thrombolysis in one patient (3%). Successful revascularization was achieved in 31 patients (94%), including TICI III in 16 patients (48.5%). The average number of passes to reperfusion was 1.6 (95% CI 1.3–2.0). Mean time to reperfusion was 47 minutes. Symptomatic intraparenchymal hemorrhage following reperfusion occurred in 2 patients (6%). Procedural complications occurred in 4 patients (12%), including dissection, microwire perforation, and hemorrhage into a pre-existing intracranial tumor; all complications were unrelated to the SOFIA. Mortality was 21.2% secondary to failed revascularization, hemorrhagic transformation, and severe baseline medical disease.

Conclusion SOFIA is a safe and effective intermediate catheter for mechanical and aspiration thrombectomy in acute stroke intervention. In conjunction with stent retrievers and suction aspiration technique, successful revascularization was 94%, with average number of passes of 1.6. There were no complications directly attributable to the use of SOFIA.

Disclosures J. Wong: None. **H. Do:** 2; C; MicroVention, Inc. **N. Telischak:** None. **A. Moraff:** None. **M. Marks:** None. **R. Dodd:** None. **J. Heit:** 2; C; MicroVention, Inc.

E-012 COILS COATED WITH A STATIN ACCELERATE INTRA-ANEURYSMAL ORGANIZATION

T Kodama. *Neurosurgery, The Jikei University School of Medicine, Tokyo, Japan*

10.1136/neurintsurg-2016-012589.84

The safety and efficacy of endovascular coil embolization of intracranial aneurysms is widely accepted. However, recurrence of aneurysms in large cases after coil embolization is a serious problem which remains to be solved. A major cause of recurrence is incomplete organization within the aneurysm. We have been developing modified coils. We read these two papers, and we found the statin reduces aneurymal size. (*Am J Cardiol*. 1996;**97**:279–280. *Eur J Vasc Endovasc Surg*. 2006;**32**:21–26.) If oral administration of a statin reduces aneurysm growth, could coils coated with a statin be more effective? This discovery was what motivated us to conduct this study. We ligated the distal External carotid artery and made an experimental aneurysm. We then inserted a coil coated with a statin to be reexamined after two and four weeks. We removed at 2 and 4 weeks after coils were implanted. In the case of implanted simvastatin coils, thick tissue had formed at the end of the coils and acted as a plug to inhibit blood flowing into the space of an aneurysm. On the other hand, in the case of the unmodified coil, blood had flowed into the space where the coil was lodged. We analyzed histochemical staining. We found endothelialization at the orifice of an experimental aneurysm, and we saw that there was proliferation of smooth muscle cells within the aneurysm. The percent of organized area of the simvastatin group was significantly higher than the unmodified coil group. We tested another 6 statins in the same way. Two weeks after coil implantation, the experimental aneurysm was cut vertically. The Aneurysmal cavity was fully filled with cellular tissue in the almost cases. In the arterial bifurcation, hemodynamic stress causes wall shear stress, endothelial dysfunction, imbalance of NO, and vascular inflammation. Vascular inflammation causes the infiltration of macrophage, increase of MMP, and destruction of ECM, Or migration of SMC. What are the effect of a statin? We suggest 4 points. First improving endothelial function, second decreasing oxidative stress, third decreasing the vascular inflammation. And fourth statin suppresses the excretion of MMP and inhibits the destruction of ECM. Coils coated with simvastatin effectively accelerated intra-aneurysmal organization and endothelialization over the coils at the orifice to ECA sacs in a rat aneurysm model. Simvastatin is widely used to lower cholesterol, so its safety is already established. We are now preparing drug-eluting coils to optimize the local concentration of simvastatin and its duration of efficacy.

Disclosures T. Kodama: None.

E-013 HEAD AND NECK ENDOVASCULAR REPAIR OF VASCULAR MALFORMATIONS

W Yakes. *Vascular Malformation Center, Englewood, CO*

10.1136/neurintsurg-2016-012589.85

Purpose To determine the efficacy of ethanol embolotherapy of extracranial head and neck vascular malformations of all types, particularly after failure of other endovascular and surgical treatments.

Materials and methods One hundred and sixty-six patients (64 males, 102 females; mean age: 38 yrs) presented with extracranial arteriovenous malformations (AVMs) of the head and neck area. Over half of the patients had undergone previous failed therapies. All patients underwent ethanol embolotherapy under general anesthesia. Forty-five patients had AVMs and 121 patients had venous malformations (VM).

