neurological outcome was defined as modified Rankin Scale (mRS) ≤ 2 within 6 months clinical follow-up.

Results Enrolled patients were categorized into two groups: emergent CAS (n=27) or medical treatment (n=18). Reasons for medical treatment were as follows: spontaneous neurological improvement (n=4), technical failure of emergent CAS (n=7) and good collateral circulation (n=7). Good angiographic outcome (mTICI 3 or 2b) was achieved in 25 (92.6%) patients of the emCAS group. Reocclusion (n=3) and hyperperfusion syndrome (n=3, massive intracerebral hemorrhage, cerebral edema and status epilepticus) were identified after emergent CAS. Hemorrhagic transformation was developed in 11 (40.7%) patients of the emergent CAS group and 3 (16.7%) patients of the medical treatment group (p=0.11). The emergent CAS group showed a favorable neurological outcome (51.9% vs 22.2%, p=0.07) and a low rate of recurrent ischemic stroke (p=0.01) compared to the medical treatment group. In multi-variate analysis, no early neurological deterioration before procedure (p=0.04), use of IV t-PA (p=0.03), no intracranial tandem lesion (p=0.02) and emergent CAS (p=0.01) were related with a favorable neurological outcome.

Conclusions Emergent CAS for acute ischemic stroke is technically feasible and may give a chance to achieve good neurological outcome. However, physicians should pay attention to the risk of in-stent thrombosis, hemorrhagic transformation and hyperperfusion syndrome.

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E-098 EFFECT OF ENDOVASCULAR REVASCLARIZATION ON NEUTROPHIL-LYMPHOCYTE RATIO AND RELATIONSHIP TO 90 DAY OUTCOME

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Purpose Admission Neutrophil-lymphocyte ratios (NLR) is significantly correlated with 90 days functional outcome in acute ischemic strokes. The aim of our study was to detect post thrombectomy changes in NLR over 1 week with various degrees of revascularization and identify a relationship between NLR changes and 90-day functional outcome.

Methods We retrospectively reviewed our prospective stroke database from Nov 2016 to May 2018 for patients who underwent endovascular thrombectomy for anterior circulation large vessel occlusions with an admission NLR (NLR 1) and 72 hours follow-up NLR (NLR 2). We measured stroke severity by NIHSS, degree of recanalization by modified Thrombolysis in Cerebral Infarction (mTICI) score, and clinical outcomes by the modified Rankin Scale (mRS) at 3 months. Univariate analysis was conducted between age, NLR1, NLR2, change in NLR (NLR2-NLR1), NIHSS, mTICI and mRS using correlation coefficient. Change in mean NLR was assessed using Wilcoxon rank sum test. Multivariable logistic regression models were developed to identify effect of NLR 2 on favorable functional outcome (mRS ≤ 2) while controlling for age, NIHSS and IV rtPA utilization.

Results 88 patients met our inclusion criteria with a median NIHSS at admission of 18 (4–32), and 90 days mRS of 3 (0–

6). An increase in NLR was identified in 75% of patients following endovascular thrombectomy. Mean NLR 2 was significantly higher than NLR 1 (5.5 vs 3.1, p<0.001). There was a significantly negative correlation between TICI and change in NLR (p=0.002), and a significantly positive correlation between change in TICI and 90-day mRS (p=0.034), as well as NLR2 and mRS (p<0.001). No correlation was observed between NLR1 and mRS (p=0.22). High NLR2 was an independent predictor of poor functional outcome (OR=1.34, p=0.002).

Conclusion NLR is a readily available biomarker that correlates with degrees of revascularization post-thrombectomy. Improved recanalization and reperfusion is associated with lower follow-up NLR at 72 hours and follow up NLR is an independent predictor of functional outcome.

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E-099 HEMICRANIECTOMY RATES FOLLOWING MECHANICAL THROMBECTOMY PRE-MR CLEAN: A RETROSPECTIVE CROSS-SECTIONAL OBSERVATIONAL ANALYSIS

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Introduction Acute ischemic stroke (AIS) still remains one of the top leading causes of morbidity and mortality in the United States. In 2007, the DESTINY trial demonstrated lower mortality rates in patients with large hemispheric strokes following hemicraniectomy. 7 years later, the MR CLEAN trial showed improved outcomes in AIS following endovascular mechanical thrombectomy (MT) when compared to intravenous tPA alone. However, during the enrollment period for this trial there remains limited data regarding the effects of MT on the need for hemicraniectomy.

Methods A retrospective analysis of the Nationwide Inpatient Sample (NIS) between 1998–2015 was performed. Patients with an ICD-9-CM diagnosis code indicating an anterior circulation ischemic stroke (433.11, 434.01, 434.11, and 434.91) were included. Patients with an ICD-9-CM diagnosis code indicating trauma, neoplasm, SAH/aneurysm, posterior circulation ischemic stroke, or abscess (191.x, 198.3, 324.0, 430, 433.01, 433.21, 437.3, 437.5, 437.6, 443.24, 747.81, 800.xx, 801.xx, 851.xx, 852.xx, 853.xx, and 854.xx) were excluded. In order to limit the analysis to AIS, patients who did not have the ICD-9-CM procedure code of tPA (99.10) were excluded. Those patients who underwent thrombectomy (39.74) and hemicraniectomy (01.24, 01.25, 01.39, 01.53, and 01.59) were also identified. Logistic regression model was used to analyze the effect of thrombectomy on rates of hemicraniectomy in patients with AIS who received tPA.

Results A total of 59,703 patients in the NIS were identified as having an acute anterior circulation ischemic stroke that subsequently received tPA. 3597 patients were also identified as having undergone MT and 606 patients were found to have undergone hemicraniectomy as well. Logistic regression model demonstrated that patients who underwent MT were significantly more likely to undergo hemicraniectomy (OR 4.52, 95% CI 3.72–5.49, p<0.001).

