Abstract P-018 Figure 1 Axial (left) and Sagittal (right) post-contrast 3D T1 black blood sequence showing circumferential vessel wall enhancement of the left M1 segment in a patient who recently received mechanical thrombectomy with three passes of the stent retriever

gadolinium. Enhancement data variables from the MRI that were recorded included pattern (circumferential versus eccentric) and amount of maximal contrast enhancement based on region of interest differences in the region of highest T1 signal between post and pre-contrast T1 sequences. Following thrombectomy, the type and number of passes with each device was recorded.

Results 10 adult patients (6 F, Mean age of 65.7 years) were included in this study. Two received stent retriever with aspiration catheter, 7 received stent retriever only, and 1 received aspiration only. All 10 patients demonstrated circumferential enhancement in the region of retrieved clot, including the one patient who received aspiration only. Of the 9 patients that received the stent retriever, recanalization was achieved in 1 pass in 4, while in the other 5 patients, recanalization was achieved after multiple passes (range 2-4 passes). Dichotomizing the data between 1 and multiple passes, there was a difference in the amount of mean maximal enhancement of the involved vessel wall (single pass: 75, Std Dev 28.39 vs multiple passes: 110.6, Std Dev 51.75), although this did not reach statistical significance due to a small number of patients.

Conclusions All patients showed circumferential wall enhancement despite type of thrombectomy technique, suggesting that all techniques may be associated with a similar mechanism of endothelial wall injury. Moreover, those patients who required multiple passes of the stent retriever for recanalization demonstrated a higher mean maximal enhancement when compared to those patients who required just one pass. Further exploration with an increased number of patients is warranted.

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P-019

CLINICAL SIGNIFICANCE OF CONTRAST STAINING AFTER MECHANICAL THROMBECTOMY FOR ACUTE ISCHEMIC STROKE

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Background Acute ischemic stroke is a leading cause of mortality and morbidity throughout the world. Thrombolysis

with intravenous tissue plasminogen activator (tPA) is often the first-line therapy after presentation. For select patients with large vessel occlusions (LVO), mechanical thrombectomy (MT) is the gold standard to achieve cerebral reperfusion, in which a variety of clot retriever devices and aspiration catheters are employed to remove the clot. After MT, a computed tomography (CT) scan of the head is often done shortly after to evaluate for stroke progression and hemorrhagic transformation; however, in some patients, contrast can remain within the parenchyma of the brain, referred to as contrast staining (CS). While an unclear radiologic finding, previous studies have suggested that it represents injury to small vessels branching from the occluded vessel during thrombectomy (Renu et al. *Stroke*. 2014). As a result, CS has been associated with a higher risk intracerebral hemorrhage (ICH) after MT.

Objective In this study, we look to (1) better characterize the clinical significance of post-MT CS in our cohort of acute ischemic stroke patients and (2) determine whether specific devices deployed at the time of thrombectomy are correlated with CS.

Methods We retrospectively reviewed patients from 2017-2020 who underwent MT. Included patients were those that presented within a LVO (i.e. clot within the internal carotid artery, proximal anterior cerebral artery, proximal middle cerebral artery, vertebral artery, or basilar artery) and underwent MT within 24 hours of symptom onset. Patients that had vessel occlusions related to prior surgical or endovascular procedures were excluded. Clinical outcomes were reported with the modified Rankin Scale (mRS).

Results Patients with CS were diagnosed with early ICH (diagnosed within 24 hours after MT) more often than patients without CS (59% vs 18%, respectively; $p < 0.001$). The groups did not differ in late ICH (diagnosed after 24 hours). Patients with symptomatic ICH had higher mRS at discharge (median of 5 vs 3, respectively; $p = 0.02$). However, CS was not independently associated with worsened mRS after MT ($p = 0.47$). In addition, larger diameter clot retriever devices and catheters were not significantly correlated with the presence of contrast staining or development of symptomatic ICH.

Conclusion Contrast staining is associated with the development of ICH, particularly in the early period after MT and worse clinical outcomes. While patients with ICH had worse functional outcomes at discharge, contrast staining itself was not associated with worse outcomes. Lastly, larger diameter clot retriever devices and catheters were not significantly correlated with the presence of contrast staining.

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P-020

PROCESS IMPROVEMENT WITH PRE-TRANSFER INTUBATION FOR PATIENTS UNDERGOING MECHANICAL THROMBECTOMY; NOT JUST FOR THE COVID PANDEMIC

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Background The use of general anesthesia (GA) during mechanical thrombectomy has been shown to be safe for those patients undergoing mechanical thrombectomy. One criticism of GA, however, is the extra time it takes to perform. Processes that reduce time to reperfusion can improve outcome. We sought to look at the effect of pre-transfer intubation (PTI) on patient flow and outcome.

