

greater and less than mTICI 2b, respectively. Patient demographics, pretreatment information, and treatment information were compared and then included in a univariate (UVA) and multivariate analysis (MVA) for prediction of MTF.

Results A total of 8452 patients were included in the analysis, of whom 1301(15.4%) experienced MTF. Patients in the MTF group were older (73 vs 71 years, $p=0.008$) and had higher percentage of poor pre-morbid mRS (10.8% vs 8.4%, $p=0.17$). No significant differences were found between race, sex, pre stroke medical comorbidities or Alberta Stroke Program Early CT Score (ASPECTS). Onset to puncture was greater in the MTF group (442 vs. 411 min, $p=0.006$). There were more ICA occlusions (15.6% vs. 13.5%) and basilar occlusions (7.8% vs. 6.2%) in the MTF group and more M1 occlusions (42.2% vs 37.5%) in the MTS group ($p<0.001$). More patients underwent aspiration as the final technique in the MTS group (35.3% vs 32.9%). Number of passes (3 vs 2) and total procedure time (77.3 vs 46.1 min) were higher in the MTF group ($p<0.001$). More patients in the MTF group required IA thrombolytic (14.7% vs. 8.3%, $p<0.001$). More patients in the MTS group had rescue intracranial stenting (7.9% vs 4.8%). There were more complications (14.7% vs 6.2%) and more symptomatic ICH (9.9% vs 5.7%, $p<0.001$) in the MTF group. Favorable outcome at 90 days was greater in the MTS group (42.6% vs 18.3%, $P<0.001$). On UVA, age, poor pretreatment mRS, posterior circulation occlusion, final technique SR, increased number of passes, and increased procedure time were associated with increased odds of MTF, while M1-M2 occlusions and rescue intracranial stenting with decreased odds of MTF. These correlations remained significant on MVA for final technique SR, rescue intracranial stenting, number of passes, and procedure time.

Conclusion In one of the largest studies to evaluate factors associated with failure MT in real world practice, we demonstrate that MTF is associated with significantly more complications and worse outcome. Final use of aspiration and rescue intracranial stenting may increase chances of recanalization.

Disclosures M. Webb: None. M. Essibayi: None. S. Al Kasab: None. I. Maier: None. M. Psychogios: None. A. Alawieh: None. S. Wolfe: None. A. Arthur: None. T. Dumont: None. P. Kan: None. J. Kim: None. R. De Leacy: None. J. Osburn: None. A. Rai: None. P. Jabbar: None. M. Park: None. R. Crosta: None. M. Levitt: None. A. Polifka: None. W. Casagrande: None. S. Yoshimura: None. C. Matouk: None. R. Williamson: None. B. Gory: None. M. Mokim: None. I. Fragata: None. D. Romano: None. S. Chowdry: None. M. Moss: None. D. Behme: None. K. Limaye: None. A. Spiotta: None. J. Mascitelli: 2; C; Stryker.

O-062

CLINICAL OUTCOMES OF ENDOVASCULAR THROMBECTOMY FOR ACUTE ISCHEMIC STROKE IN PATIENTS WITH ACTIVE CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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10.1136/neurintsurg-2022-SNIS.62

Introduction Despite cancer being a strong risk factor for acute stroke, the clinical outcomes of endovascular thrombectomy for cancer-related stroke remain generally unknown.

Methods A systematic literature review and meta-analysis was completed in accordance with PRISMA guidelines. Outcomes of endovascular thrombectomy in patients with active malignancy were compared to patients without cancer. Comparative studies were identified within the literature and quantitatively synthesized. The primary outcome measures were functional independence at 90 days defined as a modified Rankin score (mRS) of 0–2, 90-day mortality rate, post-thrombectomy recanalization grade defined as mTICI $\geq 2b$, and post-procedural ICH. A random effects model was used to calculate pooled odds ratios (OR) for each outcome variable along with corresponding 95% confidence intervals (CI).