Results Of 45 AVM patients, 26 patients are cured (mean follow-up 2½ years); of 121 venous malformation patients, 65 are at end-therapy (mean follow-up 4½ years). The remaining patients are not at end-therapy and are being treated for their residual malformations. In AVM follow-up, arteriography is the main imaging modality to determine cure or residual AVM as MR is less sensitive in the evaluation of residual AVM. In VM follow-up, MR is the main imaging tool, particularly with T-2 fat suppression and/or STIR imaging. All patients demonstrated improvement post-therapy. Complications were 4.5%, to include bleeding (self-limited), partial 7th nerve palsy (with recovery), skin injury (not requiring skin grafts), infection, and pain.

Conclusions Ethanol has proven its consistent curative potential at long-term follow-up for high-flow AVMs and low-flow VM lesions at long-term follow-up as lesions in the periphery. Complication rates remain low. The procedures are tolerated well by the patients and done on an out-patient basis. Prior surgery and embolization procedures can cause difficulty in lesion access, but does not obviate further ethanol endovascular treatment.

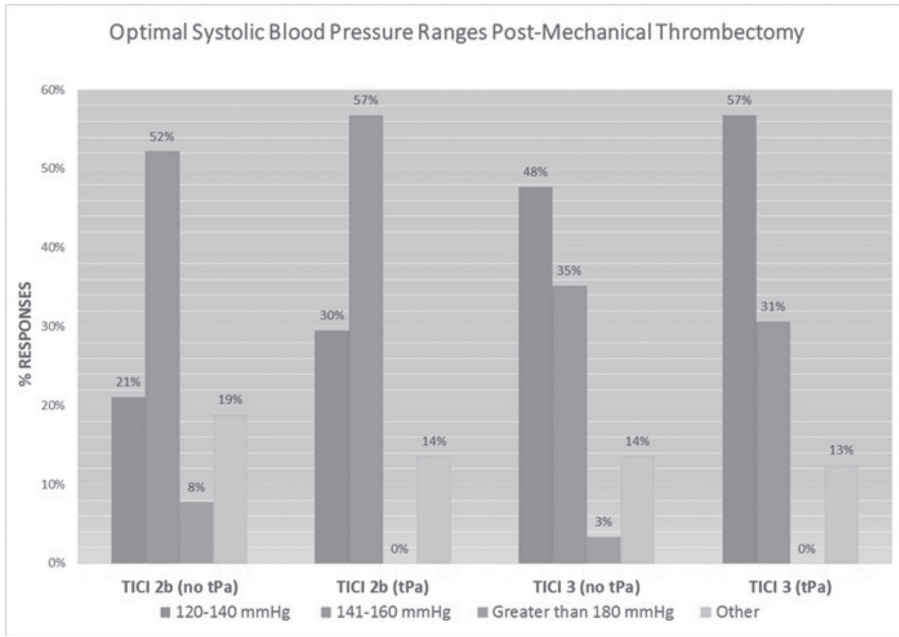
Disclosures W. Yakes: None.

E-014 MANAGEMENT OF BLOOD PRESSURE FOR ACUTE ISCHEMIC STROKE IN THE MODERN ERA OF MECHANICAL THROMBECTOMY

S Mannava, **A Garg**. *Neurology, University of Oklahoma, Oklahoma City, OK*

10.1136/neurintsurg-2016-012589.86

Background Five recent trials provided level 1 evidence for the benefit of mechanical thrombectomy in select patients

