scans; and 4. Motion compensation post-processing algorithm technology.

Methods Patients with AIS who received endovascular mechanical thrombectomy were prospectively included in this monocentric study (n=105).

Study 1: Image quality of non-contrast circular CB-CT scans were analyzed using 2 quantitative and 6 qualitative measures and were compared to CT. Study 2: 6 types of image artifacts were compared between circular and dual-axis CB-CT scans. Study 3: Clot detection, ischemic core and collateral blood supply was assessed on CB-CT Perfusion imaging and compared to baseline CT and DSA imaging. Study 4: Motion artifacts were assessed on all scans before and after post-processed using a motion artifact correction algorithm.

Results Study 1: Newer non-contrast CB-CT circular scans had higher mean contrast-to-noise ratio and lower mean image noise compared to older generation protocols. The largest image quality improvements included grey/white matter differentiation (59% improvement), and reduction of image noise and artefacts (63% & 50% improvement, respectively). Study 2: Dual-axis CB-CT scans had significantly improved beam hardening and cone-beam artifacts compared to circular scans. Study 3: CB-CT stroke perfusion imaging software accurately demonstrates vessel patency, ischemic core, and collateral blood supply. Study 4: 51% of all AIS CB-CT scans had motion artifacts, of which 91% improved after post-processing with our motion correction algorithm. Overall 76% of the scans were sufficient for clinical decision making prior to correction, which improved to 93% after post processing with our algorithm.

Conclusions The latest generation of CB-CT scans & technology allow for exclusion of haemorrhages, stroke core definition and demonstration of brain perfusion and collaterals. These improvements suggest that CB-CT is acceptable for emergency stroke imaging assessment before mechanical thrombectomy, which may reduce door-to-groin puncture times and improve patient outcomes.

REFERENCE

1. Bourcier R, Goyal M, Liebeskind DS, et al. Association of time from stroke onset to groin puncture with quality of reperfusion after mechanical thrombectomy: a meta-analysis of individual patient data from 7 randomized clinical trials. *JAMA Neurol* 2019. doi:10.1001/jamaneurol.2018.4510

Disclosures N. Cancelliere: None. P. Nicholson: None. F. Nij-natten: 5; C; Philips. E. Hummel: 5; C; Philips. P. Withagen: 5; C; Philips. P. van de Haar: 5; C; Philips. R. Agid: None. B. Hallacoglu: 5; C; Philips. M. van Vlimmeren: 5; C; Philips. V. Mendes Pereira: 1; C; Philips.

0-021

MIDDLE MENINGEAL ARTERY EMBOLIZATION FOR CHRONIC SUBDURAL HEMATOMA: A NATIONAL DATABASE STUDY OF 292 PATIENTS IN THE UNITED STATES

¹A Nia*, ¹R Lall, ²V Srinivasan, ¹P Kan. ¹University of Texas Medical Branch, Galveston, TX; ²Barrow Neurological Institute, Phoenix, AZ

10.1136/neurintsurg-2021-SNIS.21

Background Middle meningeal artery embolization (MMAE) has been used as an effective minimally invasive treatment for chronic subdural hematomas (cSDH). The demographics and clinical outcomes after MMAE treatment for cSDH have not yet been studied using the large scale of a national database.

Abstract O-021 Figure 1

Methods We queried all MMAE cases up to March 19th, 2021 from the TriNetX Analytics Network. We identified patients >18 years old who underwent MMAE for the treatment of cSDH. Patient demographics, baseline characteristics, comorbidities, and clinical outcomes were evaluated within 1-year post-MMAE. 1-year mortality and recurrence analyses were performed after propensity score matching to control for baseline characteristics and comorbidities.

Results A total 292 patients were included (mean age: 70.6 ± 13.9, 27.7% female, 71.6% White, 13.0% Black/African American, and 15.4% other). Essential hypertension (71.9%), heart disease (61.6%), type 2 diabetes mellitus (27.4%), nicotine dependence (26.0%), chronic kidney disease (19.52%), and overweight/obesity (18.2%) were among the most prevalent comorbidities. At presentation, 21.6% and 42.7% were on antiplatelet and anticoagulation therapy, respectively. Outcomes within a one-year follow-up were 6.2% (or 2.74-5.82% when propensity-matched) for mortality (18 patients), 0.34-3.4% for repeat MMAE (1-10 patients), 6.5% for craniotomy/craniectomy after MMAE (19 patients), 5.1% for burr hole procedures (15 patients), and 0.35-3.5% for low vision/blindness (1-10 patients).

Conclusion MMAE is a safe and effective minimally invasive procedure for the treatment of cSDH. This represents the first analysis of patients undergoing MMAE for cSDH using a national database.

Disclosures A. Nia: None. R. Lall: None. V. Srinivasan: None. P. Kan: None.

