angiography (CTA) and digital subtraction angiography (DSA). We performed a quantitative assessment of hyperdense vessel on CT, measuring Hounsfield unit (HU) in the occluded side and its counterpart. The primary outcome was unsuccessful recanalization measured by the Thrombolysis in Cerebral Infarction (TICI) score (0-2A). We utilized univariate and multivariate logistic regression to examine these associations.

Results Out of 348 anterior LVO patients, 87 had failed MT. In univariate analysis, smoking, difficult arch, vessel tortuosity, vessel calcification specifically matching the LVO location, diminutive vessels, truncal M1 occlusion and quantitative measures for hyperdense MCA (delta HU and HU ratio) were significantly associated with failed MT. When we fitted 2 separate multivariate models delta HU or HU ratio; both delta HU < 6 (OR: 2.07, 95% CI: 1.09–3.92, $p=0.0253$) and HU ratio ≤ 1.1 (OR: 2.003, 95% CI: 1.05–3.81, $p=0.0034$) were independently associated with failed MT after adjusting by smoking, diminutive vessels, vessel tortuosity, and difficult arch. (Table 1) Our final model ROC plots presented an AUC of 0.717.

Conclusions Quantitative assessment of HU utilizing delta HU and HU ratio may help identify patients refractory to standard thrombectomy strategies.

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E-051 CAN COMPUTED TOMOGRAPHIC ANGIOGRAPHY BE USED TO PREDICT WHO WILL NOT BENEFIT FROM ENDOVASCULAR TREATMENT IN PATIENTS WITH ACUTE ISCHEMIC STROKE? THE CTA-ABC SCORE

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Objective The objective of this study was to develop a score to predict patients with acute ischemic stroke (AIS) who will not benefit from endovascular treatment (EVT) using computed tomographic angiography (CTA) parameters.

Methods The CTA-ABC score was developed from 3 scales previously described in the literature: the Alberta Stroke Program Early CT Score (0–5 points = 3, 6–10 points = 0), the clot Burden score (0–3 points = 1, 4–10 points = 0), and the leptomeningeal Collateral score (0–1 points = 2, 2–3 points = 0). We evaluated the predictive value of CTA parameters associated with symptomatic intracranial hemorrhage (sICH) or malignant middle cerebral artery infarction (MMCAI) after EVT and developed the score using logistic regression coefficients. The score was then validated. Performance of the score was tested with an area under the receiver operating characteristic curve (AUC-ROC).

Results The derivation cohort consisted of 115 and the validation cohort consisted of 40 AIS patients. The AUC-ROC was 0.97 (95% CI, 0.94–0.99; $P<0.001$) in the derivation cohort. The proportions of patients with sICH and/or MMCAI in the derivation cohort were 96%, 73%, 6% and 0% for scores of 6, 5, 1 and 0 points, respectively. In the validation group, the proportions were similar (90%, 100%, 0% and 0%,

respectively) with an AUC-ROC of 0.96 (95% CI, 0.90–1.00; $P<0.001$).

Conclusion Our CTA-ABC score reliably assessed risk for sICH and/or MMCAI in patients with AIS who underwent EVT. It can support clinical decision-making, especially when the need for EVT is uncertain.

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E-052 SAFETY AND EFFICACY OF STENTING POST FAILED THROMBECTOMY: MULTI-INSTITUTIONAL EXPERIENCE

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Introduction Even in the era of stent-retrievers, complete recanalization is often not achieved.

Methods In this multi-institutional effort, we retrospectively evaluated 101 consecutive patients across 6 centers who underwent placement of a self-expanding stent during thrombectomy, either as a rescue strategy for intracranial recanalization or for tandem extracranial/intracranial occlusion. We aimed to evaluate recanalization, complications, clinical outcomes, and antithrombotic regimens in these patients.

Results Occlusive thrombus was located in the internal carotid artery (ICA) in 23.8%, in the middle cerebral artery in 59.4% and in the vertebro-basilar circulation in 16.8% of cases. Indications for stenting included persistent occlusion/failed recanalization in 42.6% of cases, tandem occlusions with proximal flow limiting stenosis in 19.8%, vessel reocclusion after initial recanalization in 14.9%, vessel dissection in 15.8% cases, and underlying intracranial stenosis in 6.9% patients. 48.5% of patients had a stent deployed intracranially, 41.6% of stents were deployed within the extracranial ICA/vertebral artery while 9.9% extended from an extracranial to an intracranial vascular segment. Multiple stents were deployed in 9.9% of cases. Successful recanalization (TICI

Abstract E-052 Table 1 Antiplatelet/antithrombotic regimens

Antiplatelet agent loading	
Aspirin	6.9%
Aspirin and plavix	19.8%
Tirofiban	20.8%
Abciximab	3%
Aspirin/Plavix and tirofiban	3%
Aspirin/tirofiban	1%
Eptifibatide	2%
Aspirin/Plavix and eptifibatide	6.9%
Aspirin and eptifibatide	5%
Prasugrel	1%
Aspirin and ticagrelor	1%
Aspirin, Ticagrelor and Eptifibatide	1%
Use of a glycoprotein IIb/IIIa inhibitor	41.6%
Antiplatelet/Antithrombotic agent maintenance	
Dual antiplatelet treatment	68.3%
Aspirin	9.9%
Antiplatelet + Anticoagulation	18.8%

