treatment (mean time from symptom onset to catheterization: 168 min, range 100–251 min) either treated with carotid artery angioplasty (N=2), or angioplasty and stent placement (N=3) combined with intracranial intra-arterial thrombolysis and/or mechanical clot retrieval. Procedures were technically successful in opening the ICA occlusion in all cases, with variable results in intracranial thrombectomy/thrombolysis ranging from complete revascularization to residual M1 branch MCA occlusion. All patients survived to hospital discharge with residual neurologic deficits. We review treatment options of carotid angioplasty alone vs angioplasty and stent placement, in addition to intracranial thrombectomy and mechanical thrombectomy, and discuss potential pitfalls to these approaches.

**Competing interests** None.

**E-024**

THE MINDFRAME CAPTURE LP 3 MM AND 4 MM THROMBECTOMY DEVICE. EARLY CLINICAL RESULTS
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1M Söderman, 1S Holmín, 1T Andersson, 1Å Kuntze Söderqvist, R Turner.

1Department of Neuroradiology, Karolinska University Hospital, Stockholm, Sweden; 2Stroke and Cerebrovascular Center, Medical University of South Carolina, Charleston, South Carolina, USA

**Introduction** Mechanical thrombectomy is effective in restoring blood flow to the brain in patients with occlusion of large intracranial arteries. Most devices require a 0.021 or 0.027 microcatheter. However, in some instances a smaller microcatheter may be advantageous. We here report the early results with the Mindframe Capture LP 3 mm and 4 mm thrombectomy devices, designed to pass through a 0.010 microcatheter.

**Material and Methods** 16 patients (3M/13F) with large vessel occlusion and sizeable penumbra were admitted with the intention to treat with thrombectomy using either of the 3 mm or 4 mm Mindframe Capture LP devices. Mean NIHSS was 15. Seven had received previous i.v. rTPA.

**Technical results** Thrombectomy was unsuccessful because of impossible access in one case, non-embolic occlusion due to vessel dissection in two cases, very old uncooperative patient in one case and device related failure in one case. There were no device related complications. Clinical results are not yet available but will be presented at the meeting.

**Conclusion** Mindframe Capture LP 3 mm and 4 mm thrombectomy devices are efficient with a low risk for device related complications.

**Abstract E-024 Table 1**

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**Competing interests** M Söderman: MINDFRAME INC, Rapid medical. S Holmín: None. T Andersson: MINDFRAME INC, Cordien, Stryker, Rapid Medical. Å Kuntze Söderqvist: None. R Turner: MINDFRAME INC.

**E-025**

THE USE OF INTRA-ARTERIAL RT-PA IMPROVES FUNCTIONAL OUTCOMES OVER MECHANICAL THROMBECTOMY ALONE IN PATIENTS UNDERGOING ACUTE STROKE THERAPY
doi:10.1136/neurintsurg-2012-010455c.25

A Rai,* J Carpenter, T Roberts. Department of Radiology, West Virginia University, Morgantown, West Virginia, USA

**Background** The paradigm of endovascular stroke therapy, especially with the newer devices aimed at rapid revascularization, is shifting from local intra-arterial thrombolysis (IAT) to mechanical thrombectomy (MT). There is lack of clear data comparing the two modalities. While revascularization is the obvious desirable endpoint of any procedure, the benefit of the therapy can only be judged by improved functional outcome. The objective of this study was to compare IAT and MT for large vessel strokes.

**Methods** 123 patients who had undergone endovascular therapy with IAT alone, MT alone or both (IAT+MT) were selected. The inclusion criteria were age ≥18, internal carotid artery terminus (ICA-T), middle cerebral artery (M1) or isolated proximal M2 branch (M2) occlusions. A TIMI-2 or three categorized successful recanalization. The primary endpoint was a 90-day favorable outcome (mRS≤2).

**Results** The mean age and baseline NIHSS was 68.2±17.3 years and 16.2±7.3. There were 64 (52%) female patients. Occlusion site distribution: ICA-T 29 (23.6%), M1 69 (56.1%) and M2 25 (20.5%). There were 45 patients (35%) who received IAT, 50 patients (42.4%) who underwent MT and 50 patients (40.6%) who had IAT+MT. The type of treatment administered was significantly associated with the occlusion site (p<0.0001); ICA-T (IAT: 10.5%, MT: 37.9%, IAT+MT: 51.7%), M1 (IAT: 31.9%, MT: 27.5%, IAT+MT: 40.6%) and M2 (IAT: 72%, MT:0%, IAT+MT: 28%). A favorable outcome was seen in 85 patients (44.7%), mortality in 40 patients (32.5%) and successful recanalization in 70 patients (56.9%). The highest recanalization of 70% was seen for MT only group while the IAT and IAT+MT groups had recanalization rates of 34.9 and 34% respectively (p=0.002). A favorable outcome was seen in 62.8% of the IAT, 26.7% of the MT and 40% of the IAT+MT group (p=0.006). In patients who did not receive any IAT, the rate of favorable outcomes was 26.7% as opposed to a favorable outcome rate of 50.5% in patients who received IAT whether alone or in combination with MT (OR 0.36, 95% CI 0.14 to 0.88, p=0.01). However when analyzed by occlusion site, there was no difference between the outcomes based on IAT use for ICA-T occlusions (p=0.4) but significantly higher favorable outcomes were associated with IAT use for M1 occlusions, 48% with IAT use vs 21% when no IAT was utilized (OR 0.29, 95% CI 0.08 to 0.99, p=0.03). There was no difference in the rate of post-procedure hemorrhage with IAT use (23.5%) vs no IAT use (24.5%) (p=0.9). Likewise the mortality rate was not significantly different based on the treatment type.