Results From the systematic review, 8 comparative studies were identified with a total of 2,535 patients. There were 184 patients identified with active cancer and 1,932 patients without active malignancy who underwent endovascular thrombectomy for acute stroke. On meta-analysis, patients with active cancer had a significantly lower odds of achieving an mRS of 0–2 at 90 days (OR: 0.54, CI: 0.37 to 0.78, $P = 0.001$, $I^2 = 0\%$). The 90 day mortality rate was also higher in cancer patients (61/184; 33%), compared to non-cancer patients undergoing thrombectomy (246/1,932; 12.8%) (OR: 3.48, CI: 2.23 to 5.44, $I^2 = 38\%$). Patients with active cancer also had a higher odds of post-procedural ICH (OR: 2.45, CI: 1.01 to 5.97, $P = 0.05$, $I^2 = 78\%$). However, there was no differences in post-thrombectomy recanalization between the two groups of patients (OR: 0.87, CI: 0.56 to 1.34, $P = 0.52$, $I^2 = 5\%$).

Conclusion On meta-analysis, patients with current malignancy experience inferior outcomes after embolectomy with respect to hemorrhage, functional independence, and mortality in spite of recanalization results similar to non-cancer patients. Further research is needed to optimize endovascular management for this sub-population of stroke.

Disclosures D. Scharzt: None. M. Bender: None. G. Kohli: None. S. Akkipeddi: None. N. Ellens: None. T. Bhalla: None. T. Mattingly: None.

O-063

IMPROVED LVO FIRST-PASS EFFECT WITH PRECISE CYCLIC ASPIRATION: EARLY EXPERIENCE WITH THE RAPIDPULSE™ SYSTEM

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10.1136/neurintsurg-2022-SNIS.63

Introduction First-pass reperfusion effect (FPE) has been shown to be associated with improved clinical outcomes and reduced mortality in mechanical thrombectomy (MT) for patients with large vessel occlusion strokes (LVOS). However, FPE is achieved in less than 30% of patients undergoing MT with the current technology.

Materials and Methods We report on the prospective, multi-center, first-in-human experience of the RapidPulse™ Cyclic Aspiration System. This novel technology consists of a valve box that precisely and rapidly cycles the vacuum pressure from full vacuum to no vacuum 8 times per second. Patients with acute ischemic stroke (AIS) due to LVO involving the intracranial internal carotid artery (ICA), M1 and M2 segments of the middle cerebral artery (MCA), basilar artery

(BA) or vertebral arteries (VA), up to 24 hours from stroke onset (or last known well), without evidence of ICAD and/or tandem occlusions, and target lesion treated with Medtronic React 71 aspiration catheter were considered for inclusion. A single-use tubing set was used in conjunction with the Medtronic React 71 catheter and a commercially available pump. The primary outcome was the rate of FPE success with complete/near reperfusion, as defined by mTICI $\geq 2c$ after one pass. Secondary outcomes included frontline technical success, as defined by mTICI $\geq 2b$ after final pass with no rescue therapy, and incidence of vessel injury and/or vasospasm. Outcomes were compared against historical controls from a recent meta-analysis (n=9,082).

Results A total of 29 patients were included (table 1). The rate of FPE (mTICI $\geq 2c$ after one-pass) was significantly higher in the RapidPulse-cohort than in the historical cohort (69% [20/29] vs. 28%; $p < 0.0001$). Minor transient vasospasm was observed in one patient. No vessel injury was observed.

Conclusion In this early experience, the RapidPulse™ Aspiration System was shown to be safe, and effective, resulting in one of the highest rates of FPE reported to date. This novel technology may allow clinicians to reduce reliance on more complex techniques and significantly reduce the disposable device costs associated with treating LVOS. Additional studies are currently underway.