Conclusions Although MT has proven to be an effective treatment for AIS, it appears that prior to MR CLEAN, patients who underwent MT had a higher likelihood of requiring a hemicraniectomy during the same hospital admission. Since MTs were not standardized prior to 2014, the variability in procedural technique could ultimately cause unreliable degrees of recanalization and thus lead to varied outcomes. Therefore, the effect of MT on hemicraniectomy rates in patients with AIS warrants further investigation following the advent of standardized thrombectomy techniques.

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E-100 PREDICTORS OF UNFAVORABLE OUTCOMES IN OCTOGENARIANS RECEIVING MECHANICAL THROMBECTOMY FOR LARGE VESSEL OCCLUSION ACUTE ISCHEMIC STROKE

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Introduction By 2050, the number of octogenarians will triple that in 2015. Currently over a third of stroke cases occur in patients aged 80 years or older. A better understanding of stroke intervention in octogenarians is warranted considering a rapidly aging population. Here we aimed to identify risk factors predictive of favorable outcomes in octogenarian stroke patients who received mechanical thrombectomy intervention.

Materials and methods A retrospective analysis was conducted on all consecutive patients who underwent mechanical thrombectomy between January 2012 to May 2017 at the Gates Vascular Institute in Buffalo, NY. Eighty-eight octogenarian patients with large vessel occlusion were identified. These patients were divided into two groups, those with favorable outcome (mRS 0–2 at 90 days) and those with unfavorable outcome (mRS 3–6 at 90 days). Demographic, procedural, radiographic and outcome data was collected. Variables including but not limited to comorbidities, smoking status, time between symptom onset to hospital arrival, infarct core, initial NIHSS score, admission glucose, creatinine, albumin, IV tPA administration, general anesthesia, procedure type, clot location and etc. were compared between the two groups.

Results Of the 88 octogenarian thrombectomies, 29 had favorable 90-day outcome (33%) whereas 59 had unfavorable outcome (67%). Factors that were significantly different between those with favorable and unfavorable outcome include: presence of infarct core before intervention, NIHSS score upon admission and procedure time. Of the 29 favorable outcomes, 5 presented with infarct cores (17%) whereas 30 of the 59 unfavorable outcome patients presented with infarct cores (51%). The median (IQR) NIHSS upon admission for the favorable outcome interventions was 12 (9–15) in contrast to 18 (14–21.5) for unfavorable outcome cases. Mean procedure time for favorable outcomes was 54.02 ± 31.41 minutes compared to 68.04 ± 30.97 minutes for unfavorable outcomes.

Conclusion Our study suggests infarct core, initial NIHSS score and procedure time to be potential predictors of outcome in octogenarian stroke patients receiving mechanical thrombectomy. Additional research is warranted to further evaluate the significance of these predictors.

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PRIME Trials. 2; C; Pulsar Vascular. Advisory Board- Stryker, NeXtGen Biologics, MEDX, Cognition Medical. 4; C; Intratech Medical Ltd., NeXtGen Biologics. 6; C; Abbott Vascular for carotid training sessions. A. Siddiqui: 1; C; Cerenovus LARGE Trial, ARISE II Trial, Medtronic SWIFT PRIME and SWIFT DIRECT Trials, MicroVention FRED Trial & CONFIDENCE Study, MUSC POSITIVE Trial, Penumbra 3D Separator Trial, COMPASS Trial etc. 2; C; Amnis Therapeutics, Boston Scientific, Canon Medical Systems USA Inc., Cerebrotech Medical. Systems Inc., Cerenovus, Claret Medical, Corindus Inc., Endostream Medical Ltd etc. 4; C; Amnis Therapeutics, Apama Medical, BlinkTBI Inc., Buffalo Technology Partners Inc, Cardinal Health, Cerebrotech Medical Systems Inc, Claret Medical, Cognition Medical, Endostream Medical Ltd etc.

E-101 ECONOMIC IMPACT OF THE FIRST PASS EFFECT (FPE) IN THE TREATMENT OF STROKE WITH THE EMBOTRAP II DEVICE (IN ARISE-II)

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Introduction The first pass effect (FPE), a measure of thrombectomy device's ability to restore near or complete revascularization (modified Thrombolysis in Cerebral Ischemia [mTICI] $\geq 2c$) in a single pass, may be considered as a benchmark for thrombectomy devices in the treatment of acute ischemic stroke. While the FPE has been shown to be an independent predictor of good functional outcomes (modified Rankin Scale [mRS] ≤ 2) and is associated with reduced 90-day mortality, the economic impact of achieving the FPE has not been assessed.

Methodology Data were obtained from the EMBOTRAP II device, ARISE-II (n=227) study. FPE was defined as complete revascularization (mTICI $\geq 2c$) after the first pass of the EMBOTRAP II device. Patients who did not achieve complete revascularization within the ARISE-II population were excluded from the analysis. Healthcare resources included total hospital length of stay (LOS), days in the intensive care unit (ICU), standard bed days, and procedural device use (stent retrievers and aspiration devices). Costs from the literature, in 2018 USD, were applied to healthcare resources.

Results In ARISE-II, 76% of patients (n=172) achieved complete revascularization; among these patients, 53% achieved the FPE. Among patients that achieved complete revascularization, baseline characteristics were well-balanced between patients that did or did not achieve the FPE. A significantly higher percentage of patients that achieved the FPE had good functional outcomes vs. those that did not achieve the FPE (80.5% vs. 61.0%, p=0.006). Healthcare resource use was lower among patients that achieved the FPE. While patients that achieved the FPE required only a single