Results Philips' advanced 3D neuro-imaging prototype technology offers an advantage over traditional stroke pathways in decreasing time to puncture for LVO patients without significant decrease in image quality. Additionally, the new prototype offers dose significant reduction as compared with multi-detector CT. Furthermore the posterior fossa assessment is markedly improved with this new technology.

Conclusions 3D neuro-imaging prototype technology has provided an almost multi-detector CT level of anatomical structures spatial and contrast resolution, during pre-procedural ASPECT assessment, clot localization, collaterals and post-procedural evaluation of IPH or SAH components, in patients transferred directly to our AngioLab from outside institutions for mechanical thrombectomy, significantly reducing the door-to-puncture timing in this series of cases. This new technology significantly improves the triaging of these LVO patients for direct to angio-suite pathway.

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Disclosure Nothing to disclose

EP43* UNBIASED MTICI SCORING AFTER ACUTE ISCHEMIC STROKE: AN IMAGE-PROCESSING BASED SEMI-AUTOMATIC GRADING METHOD

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Background The mTICI score used to assess the degree of reperfusion after mechanical thrombectomy is an independent predictor of patient outcome after acute ischemic stroke. Its inter-rater reliability, however, is low and interventionalists often overrate their own performance.¹

Objectives We devised an image-processing based semi-automated grading for unbiased mTICI scoring.

Methods Based on pixel-intensity features, we developed a semi-automated reperfusion grading on digital subtraction angiography (DSA) series. The internal carotid artery (ICA) curve was detected automatically in the first contrast fill-image and set as a reference point. The region of interest (ROI) was defined as the target downstream territory (TDT) of the middle cerebral artery (MCA) and divided into check-zones ranked as 'perfused' or 'unperfused' based on a predefined grid. Our software was applied to 50 patients after thrombectomy for acute ischemic stroke. The percentage of reperfusion was translated into mTICI grading. The scoring by the software was compared to the consensus reading by two experienced neuroradiologists.

Results mTICI scores in our cohort ranged from 2a to 3, with mTICI $\geq$ 2a in 64.0% (28/50). The software scored 44/50 patients correctly (88.0%), with 25/27 (92.6%) mTICI 3 accurately graded. Accuracy in mTICI $>$ 2c was 87.5% (28/32). Correct division into mTICI 2a/2b/2c was achieved in 19/24 patients (79.2%). 5 out of 6 disagreements occurred in mTICI 2c/3 gradings.

Conclusion Semi-automated mTICI scoring based on image-processing is feasible and accurate. Our method is fast and easy to integrate into clinical routine. Application on larger cohorts will be needed to confirm our results.

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Disclosure Nothing to disclose

Treatment

EP44* NIMBUS GEOMETRIC CLOT EXTRACTOR FOR TOUGH CLOTS – REAL WORLD CLINICAL EXPERIENCE AND CLOT COMPOSITION

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Introduction Nimbus was developed for difficult to remove white clots that account for a substantial percentage of technical failure in mechanical thrombectomy (MT). The device aims at engaging tough clots through unique architecture of a proximal spiral portion followed by a distal regular mesh.

Aim To evaluate the retrieval rate, and composition, of clot deemed challenging to remove, using Nimbus in a clinical setting.

Methods Consecutive Nimbus cases from 2 high volume stroke centers were retrospectively analyzed. Clots from 1 center were sent to a central lab for composition analysis including Martius Scarlet Blue staining.

Results Nimbus was used as 1st and 2nd line device in 5 and 30 patients, respectively. The main reason for using Nimbus (30/35) was failure of standard MT techniques with a mean 2.9 number of passes (maximum 6). In non-Nimbus passes, the rate of any clot retrieval was 35.5%, compared to 89.2% in Nimbus passes. With Nimbus, mTICI $\geq$ 2b was achieved in 68.6% (24/35) cases with a mean 1.8 passes (mean 4.7 total number passes with all devices). Final mTICI $\geq$ 2b with all devices was 77.1% (27/35). In successful cases (mTICI $\geq$ 2b), Nimbus was used in the last pass in 88.9% (24/27) cases.

Clot specimens from 16 cases underwent composition analysis. Fibrin and platelets represented 30.2% and 29.3% of clot components; 34.6% were red blood cells.

Conclusions Nimbus is effective in removing tough clots markedly rich in fibrin and platelets in challenging real world situations.

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EP45*

BEYOND PROXIMAL LARGE VESSEL OCCLUSIONS: OUTCOME OF MECHANICAL THROMBECTOMY IN DISTAL VESSEL OCCLUSIONS IN THE EXCELLENT REGISTRY – INTERIM ANALYSIS

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Introduction EXCELLENT (NCT03685578) is a prospective, single-arm, multicenter, real-world, international registry of mechanical thrombectomy (MT) with EmboTrap as first-line device. There is increasing interest in applying MT to acute distal vessel occlusion (DiVO), with limited data. This interim analysis evaluates the angiographic, clinical and safety outcomes in DiVO.

Aim of the Study To compare MT outcomes in Medium Vessel occlusion (MeVO) vs DiVO.

Methods MeVO was defined as proximal M2 and DiVO as distal M2, M3, P1, P2, and A2 occlusions. Independent core lab adjudicated occlusion location, reperfusion, and intracranial hemorrhage (ICH). 90-day mRS was completed by independent site investigators blinded to procedural data.

Results 64/532(12.0%) patients had MeVO, and 44/532(8.3%) had DiVO (37 M2, 4 P2, 1 A2, 1 P1, 1 M3). Final mTICI2b-3 was 87.1%(54/62) in MeVO vs 84.1%(37/44) in DiVO. First Pass (FP) mTICI2c was 17.5%(11/63) in MeVO vs 6.8%(3/44) in DiVO; while the two groups had nearly identical FP-mTICI3 (20.6% vs 20.5%). 90-day mRS 0–2 or equal to pre-stroke was achieved in 55.4%(31/56) MeVO and in 45.9%(17/37) DiVO patients. All-cause 90-day mortality was 22.4%(13/58) in MeVO and 21.4%(9/42) in DiVO. The rate of any ICH was 50.8%(31/61) in MeVO vs 37.5%(15/40) in DiVO, while subarachnoid hemorrhage was 27.9%(17/61) and 22.5%(9/40) in MeVO and DiVO, respectively.

Conclusions In this interim analysis, patients with DiVO presenting with acute ischemic stroke and undergoing MT had rates of revascularization and clinical and safety outcomes comparable to MeVO. If confirmed in the full dataset, these findings can inform MT case selection.

Disclosure EXCELLENT is sponsored by Cerenovus. Dr. Zaidat serves as a consultant for Neuravi, Stryker, Penumbra, and Medtronic.

EP46*

FIRST PASS EFFECT AND ASSOCIATED CLOT CHARACTERISTICS IN THE EXCELLENT REGISTRY – INTERIM ANALYSIS

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