Disclosures G. Gal: None. J. Gallego León: None. F. Ballell: None. C. Domínguez Rodríguez: None. G. Barbieri: None. E. Barcena Ruiz: None. J. Munoz Olmedo: None. J. Rayón Aledo: None. A. Díaz: None. A. Sagredo Barra: None. F. Sánchez Blanco: None. R. Nogueira: 1; C; Principal Investigators of the 'Endovascular Therapy for Low NIHSS Ischemic Strokes (ENDOW)' trial. Funding for this project is provided by Cerenovus. 2; C; Anaconda, Biogen, Cerenovus, Genentech, Philips, Hybernia, Imperative Care, Medtronic, Phenox, Prolong Pharmaceuticals, Stryker Neurovascular,

Shanghai Wallaby, Synchron, Astrocyte, Brainomix, Cerebrotech, Ceretrieve, Corindus Vascular Robotics, Vesalio, Viz-AI, RapidPulse, Perfuze. 4; C; Viz-AI, Perfuze, Cerebrotech, Reist/Q'Apel Medical, Truvic, Vastrax, Viscon.

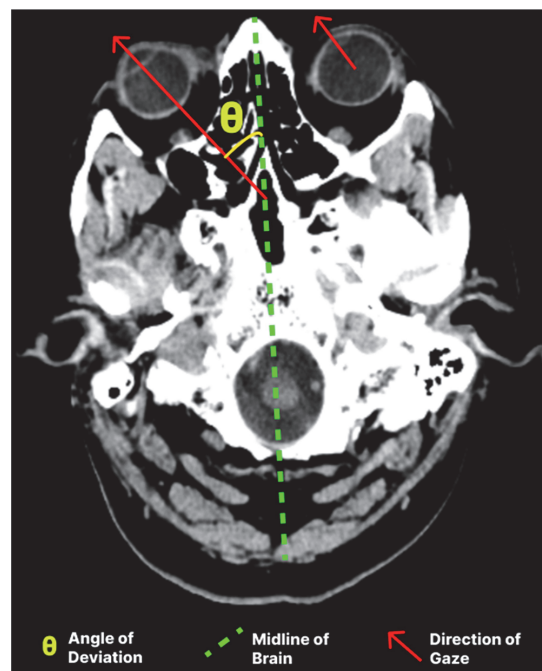
0-064 AI BASED GAZE DEVIATION DETECTION TO AID LVO DIAGNOSIS IN NCCT

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10.1136/neurintsurg-2022-SNIS.64

Introduction Stroke caused by emergent large vessel occlusion (LVO) is a critical time-sensitive diagnosis requiring prompt identification to identify candidates for endovascular therapy (EVT). As a result, identifying imaging findings on non-contrast computed tomography (NCCT) that are predictive of LVO would aid in the identification of potential EVT candidates. We present and validate gaze deviation as an indicator for detecting LVO using NCCT. In addition, we present an Artificial Intelligence (AI) algorithm for detecting this indicator.

Methods AI algorithms have tremendous potential to aid in this triage process but have so far been limited to brain parenchymal predictors of LVO. We present an AI algorithm to detect gaze deviation from an NCCT scan. The AI algorithm was trained using a set of 200 scans to identify gaze direction. The gaze deviation is calculated by measuring the



Abstract O-064 Figure 1

Abstract O-063 Table 1 Baseline characteristics and outcomes of RapidPulse cohort

Table 1 – Baseline characteristics and outcomes of the RapidPulse Cohort

Baseline Characteristics	RapidPulse Cohort (n=29)
Mean age (SD)	75.3 (±14.9)
Female, n (%)	8 (33.3%)
Baseline NIHSS score, median (IQR)	18.5 (14.5-22.5)
Site of occlusion	
Basilar	6.8% (2/29)
ICA	3.5% (1/29)
M1	72.4% (21/29)
M2	6.8% (2/29)
T-occlusion	10.3% (3/29)
Baseline ASPECTS, median (IQR)	9 (6.25-10)
Outcomes	
First Pass Success (FPE) mTICI $\geq 2c$ after single pass	69% (20/29)
Frontline technical success, mTICI $\geq 2b$ after final pass with no rescue therapy	83% (24/29)
Incidence of vessel injury (i.e., vessel dissection, perforation, ICH) post procedure	0
Device related vasospasm	3.4% (1/29)