Abstract E-052 Table 2 Outcomes following stenting

Successful recanalization (TICI 2b/3)	91.1%
Symptomatic intracranial hemorrhage	12.9%
Asymptomatic small parenchymal hematomas	3%
Stent thrombosis	6.9%
Favorable clinical outcome at 3 months (mRS 0–3)	54.9%
Mortality at 3 months	15.8%

2b/3) was obtained in 91.1% following stenting. Symptomatic intracranial hemorrhage occurred in 13 patients (12.9%), only two of which had received tPA. Significant in-stent stenosis/thrombosis occurred in 7 cases (6.9%). 54.9% had a favorable mRS score at 90 days (0–3) and 90-day mortality occurred in 15.8%. The primary factor associated with complications was placement of multiple stents ($P=0.018$). 71.3% of patients were loaded with antiplatelet agents intraoperatively prior to stent placement, most commonly with aspirin/Plavix ± eptifibatide or Tirofiban, followed by maintenance on dual antiplatelet treatment. There were no significant differences in outcomes between different antithrombotic regimens.

Conclusion Stent placement as a rescue strategy for thrombectomy failure and for tandem configurations offers a high rate of recanalization and favorable outcome without an increase in the hemorrhage risk regardless of antithrombotic regimen and tPA status.

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E-053

PERI-PROCEDURE ANEMIA IS ASSOCIATED WITH POOR FUNCTIONAL OUTCOME AFTER MECHANICAL THROMBECTOMY FOR ACUTE ISCHEMIC STROKE: SINGLE CENTER EXPERIENCE

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Introduction Anemia has been associated with worse clinical outcomes and increased mortality following acute ischemic stroke, however, the study of anemia in acute ischemic stroke patients treated with mechanical thrombectomy has been limited.

Methods We performed a retrospective study of 346 anterior circulation stroke patients treated with mechanical thrombectomy to investigate the impact of peri-procedure anemia (Hgb <10 g/dL within 48 hours of admission) on outcomes and to determine the relationship between peri-procedure anemia and multiple thrombectomy passes/procedure time at a single Comprehensive Stroke Center from April 2012 to July 2019. Bivariate and multiple logistic regression analyses were performed. A p-value <0.05 was considered statistically significant.

Results One hundred patients (29%) met the criteria for peri-procedure anemia after admission for thrombectomy. Females comprised 73% of patients (n=73) with peri-procedure anemia compared to 39% (n=97) of patients without anemia ($p<0.001$). Peri-procedure anemia was associated with a

longer thrombectomy procedure time (62.80 [3.89] min. vs. 54.38 [2.14]; $p=0.044$). There was a trend towards a greater number of thrombectomy passes among patients with peri-procedure anemia compared to those without anemia ($p=0.058$) on bivariate analysis. Peri-procedure anemia was associated with greater rates of poor functional outcome (73% vs. 54%; $p=0.001$) and death (35% vs. 18%; $p=0.001$). The final logistic regression model included the following variables: patient age, female sex, NIHSS, tPA, procedure time and number of thrombectomy passes. Among these variables, only female sex (OR 4.28, 95% CI 2.54–7.22; $p<0.001$) and ≥ 3 thrombectomy passes (OR 2.05, 95% CI 1.01–4.15; $p=0.047$) were independently associated with peri-procedure anemia after admission for thrombectomy (AUC=0.724). Several clinical factors were included in the final logistic regression model. Age (OR 1.03, 95% CI 1.00–1.05; $p=0.015$), history of diabetes (OR 1.90, 95% CI 1.07–3.37), admission NIHSS (OR 1.09, 95% CI 1.04–1.15; $p<0.001$) and peri-procedure anemia (OR 1.82, 95% CI 1.03–3.22; $p=0.040$) were independently associated with an increased odds of poor outcome. TICI grades 2C/3 (OR 0.18, 95% CI 0.08–0.40; $p<0.001$) were associated with a reduced odds of poor outcome. There was a trend towards an independent association between ≥ 3 thrombectomy passes and poor outcome (OR 1.80, 95% CI 0.94–3.45; $p=0.078$) although not statistically significant.

Conclusion Female sex and ≥ 3 thrombectomy passes were independently associated with peri-procedure anemia. Peri-procedure anemia was associated with worse clinical outcomes at 3-month follow-up. The interventional neuroradiologist should consider the potential adverse effects of peri-procedure anemia and minimize overall procedural blood loss when able, mainly in women that inherently have lower hemoglobin levels than men. Future studies are required to better understand the causal relationship between procedural blood loss and clinical outcomes following thrombectomy.

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E-054

DEVELOPMENT OF AN ANTHROPOMORPHIC XMR PHANTOM FOR NEURO-INTERVENTIONAL CATHETERS

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Introduction Integrated imaging suites possess great clinical significance. In the case of dual MRI and X-ray suites, devices designed to be used in their workflow have lagged in development due to engineering challenges presented by the unique working environment. In the field of neuro-intervention, device visibility is paramount. Such device efficacy must be tested *in vitro* in vascular phantoms that mimic the *in vivo* environment; however, the imaging physics of X-ray and MRI mean that a standard phantom in one imaging environment cannot be used effectively in the other. Here, we sought to develop a carotid artery and vertebral bone phantom using poly(vinyl) alcohol cryogel (PVA-C) and epoxy resin to navigate neuro-interventional catheters in integrated MR and X-ray imaging suites.