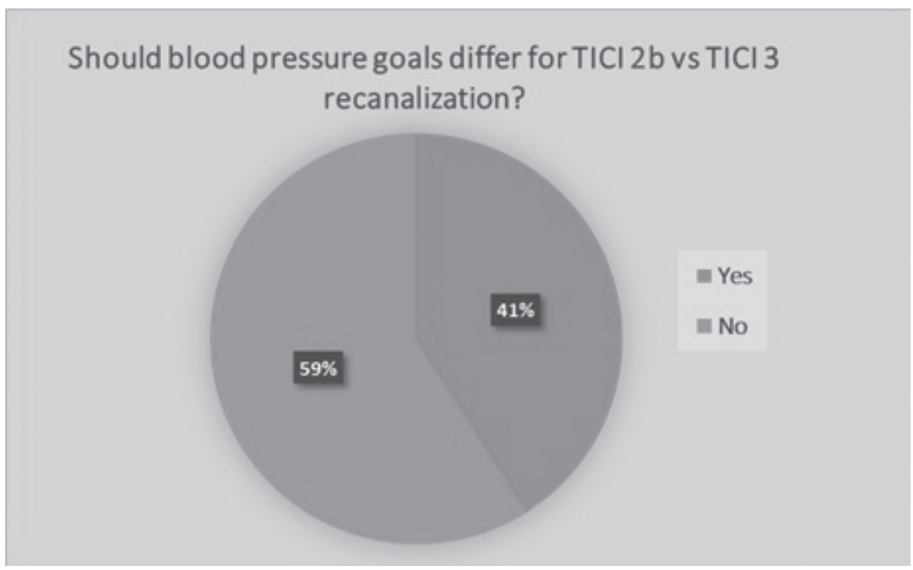


Abstract E-014 Figure 1

presenting with acute ischemic stroke. With the expectation that endovascular intervention for acute ischemic stroke will be increasingly used, it is important to consider other factors that might further improve clinical outcome in these patients. One of these could potentially be how we manage blood pressure in the acute period following mechanical thrombectomy, for which there are currently no specific guidelines. The objective of this study was to investigate the consensus practices for the management of blood pressure post-mechanical thrombectomy via a web-based survey study.

Methods IRB approval was obtained for a 10 question web-based survey study. This questionnaire was distributed to a targeted group of physicians that included vascular neurologists, neurointensivists, and neurointerventionalists. A total of 88 complete responses were analyzed. Results: Responses were relatively well-distributed between vascular neurologists (26%), neurointensivists (31%), and neurointerventionalists (35%). Majority of responders were employed at comprehensive stroke centers (72%), saw >500 annual stroke admits (52%), and had access to endovascular stroke therapies (97%). A significant diversity in opinion was noted with regards to the main question of this study i.e. blood pressure management post-mechanical thrombectomy (Figure 1). Interestingly, this finding differed from the response to our final question, where the majority (59%) of responders did not believe that TICI 2 b versus TICI 3 vessel recanalization should influence optimal systolic blood pressure goals (Figure 2).

Conclusion This study shows a clear disparity of opinion with regard to blood pressure management following mechanical thrombectomy for acute ischemic stroke. Optimal blood



Abstract E-014 Figure 2

pressure management following recanalization may play a role in improving clinical outcomes for these patients. Hence, we believe that there is a need for future prospective trials addressing this issue.

Disclosures S. Mannava: None. **A. Garg:** None.

E-015 EXTRA-FEMORAL ACCESS FOR MECHANICAL THROMBECTOMY IN ACUTE ISCHEMIC STROKE

[1]N Haranhalli, [1]D Altschul, [2]D Pasquale. *[1]Department of Neurological Surgery, Montefiore Medical Center, Bronx, NY*; *[2]Department of Radiology, Montefiore Medical Center, Bronx, NY*

10.1136/neurintsurg-2016-012589.87

Objective To demonstrate the safety and effectiveness of extra-femoral endovascular access for mechanical thrombectomy for acute ischemic stroke (AIS) in patients whose vascular anatomy precludes safe or maneuverable trans-femoral access.

Methods We present a case series of seven patients treated by four separate neurointerventionalists utilizing either trans-radial or trans-cervical carotid access for treatment of acute ischemic stroke. All cases, except for one, were performed at Montefiore Medical Center, Bronx NY.

Results All seven patients presented with AIS symptoms and initial NCCT revealed no contraindications to proceeding for mechanical thrombectomy. Patients ranged from 25 to 88 years of age. There were two cases of basilar artery occlusion, two right middle cerebral artery (MCA) occlusions, two left MCA occlusions and one patient with a left carotid terminus occlusion. Femoral access was attempted in all but two patients, and sheath placement was successful in these five cases. In two of these five cases however, femoral catheterization was aborted after sheath placement due to identification of impassable femoral or aortic vascular anatomy; a prior fem-fem bypass in one and bilateral common femoral artery occlusions in another. The most common reason for aborting femoral access for thrombectomy was vessel tortuosity impeding catheterization of intracranial segments of either anterior or posterior circulation vessels. Four patients were treated via radial artery access and three patients were treated via cervical carotid access. Recanalization was achieved in six out of the seven patients. In five of the patients a TICI 2 B/3 recanalization score was achieved, and in one patient a TICI 2 A. There were no immediate procedure related complications observed. Two patients progressed to hemorrhagic conversion of their prior infarcts. No new acute infarcts were noted in any patient. Two patients expired several days post-thrombectomy due to cardiopulmonary arrest unrelated to intervention.