Methods A system wide stroke program was implemented during the COVID pandemic; the program consists of a comprehensive stroke center with 10 network hospitals, 8 referring for thrombectomy. Patients were referred for mechanical thrombectomy based on AHA guidelines and VIZ AI software processing performed at the sending facilities. All patients were transferred directly to the endovascular suite. PTI was implemented for patients with high NIHSS. Data was collected from November 2020 through mid-March 2021 during the peak months of the COVID-19 surge in Georgia.

Results 52 patients underwent mechanical thrombectomy. 38 patients were from network hospital emergency departments; 19% were COVID positive. 16 patients underwent PTI, and 22 patients were intubated in the endovascular suite. Initial NIHSS was significantly higher in PTI patients (17 versus 11, $p < 0.05$). The Door-in-Door-Out time was not significantly different; 176 ± 68 min with PTI and 140 ± 37 min for those intubated at the CSC ($p = 0.065$). Door to groin puncture at the CSC was significantly shorter for PTI, 18 ± 6 min, compared to those intubated at the CSC, 32 ± 19 min ($p < 0.05$). Despite a higher initial NIHSS, there was no significant difference in the NIHSS at discharge nor the percent of patients that were independent at discharge, mRS 0-2. There was a trend toward a larger change in NIHSS in the PTI group. There were no adverse events associated with PTI and all patients had a persistent LVO on the initial angiogram.

Conclusion An established protocol of pre-transfer intubation is safe and feasible. Intubation prior to transfer does not negatively affect DIDO yet significantly decreases door to groin time at the CSC.

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P-021

TIGER STUDY: SHORTER ARTERIAL PUNCTURE TO REVASCULARIZATION TIMES AND FIRST PASS EFFECT IMPROVES ANGIOGRAPHIC AND CLINICAL OUTCOMES

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Introduction Achieving good clinical outcomes in treating acute ischemic stroke due to large vessel occlusion (LVO) is directly linked to rapid reperfusion. Systems of care, improved imaging detection tools, and novel neuroendovascular devices are key innovations to faster treatment times. We assessed the impact of first pass reperfusion and procedure time on outcomes in the TIGER study.

Methods The TIGER study was a single arm, prospective, multi-center trial assessing the efficacy and safety of the Tigertriever, a radially-adjustable stent retriever, for LVO-related stroke. The trial enrolled 160 patients, of which 150 had successful mTICI 2b-3 revascularization (94%) at end of all procedures. Among patients with faster and slower times for last known well (LKW) to arterial puncture, arterial puncture to revascularization, and LKW to revascularization, we evaluated rates of modified first pass effect (mTICI 2b-3 after first Tigertriever pass), change in NIHSS by 24 hours, and functional independence (mRS 0-2) and freedom-from-disability (mRS 0-1) at 3 months. Symptomatic ICH, 90 days mortality and Embolization to new territory (ENT) were measured as well for safety evaluation.

Results Patient demographics, including age, gender, baseline mRS, baseline NIHSS and vessel occlusion location, were similar in all groups. Faster (≤ 25 min) compared with slower (> 25 min) time from puncture-to-revascularization was strongly statistically associated with higher rates of first pass successful revascularization, nonsignificantly associated with greater 24h delta NIHSS, and strongly statistically associated with functional independence and freedom from disability at 90 days. (Table 1) In contrast, faster (≤ 178 min) compared with slower (> 178 min) time from LKW-to-puncture and

Abstract P-021 Table 1

Group		mTICI 2b-3 After first Tiger pass	Δ NIHSS @ 24 hrs	mRS 0-2 @ 90 days	mRS 0-1 @ 90 days	sICH @ 24 hours	Mortality @ 90 days	ENT
Arterial puncture to Revascularization	≤ 25 min, 52% (median 17)	87.5%	-10.3	73.5%	66.2%	0	11.1%	1.4%
	> 25 min, 48% (median 44)	34.8%	-8.3	51.5%	33.3%	2.9%	19.7%	4.5%
	P value	0.00001	0.14	0.009	0.0001	0.13	0.16	0.28
LKW to Arterial puncture	≤ 178 min, 50% (median 125)	56.8%	-9.9	57.1%	47.1%	1.3%	14.9%	1.4%
	> 178 min, 50% (median 291.5)	63.0%	-7.7	63.0%	47.9%	2.7%	18.9%	4.1%
	P value	0.44	0.11	0.47	0.92	0.55	0.51	0.31
LKW to Revascularization	≤ 220 min, 50% (median 151.5)	64.3%	-10.5	62.1%	50.0%	0	14.5%	1.4%
	> 220 min, 50% (median 320)	60.3%	-7.7	63.2%	50.0%	2.9%	15.9%	4.3%
	P value	0.63	0.09	0.90	1.00	0.15	0.81	0.31