0-022

WHITE MATTER SURVIVAL WITHIN AND AROUND THE HEMATOMA: QUANTIFICATION BY MRI IN PATIENTS WITH INTRACEREBRAL HEMORRHAGE

¹N Novakovic*, ¹J Linzey, ²T Chenevert, ²J Gemmete, ¹G Xi, ¹R Keep, ¹A Pandey, ²N Chaudhary. ¹Neurosurgery, University of Michigan, Ann Arbor, MI; ²Radiology, University of Michigan, Ann Arbor, MI

10.1136/neurintsurg-2021-SNIS.22

Introduction White matter (WM) injury and survival after intracerebral hemorrhage (ICH) has received insufficient attention. WM disruption, surrounding the hematoma, has been

documented in animal models with histology, but rarely with non-invasive means like magnetic resonance imaging (MRI). A few human MRI studies have investigated changes in long WM tracts after ICH, like the corticospinal tract, but have not attempted to obtain an unbiased quantification of WM changes within and around the hematoma over time. This study attempts such quantification from 3 to 30 days post ictus.

Methods Thirteen patients with ICH underwent diffusion tensor imaging (DTI) MRI at 3, 14, and 30 days. Fractional anisotropy (FA) maps were used to calculate volume of tissue with $FA > 0.5$ both within hematoma (lesion) and in the peri-lesional tissue.

Results At day 3, both the percent of lesional and peri-lesional tissue with an $FA > 0.5$ was significantly less than contralateral tissue. This peri-lesional contralateral difference persisted at day 14, but there was no significant difference at day 30. The loss of peri-lesional tissue with $FA > 0.5$ increased with increasing hematoma size at day 3 and day 14. All patients had some tissue within lesion with $FA > 0.5$ at all time points. This did not decrease with duration after ictus, suggesting the persistence of white matter within the hematoma/lesion.

Abstract O-022 Figure 1

Conclusion These results outline an approach to quantify WM injury, both within and surrounding the hematoma, after ICH using DTI MRI. This may be important for monitoring treatment strategies, such as hematoma evacuation, and assessing efficacy non-invasively.

Disclosures N. Novakovic: None. J. Linzey: None. T. Chenevert: None. J. Gemmete: None. G. Xi: None. R. Keep: None. A. Pandey: None. N. Chaudhary: None.

0-023 ARTERIAL SPIN LABELING (ASL) MRI ASSISTS IN IDENTIFICATION OF CEREBRAL MICRO-ARTERIOVENOUS MALFORMATIONS

V Mayercik*, R Taiwo, M Marks, R Dodd, J Heit, H Do, N Telischak. *Stanford University, Stanford, CA*

10.1136/neurintsurg-2021-SNIS.23

Introduction Micro-arteriovenous malformations (microAVMs) are a subtype of cerebral AVM characterized by an arterial nidus less than 1 cm in diameter. Due to their small size, these lesions may be difficult to identify on conventional MRI. They can also be missed or occult on cerebral angiography. Arterial spin labeling (ASL) is an MRI sequence which acts as a surrogate marker for arterial perfusion and which may be useful in the identification of small arterial lesions such as microAVMs.

Materials and Methods We conducted a retrospective cohort study of 34 microAVMs in 19 patients, diagnosed at a single academic medical center from 1996 to 2020. Inclusion criteria were presence of microAVM confirmed by either cerebral angiogram or surgery. Patients without ASL-MRI were excluded. An electronic medical record was queried for patient demographics, diagnostic work-up, results of ASL-MRI, and surgical pathology when available. Two experienced neuroradiologists counted the number and location of lesions seen on ASL-MRI in a blinded fashion. Cohen's kappa was calculated for inter-rater reliability.

Results 22 patients with microAVMs were initially selected. 3 patients were excluded due to lack of ASL imaging. 12 males and 7 females were included with a total of 34 microAVMs. Mean patient age was 39.8 years (SD $\pm$ 19.0 years). Among 34 microAVMs, 27 lesions had positive findings on ASL (79.4%). Inter-rater agreement was substantial (Cohen's kappa = 0.70) with raters agreeing in 88.6% of cases. 9 patients were initially diagnosed with one or more microAVMs due to the presence of positive ASL signal (47.4%). 3 patients with ASL findings suggestive of a microAVM had angiographically occult lesions which were confirmed at the time of surgery (15.8%).

Abstract O-023 Figure 1

Conclusion ASL assists in the identification of cerebral microAVMs. This sequence can be used to suggest an initial diagnosis of microAVM. It can also identify angiographically occult microAVMs confirmed at the time of surgical excision.

Disclosures V. Mayercik: None. R. Taiwo: None. M. Marks: None. R. Dodd: None. J. Heit: None. H. Do: None. N. Telischak: None.