Conclusions While trans-femoral access remains the mainstay for endovascular treatment of AIS, risk of vascular injury and delay of recanalization should alert the interventionalist to consider extra-femoral approaches. This case series demonstrates the safety and success possible with trans-radial or trans-cervical carotid catheterization in the setting of mechanical thrombectomy for AIS. With these findings, we feel strongly that further standardization of these techniques, guidelines for the need of extra-femoral access prospectively, and development of devices tailored for trans-radial and trans-cervical carotid approaches are indispensable to see significant advancements in the field of interventional stroke treatment.

Disclosures N. Haranhalli: None. **D. Altschul:** None. **D. Pasquale:** None.

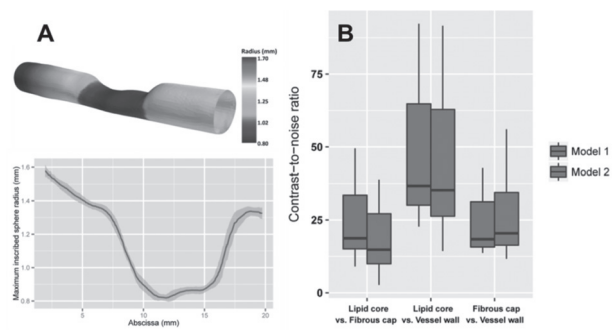
E-016 AN ATHEROSCLEROTIC PLAQUE PHANTOM FOR MEDICAL IMAGING

[1]J Chueh, [2]T Turan, [1]K van der Marel, [2]T LeMatty, [3]T Brown, [4]S Ansari, [5]T Carroll, [6]A Buck, [7]X Zhou, [3]A Chatterjee, [1]R King, [1]S Zheng, [8]R Swartz, [9]E Feldmann, [1]M Gounis. *[1]Department of Radiology, UMass Medical School, Worcester, MA*; *[2]Department of Neurology, Medical University of South Carolina Stroke Division, Charleston, SC*; *[3]Department of Radiology and Radiological Science, Medical University of South Carolina, Charleston, SC*; *[4]Department of Radiology, Neurology, and Neurosurgery, Northwestern University Feinberg School of Medicine, Chicago, IL*; *[5]Department of Radiology, The University of Chicago, Chicago, IL*; *[6]Department of Radiology and Radiological Sciences, Vanderbilt University, Nashville, TN*; *[7]Department of Radiology, Neurosurgery, and Bioengineering, University of Illinois College of Medicine, Chicago, IL*; *[8]Sunnybrook Health Sciences Center, Toronto, ON, Canada*; *[9]Department of Neurology, Baystate Medical Center, Springfield, MA*

10.1136/neurintsurg-2016-012589.88

Introduction Intracranial atherosclerotic disease (ICAD) is a common cause of ischemic stroke, but little is known about how the characteristics of intracranial plaques are related to stroke risk. Recently, studies have attempted to correlate ICAD lesions with high-resolution MRI (HR MRI) vessel wall findings, an important emerging technology, to identify various plaque components. However, long-term, multi-center clinical studies are needed to show if HR MRI plaque components contribute to stroke risk. The goal of this study is to build an ICAD phantom that incorporates materials mimicking a stenotic vessel and plaque components (fibrous cap and lipid core) for standardizing MRI pulse sequences across multiple imaging platforms necessary for development of multi-center ICAD HR MRI networks.

Materials and methods HRMRI data from a patient with a basilar artery plaque was used to acquire the detailed structure of the stenotic artery and plaque components. A virtual core-shell mold of the basilar artery plaque was 3D printed to form a physical object. During 3D printing, the volume and shape of each plaque component were defined in the model. Polyvinyl alcohol hydrogel was infused into the core-shell mold to form the stenotic artery. A fibrous cap was constructed using a mixture of agarose, carrageenan, sodium azide, and water. The lipid core was mimicked using vegetable fat, sodium azide, and carrageenan mixture. Two phantoms were manufactured and scanned using various 3 T MRI systems across 7 different sites for image quality assessment. Quantitative comparisons of the scan results for both structural dimensions of plaque components (e.g. lumen diameter) and contrast-to-noise ratio (CNR) were based on the thin cross-sectional slices from 3D T2-weighted TSE/FSE sequences.



Abstract E-016 Figure 1