Conclusion The shorter and simpler PREDICT scale was found to be less preferable with EMS provider all-comers, which may be partially due to the mere-exposure cognitive bias effect though this difference persisted in providers who had no prior exposure to either scale. In providers who enrolled multiple patients, there was a statistically insignificant trend towards preference for RACE between their first and last screening.

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E-097 TECHNICAL OUTCOMES OF MECHANICAL THROMBECTOMY USING THE SOFIA PLUS ASPIRATION CATHETER

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Introduction The Sofia Plus aspiration catheter (Microvention; Tustin, CA) is a recently introduced 0.070-inch inner diameter catheter designed to provide distal intracranial access and engage thrombus to facilitate thrombectomy for acute ischemic stroke.

Methods This single-center retrospective study assessed technical outcomes of mechanical thrombectomy using the Sofia Plus aspiration catheter. Utilizing a prospective database of all acute stroke interventions at our institution, cases utilizing SOFIA Plus on the first pass were identified. Patient characteristics, procedural details, and radiographic outcomes were analyzed.

Results Sofia Plus was utilized as a first pass aspiration catheter in 138 cases. Patients presented with a median NIHSS of 17 (IQR 10–22), ASPECT of 10 (IQR 8–10), and had target occlusions involving the ICA (n=30), M1 (n=73), M2 (n=22), or basilar artery (n=13). The aspiration catheter was used for first-pass direct aspiration alone in 86 patients (62%), and in conjunction with a stent retriever in 52 patients (38%). A recanalization grade of TICI 2b or better was achieved in 118 patients (86%), which was accomplished with a single pass in 88 (64%). Median time from groin puncture to recanalization was 44 minutes (IQR 30–68). Comparison of direct aspiration alone versus with stent retrievers demonstrated no difference in recanalization grade (p=0.64) or rates of first-pass recanalization (p=0.28), but direct aspiration was associated with faster recanalization (41 vs 53 minutes, p=0.02). There were two cases of vessel perforation (both involving stent retrievers), and two additional patients had symptomatic ICH on follow-up CT.

Conclusions Our experience demonstrates that the SOFIA Plus aspiration can facilitate safe and effective revascularization for acute ischemic stroke, either using a direct aspiration technique or in conjunction with a stent-retriever. However, reperfusion was achieved faster with direct aspiration alone.

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E-098 MECHANICAL THROMBECTOMY IN THE EXTENDED 24 HOUR TIME WINDOW FOR ACUTE ISCHEMIC STROKE PATIENTS WITH LARGE VESSEL OCCLUSION

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Introduction In 2018 the AHA guidelines were updated to include expansion of the mechanical thrombectomy (MT) window for acute ischemic stroke (AIS) patients with anterior circulation large vessel occlusion (LVO) from 6 to 24 hours. We report our institution's clinical experience with the expanded 24 hour MT window.

Methods Among 166 AIS patients with LVO who underwent MT from January 1, 2018 to July 1, 2019 at our comprehensive stroke program, we identified 77 patients (46%) with anterior circulation LVO treated in the extended 24 hour time window. Data was abstracted on demographics, time of Last Known Normal (LKN), National Institutes of Health Stroke Scale (NIHSS), CT brain perfusion (CTP), cerebral blood flow (CBF), time to maximum (Tmax), clinical presentation, Thrombolysis in Cerebral Infarction (TICI) score, and outcomes. Symptomatic hemorrhage was defined as neurological worsening within 36 hours accompanied by an NIHSS score increase ≥ 4 with correlative imaging. Good functional outcome was defined as 90 day modified Rankin Score of ≤ 2 .

Results Among 77 AIS patients with anterior circulation LVO who underwent MT in the expanded window, the mean age was 66.7 years (range, 26 to 98), 39 (51%) were female, and 69 (90%) were white. Stroke risk factors included atrial fibrillation 48 (62%), diabetes 53 (69%), and hypertension 53 (69%). Only 10 (13%) received intravenous thrombolysis. Initial mean NIHSS was 14.5 (range 1 to 28). CTP was available in 72 (94%) and the mean time from LKN to CTP was 12.0 hours (range, 2.8 – 22.8 hours). CTP mean CBF was 22.8 mL/100 g/min (range, 0 – 157 mL/100 g/min). CTP mean Tmax was 113.6 s (range, 0 to 289 s). Mean time from LKN to MT groin puncture was 12.9 hours (range, 6.1 to 23.5) and 69 (90%) achieved TICI 2B or 3 recanalization. Symptomatic hemorrhage occurred in 5 (6.5%). Fifteen patients (19.5%) expired. Among the 62 patients who survived, the mean discharge NIHSS was 8.8 (range, 0 to 26). Good functional outcome occurred in 19 (24%).

