduction Imaging still serves as an integral tool for stroke validation and intervention. Limited data is available as to whether performing CTA immediately following non-contrast CT (NCCT) will delay overall treatment time. Centers conducting concurrent NCCT and CTA relative to those performing NCCT alone were evaluated to determine whether having additional imaging extends hospital workflow, prolonging time to IV rtPA and subsequently to endovascular intervention, where warranted.

Materials and methods A total of 108 patients were enrolled in the THERAPY trial, a randomized controlled trial designed to assess the benefits of adjunctive mechanical thrombectomy plus IV rtPA versus IV rtPA alone. Standard emergency department (ED) protocols for participating centers are registered as either conducting concurrent NCCT and CTA (N = 22) or postponed acquisition of CTA (N = 13). The effects of having concurrent imaging modalities are evaluated for all patients as well as singly for patients undergoing endovascular therapy.

Results Patients having the relevant data for analysis totaled 105 amongst 35 centers. Sixty-six patients received concurrent imaging processes across 22 centers, while 39 patients between 13 centers received sequential NCCT and CTA imaging.

For all patients, clear benefits of having both NCCT and CTA in conjunction were a reduction in time from presentation at the ED to randomization, and consequently from onset to randomization (Table 1). No significance difference in time was observed from admission to IV rtPA administration in this population.

More significant differences were observed in the EVT cohort, including a reduction in the time from presentation to

Abstract O-003 Table 1 Separate and concurrent NCCT/CTA angiography-related hospital processing times

Characteristic (minutes) Mean (SD)	Separate NCCT and CTA Acquisition	Concurrent NCCT and CTA Acquisition	P – value*
Study Cohort			
	n=39	n=66	
Onset to ED	96.6 (83.9)	79.4 (56.9)	0.57
Onset to Clot ID – NCCT picture	109.3 (69.7)	100.5 (60.8)	0.57
Onset to Baseline CTA	**176.6 (77.3)**	**112.1 (72.1)**	**<0.001**
ED to Baseline CTA	**82.9 (78.4)**	**35.1 (38.2)**	**0.002**
ED to Randomization	**111.0 (54.6)**	**88.2 (35.4)**	**0.04**
Onset to Randomization	**207.7 (59.3)**	**167.5 (58.0)**	**<0.001**
ED to IV rt-PA	29.1 (63.1)	35.3 (35.3)	0.53
Onset to IV rt-PA	125.9 (52.6)	114.7 (51.0)	0.19
Revascularization to mTICI 2b/3	N/A	N/A	N/A
90-day mRS 0-2	27.8% (10/36)	38.6% (22/57)	0.37
Endovascular Treatment Group			
	(n=18)	(n=33)	
ED to Arterial Access	**161.2 (59.4)**	**120.7 (48.7)**	**0.01**
Onset to Arterial Access	244.6 (38.5)	212.1 (71.1)	0.07
ED to Pump on	**196.6 (60.5)**	**138.8 (51.2)**	**0.003**
Onset to Initial Pump on	**277.2 (38.0)**	**227.0 (70.2)**	**0.04**
Arterial Access to Final Angiography	85.5 (85.5)	62.8 (41.2)	0.26
Onset to Final Angiography	**328.9 (72.8)**	**267.2 (83.1)**	**0.01**
Revascularization to mTICI 2b/3	**52.9% (9/17)**	**85.2% (23/27)**	**0.04**
90-day mRS 0-2	36.8% (7/19)	40.0% (12/30)	1.0

*** Analysis was performed either by the Wilcoxon signed-rank test or Fisher's Exact Test.**