new thrombectomy technologies and strategies. Most of the studies on test beds described the fabrication of the cerebrovascular phantoms but not the flow circuit and clot analogs, which are essential components to replicate LVO in patients with stroke. In addition, cerebrovascular phantoms are made from different materials and techniques and may result in different and biased testing results. However, such comparison has not been studied. We describe in detail the construction of a cerebrovascular test bed for stroke and compare the advantages and disadvantages of different types of cerebrovascular phantoms.

Materials and Methods The testing platform for thrombectomy was developed with three components: 1) cerebrovascular phantom, 2) hydraulic system, and 3) clot analogs. For the cerebrovascular phantom, patient-specific cerebrovasculature was reconstructed and three types of phantoms were fabricated: 3D-printed resin, glass, and silicone. For the hydraulic system, a syringe pump, tubing and variable flow resistors were connected to the phantoms to replicate intraluminal pulsatile physiologic flow rate and pressure. For the clot analogs, human blood-derived red blood cells and plasma were mixed to make two types of clot analogs: elastic and fragment-prone. To evaluate the performance of the test bed and compare the three types of phantoms, LVO was replicated in the phantom and thrombectomy procedures using the ADAPT and CAPTIVE techniques were performed by two experienced neurointerventionalists.

Results The 3D-printed phantom is the least expensive and fastest to fabricate, allowing rapid iterations to refine the geometries to make the glass and silicone phantoms. The glass phantom is easier to navigate compared to equivalent anatomy in patients and has the best visualization of the device-clot interaction. The silicone phantom provides the most accurate haptic representation of the navigation of thrombectomy devices in patients, deforming and moving when forces are applied by the device. However, the silicone phantom wall is still significantly more resistant than cerebral arteries and tolerates forces and movements that would be deemed unsafe in clinical situations without tearing. The test bed can generate physiologically realistic pressure. Accurate physiologic pressures with pulsatile waveforms were generated to simulate normotensive (120/80 mmHg) and hypertensive (147/85 mmHg) status. The pressure can be adjusted by the variable flow resistors and tubing length. The clot analogs can be embolized under physiologic flow and consistently lodged at the MCA bifurcation of the cerebrovascular phantoms.

Conclusion The test bed presented in this study is a low-cost, comprehensive, realistic, and versatile platform that enabled high-quality analysis of clot-device interaction.

Disclosures Y. Liu: None. **A. Reddy:** None. **J. Cockrum:** None. **D. Gebrezgiabhier:** None. **E. Davis:** None. **Y. Zheng:** None. **A. Pandey:** None. **A. Shih:** None. **L. Savastano:** 4; C; Endovascular Engineering.

E-060 DIVERSION OR BYPASS OF LOCAL STROKE CENTER FOR MECHANICAL THROMBECTOMY ASSOCIATED WITH BETTER NEUROLOGIC OUTCOME COMPARED TO INTERHOSPITAL TRANSFER

A Paul*, J MacDonell, N Field, P Entezami, J Dalfino, A Boulos. *Albany Medical Center, Albany, NY*

10.1136/neurintsurg-2020-SNIS.96

Introduction Endovascular mechanical thrombectomy has become the standard of care for patients presenting with a large vessel occlusion of the intracranial circulation and has saved many patients from long term disability and death each year.[1]. Many strokes patients are transferred to the closest community stroke hospital before being transferred to a Comprehensive stroke center with endovascular therapy. A recent analysis revealed significant improvement in clinical outcome in the group of patients brought directly to an endovascular capable hospital compared to patients transferred from a primary stroke center.[2] This study sought to determine if the same benefit held true for patients who bypassed their local stroke center and were brought directly to a comprehensive stroke center(CSC) compared to patients who went to a local stroke center and then were transferred to the CSC.