Conclusions AIS patients with anterior circulation LVO treated in the expanded 24 hour MT window account for nearly half of our center's MT volume. Although high revascularization rates and low symptomatic hemorrhage rates were observed similar to the clinical trials, good functional outcome was lower than the trials.

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E-099 PARTICLE ANALYSIS OF A NOVEL LIQUID EMBOLIC

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Introduction Endovascular devices are becoming more widely accepted ischemic stroke treatment options in patient health-care. Current device testing methods must be developed to quantify downstream particulate migration. In vivo models are

limited by local vessel structures and may lack neurovascular feeder vessels. Limited feedback devalues assessment of particulation and downstream migration of devices/materials. NAU's Bioengineering Devices Lab has developed an in vitro blood flow and stroke model, which replicates the conditions of the neurovascular system. In prior workings, the in vitro model has quantified material particulation via filtration to capture particles and microscopy to analyze captured particles. Now, the process is a non-invasive method that has been developed in this study to allow researchers to quantify and characterize particles in real-time.

Materials and Methods These improvements are made possible through the utilization of digital imaging processing and total internal reflection fluorescence microscopy (TIRFM). A CMOS camera captures fluorescent particles in movement through the in vitro system through an in-line cuvette. A developed algorithm is advancing to process images and characterize particles (figure 1). During the procedure, PPODA-QT is injected into the in-vitro model's aneurysm bubble and particulate downstream migration data is collected in real-time. The system integrates LabView (National Instruments, TX) to view and collect images. The pump delivers pulsatile flow with pressure profile that can be tuned to physiological conditions. The study then concentrates on the particulate downstream migration through the modified in-line cuvette section.

Results Long and short term testing is performed on the material to determine the potential material efficiency within the vascular system. Analysis of real-time data will quantify particle size and count. Results are then compared to (<USP 788> - table 1) regulations.

Abstract E-099 Table 1 (<USP 788>) Specifications for injectable liquids and particulate size

Particulate Size	Required Specs
> 100 μm	0 particles
25 μm to 100 μm	< 300 particles
10 μm to 25 μm	< 3000 particles

Conclusion The study results will help predict device performance within the neurovascular system to affirm the safety of the polymer biomaterial, PPODA-QT, in practical usage. Utilizing state of the art equipment and procedures, new innovative research can be conducted.

Disclosures I. Smith: None.

Abstract E-099 Figure 1 An image of non-fluorescing particles. The images are captured and then processed to accumulate particle characteristics numerically and visually through color-coding

E-100

TRANS-CAROTID THROMBECTOMY AFTER FAILED TRANS-FEMORAL ACCESS: A CASE SERIES

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Purpose Rapid recanalization is vital for mechanical thrombectomy (MT) of large vessel occlusion stroke. Trans-femoral and trans-radial approaches for internal carotid catheterization are routinely used in MT. Due to difficult/impossible and time-consuming attempts to access severe type 2/3 aortic arch anatomy and tortuous cervical vasculature, a trans-carotid access is sometimes required. We describe a case series of trans-carotid stroke thrombectomy to assess its technical and clinical efficacy. Additionally, we quantitatively study the overall angular tortuosity from the aortic arch to the carotid bifurcation required for trans-carotid access, comparing against successful trans-femoral access age-matched controls.

Methods We retrospectively studied 8 patients that underwent MT for anterior circulation acute ischemic stroke between Jan 2015 to June 2019 requiring trans-carotid access. Using age-matched controls (>80 years of age), we compared demographics, presentations, complications, technical and clinical efficacy. All 8 cases of carotid access and 8 age-matched controls were also qualitatively and quantitatively analyzed for aortic arch anatomy type and number of cervical vascular tortuosity segments >90 degrees. Using CTA 3D reconstructions, angular path changes were summated along the segmented vessel from the aortic arch to the carotid bifurcation and analyzed as a sum of angular tortuosity from the horizontal baseline of the aortic arch. Chi-square was used for categorical variables univariate analysis while Mann-Whitney U and student t-tests were used for continuous variables univariate analysis as appropriate based on the distribution normality.

Results Both trans-carotid and control groups matched in age (89.8 and 89.6 years respectively), and both groups were comparable regarding their NIHSS (16 vs 20, $p=0.26$), side of occlusion (right, 62.5% vs 37.5%, $p=0.32$), and risk factors of hypertension, DM, hyperlipidemia, smoking, CHF, or AF ($p=0.52$, 1, 0.13, 1, 0.32, 0.36 respectively). However, the transcarotid group presented with a higher incidence of previous stroke/TIA (62.5% vs 12.5%, $p=0.04$). The mean number of more than 90-degree tortuous segments was higher and was trending to be significant in transcarotid cohort (1.2 ± 0.8 vs 0.3 ± 0.75 , $p=0.55$). The sum of angle tortuosity (371 ± 165 vs 214 ± 86 , $p=0.14$), and the presence of type 3 aortic arch (62.5% vs 25%, $p=0.13$) were higher in