University–DSMB Chair for HEAT Trial, Penumbra, Q'Apel Medical Inc, Rapid Medical, Rebound Therapeutics Corp, Serenity Medical Inc, Silk Road Medical, StimMed, Stryker, Three Rivers Medical, Inc, VasSol, W.L. Gore & Associates. 4; C; Amnis Therapeutics, Apama Medical, Blink TBI Inc., Buffalo Technology Partner Inc., Cardinal Consultants, Cerebrotech Medical Systems Inc., Cognition Medical, Endostream Medical Ltd, Imperative Care, International Medical Distribution Partners, Neurovascular Diagnostics Inc., Q'Apel Medical Inc, Rebound Therapeutics Corp, Rist Neurovascular Inc, Serenity Medical Inc, Silk Road Medical, StimMed, Synchron, Three Rivers Medical Inc., Viseon Spine Inc. E. Levy: 2; C; Claret Medical, GLG Consulting, Guidepoint Global, Imperative Care, Medtronic, Rebound, StimMed. 4; C; NeXtGen Biologics, RAPID Medical, Claret Medical, Cognition Medical, Imperative Care (formerly the Stroke Project), Rebound Therapeutics, StimMed, Three Rivers Medical. Y. Hoi: 5; C; Canon Medical Systems Inc. C. Ionita: 1; C; Equipment grant from Canon Medical Systems, Cummings Foundation support. K. Snyder: 2; C; Canon Medical Systems Corporation, Penumbra Inc, Medtronic, Jacobs Institute.

0-024 **FOUR OR MORE THROMBECTOMY PASSES, TPA USE, AND HIGH INITIAL STRESS GLUCOSE RATIO ARE INDEPENDENTLY ASSOCIATED WITH MALIGNANT CEREBRAL EDEMA AFTER MECHANICAL THROMBECTOMY: A SINGLE-CENTER, RETROSPECTIVE STUDY**

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Background The development of malignant cerebral edema (MCE) after large-vessel occlusion mechanical thrombectomy (MT) with the ensuing requirement for decompressive craniectomy is a dreaded outcome of stroke. We analyzed factors associated with the development of malignant cerebral edema following mechanical thrombectomy.

Methods We performed a retrospective analysis of anterior cerebral circulation large vessel occlusion cases that underwent MT from April 2012 to November 2019 at single comprehensive stroke center. Data included patient demographics, presenting NIHSS score, vessel occlusion site, onset-to-revascularization timing, presenting blood glucose, 90 day modified Rankin Scale (mRS), post-procedural intracerebral hemorrhage (PH1 or PH2), and post-procedural development of MCE (midline shift greater than 5 mm associated with neurological deterioration after greater than 50% infarction of the MCA territory). Multi-variate logistic regression analyses were performed to determine significant predictors of malignant cerebral edema and poor functional outcome (mRS 3–6) at 90 days.

Results 400 patients were included in the analysis. 42 (10.5%) patients developed MCE following mechanical thrombectomy with 26 (6.5%) patients undergoing decompressive craniectomy. Significant independent predictors of MCE following MT included: NIHSS (OR 1.10, 95% CI: 1.03–1.18; $p=0.008$), tPA administration (OR 2.38 95% CI: 1.04–5.46; $p=0.041$), 4 or more thrombectomy passes (OR 5.25, 95% CI: 1.53–17.94; $p=0.008$), and initial stress glucose ratio (OR

14.92 95% CI: 3.95–56.43; $p<0.001$). Significant predictors associated with decreased risk of MCE included: M1 occlusion compared to ICA occlusion (OR 0.40 95% CI: 0.18–0.88; $p=0.022$) and TICI 2C/3 recanalization (OR 0.27, 95% CI: 0.09–0.78; $p=0.015$). Significant predictors of a poor functional outcome included: age (OR 1.05, 95% CI: 1.03–1.07; $p<0.001$), NIHSS (OR 1.10, 95% CI: 1.05–1.15; $p<0.001$), initial stress glucose ratio (OR 4.49, 95% CI: 1.60–12.61; $p=0.004$), intracerebral hemorrhage (PH1 or PH2) (OR 4.74, 95% CI: 1.20–18.69; $p=0.026$) and MCE (OR 6.56, 95% CI: 2.00–21.59; $p=0.002$). The sole significant predictor against a poor functional outcome at 90 days was TICI 2C/3 recanalization (OR 0.17, 95% CI: 0.07–0.38; $p<0.001$).

Conclusion Our data demonstrate an association of malignant cerebral edema with ICA occlusion, higher presenting NIHSS scores, tPA administration, 4 or more thrombectomy passes, and a high initial stress glucose ratio. Malignant cerebral edema is associated with poor functional outcome at 90 days. Further investigation of causes of malignant cerebral edema after MT are warranted.

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0-025 **OUTCOMES OF RESCUE ENDOVASCULAR TREATMENT OF ACUTE ISCHEMIC STROKE IN PATIENTS WITH UNDERLYING INTRACRANIAL ATHEROSCLEROSIS – INSIGHTS FROM STAR REGISTRY**

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Introduction Mechanical Thrombectomy (MT) is the standard of care for patients presenting with emergent large vessel occlusion (ELVO) with salvageable tissue. A subgroup of ELVO is refractory to reperfusion due to underlying intracranial atherosclerosis (ICAS), often requiring rescue therapy with balloon angioplasty, stenting or both. Whether such rescue therapy is safe and effective remains to be established. The purpose of this study is to investigate the safety, efficacy, and long-term outcomes of MT for ELVO related ICAS.

Methods We queried the databases of 11 thrombectomy-capable centers in the US and Europe included in STAR (Stroke Thrombectomy and Aneurysm Registry). In this analysis, we included patients who underwent rescue therapy (balloon angioplasty and/or stenting) in the setting of ELVO due to underlying ICAS. A matched sample was produced by matching on the variables of age, admission NIHSS, and location of the occlusion.

Results Out of 2827 thrombectomy patients included in STAR at the time of this analysis, 190 patients required rescue therapy for ELVO with underlying ICAS. Balloon angioplasty was performed on 116 patients, and 113 patients had intracranial stenting. On multivariate analysis, after controlling for age, sex, race, hypertension, diabetes, prior stroke, NIHSS on