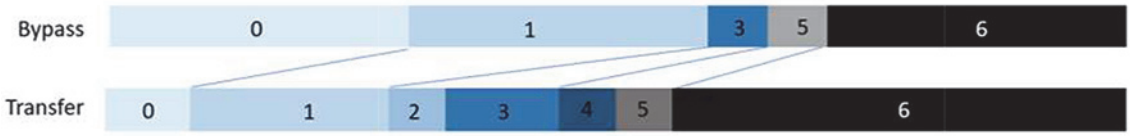
Methods Mechanical thrombectomies performed in 2019 were retrospectively analyzed. EMS records were analyzed to determine if the decision was made to bypass a local stroke center to bring the patient directly to AMC. 90 day mRS was extracted by phone call or office visit by trained staff. Statistical analysis was performed by logistic regression of mRs outcome scores as a function of bypass vs transfer status.

Results A total of 98 thrombectomies were performed on patients who were brought to the hospital by EMS. 17 patients were identified as having bypassed a local primary stroke center to come directly to the CSC. 36 patients were transferred from a primary local stroke center. An excellent outcome(mRS) was more likely in patients who bypassed a local primary stroke center compared to patients who first went to a local primary stroke center and were subsequently transferred to the CSC(58.8% versus 27.8%, p=0.04). There was no difference in mortality(29.4% versus 44.4%, p=0.37).

Discussion Patients who bypass their local stroke center and are brought directly to a CSC are more likely to have an excellent outcome compared to patients who first stop at the local stroke center and are subsequently transferred to the CSC.

REFERENCES

1. Saver J, *et al*. SWIFT PRIME Investigators. Stent-retriever thrombectomy after intravenous t-PA vs. t-PA alone in stroke. *N Engl J Med* 2015;**372**:2285–2295. doi: 10.1056/NEJMoa1415061
2. Froehler MT: Interhospital transfer before thrombectomy is associated with delayed treatment and worse outcome in the STRATIS registry. *Circulation* 2017;**136**:2311–2321. https://doi.org/10.1161/CIRCULATIONAHA.117.028920



Abstract E-060 Figure 1

Disclosures A. Paul: None. **J. MacDonell:** None. **N. Field:** None. **P. Entezami:** None. **J. Dalfino:** None. **A. Boulos:** None.

E-061 DELIVERY OF A NOVEL 8F ASPIRATION CATHETER TO THE INTRACRANIAL VESSELS IN A FRESH-FROZEN CADAVER MODEL

[1]R Nogueira*, [2]L Mullins, [2]D Finneran, [3]W Allen, [4]J Thornton. [1]*Neuroendovascular Service Marcus Stroke and Neuroscience Center, Grady Memorial Hospital and Emory University, Atlanta, GA*; [2]*Perfuze Ltd, Galway, IRELAND*; [3]*Perfuze Ltd, Galway, GA*; [4]*Interventional Neuroradiology, Beaumont Hospital, Dublin, IRELAND*

10.1136/neurintsurg-2020-SNIS.97

Introduction/Purpose Larger lumen catheters are associated with improved reperfusion using aspiration for the treatment of stroke. Significant scope remains to improve the rate of first pass effect, which has been associated with significantly improved clinical outcomes. To date, the degree of tortuosity encountered during neurovascular procedures has limited the ability of larger lumen catheters to navigate distally to the target vessels. Perfuze Ltd (Galway, Ireland) have developed a novel aspiration catheter (Millipede 088) which has an 8F OD and 0.088'' ID. The purpose of this study was to evaluate the navigability of Millipede 088 to the M1 segment of the MCA in a fresh-frozen cadaver model.

Methods In total six cadavers were investigated, allowing evaluation of navigation to twelve MCAs. Commercially available 6F aspiration catheters (Terumo Sofia Plus, Penumbra ACE 64 and 68) were used as a control for baseline comparison. Slow perfusion using warm water was maintained throughout the procedure. The study was conducted at MERI, Memphis, TN, USA, using Siemens Artis Pheno for imaging.

Control A Penumbra Neuron Max was placed at the petrous segment of the ICA. The 6F aspiration catheter was navigated triaxially over a microcatheter and microwire. Initially, 2.1F microcatheters and 0.014'' microwires were used for support. Where additional support was required, microcatheters of up 2.7F or Penumbra 3Max and/or a 0.016'' microwire were used.

Test: Via femoral access, an 80 cm long sheath Super Arrow-Flex (Teleflex) or Flexor Shuttle (Cook) was placed in the