**Conclusion** Despite having a lower recanalization rate, IAT is associated with significantly better function outcomes as compared to an intervention without IAT use. MT may achieve a higher immediate revascularization but it does not necessarily translate into equally improved outcomes. A likely explanation is the local and regional thrombolytic state induced by rt-PA at the site of occlusion and within the vascular bed distal to the occlusion. MT on the other hand may recanalize the “target” vessel but does not affect distal smaller emboli and may in fact be their cause secondary to clot fragmentation.

**Competing interests** A Rai: Stryker Neurovascular. J Carpenter: Codman Neurovascular, Genentech. EV3. T Roberts: None.

**E-026**

AN ANALYSIS OF THE ANTERIOR CIRCULATION CEREBROVASCULAR GEOMETRY. BASELINE MEASUREMENTS OF VESSEL DIAMETER, LENGTH AND TAPER
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A Rai,* B Cline, J Hogg. Department of Radiology, West Virginia University, Morgantown, West Virginia, USA

**Background** Endovascular interventions typically require placement of a device in the cerebral vasculature. Knowledge of the cerebrovascular geometry can aid in designing conformable devices. The study’s objective was to establish baseline measurements of the...
STENT GRAFT REPAIR OF CAROTID PSEUDOANEURYSM IN A YOUNG CHILD WITH SHORT-TERM FOLLOW-UP

E-027

STENT GRAFT REPAIR OF CAROTID PSEUDOANEURYSM IN A YOUNG CHILD WITH SHORT-TERM FOLLOW-UP

doi:10.1136/neurintsurg-2012-010455c.27

A YOUNG CHILD WITH SHORT-TERM FOLLOW-UP

Introduction Traumatic pseudoaneurysm of the carotid artery is a dangerous complication of penetrating trauma. Stent grafting is an accepted treatment; however, the youngest reported patient so treated at the time was 11 years old. We report the successful use of stent grafting in the case of a 4-year-old female with carotid pseudoaneurysm from penetrating neck injury.

Clinical Materials and Methods An otherwise healthy 4-year-old girl presented to an outside ED after accidentally stabbing herself in the neck with a toy fishing pole while using a slide. Physical examination demonstrated a small puncture wound to the right neck and no neurologic deficit. Initial CT examination demonstrated complete occlusion of the right internal carotid artery (RICA). After transfer to our institution, catheter angiography showed a patent RICA with focal 35% stenosis and double wall pseudoaneurysms at the level of C2. Vascular surgery and pediatric neurosurgical consultations indicated that surgical repair was not optimal due to the uncertainty of distal control and the likely need to disarticulate the right TMJ for exposure; stent grafting was requested and preferred to RICA sacrifice. After informed consent for possible off-label stent grafting vs RICA sacrifice, the patient was placed under general anesthesia. After access of both common femoral arteries and heparinization (800 units IV), an angiographic RICA balloon test occlusion showed probably adequate collateral supply to the right anterior circulation. DSA showed interval growth of the anterior and posterior wall RICA pseudoaneurysms and increased stenosis (50%). The decision was taken to stent graft the RICA. A 7F sheath was positioned in the RCCA and a Viabahn 5 mm × 25 mm self-expanding stent graft (Gore) was deployed across the lesion. A minor endoleak from the anterior pseudoaneurysm nearly resolved after balloon dilation of the stent. Hemostasis was obtained manually. Patient was loaded with aspirin and clopidogrel (16 mg) after the procedure for a 1-month course.

Results The patient was neurologically intact after the procedure with preservation of her right pedal pulses. Baseline postprocedure duplex and MRA showed wide patency of the stent graft without visible endoleak. Repeat duplex at 8 weeks redemonstrated wide patency of the graft and occlusion of the pseudoaneurysms. On a clinic visit at 10 weeks, the neurological examination was normal, no neck bruit was audible, and the right pedal pulses were 2+. Conclusion Carotid stent graft is a viable treatment option for traumatic pseudoaneurysm in children as young as 4 years of age.

Competing interests None.