3.1 OTHER – Innovation

**O29/279** CLINICAL VALIDATION TRIAL OF BRAIN20(R), A MEDICAL DEVICE TO PREDICT FUNCTIONAL RECOVERY IN PATIENTS WITH ACUTE ISCHEMIC STROKE UNDERGOING ENDOVASCULAR THROMBECTOMY. PROMISE20 STUDY PROTOCOL

1Alicia Martínez-Piñeiro*, 2Jordi Cortés, 3Monica Millan, 4Natalia Pérez de la Ossa, 5Marc Ribo Jacobi, 6Joaquín Serena, 7Jaume Coll, 8Gisela Ruiz, 9Antoni Davalos. Hospital Germans Trias i Pujol, Neurosciences, Badalona, Spain; 10Time is Brain, Badalona, Spain; 11Universitat Politècnica de Catalunya · Barcelona Tech – UPC, Statistics and Operations Research, Barcelona, Spain; 12Vall d’Hebron University Hospital, Neurology, Barcelona, Spain; 13Hospital Universitari de Girona Doctor Josep Trueta, Neurology, Girona, Spain; 14Time is Brain S.L., Badalona, Spain

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**Introduction** N20 somatosensory evoked potential (SEP) response shows high predictive accuracy of functional recovery in patients with acute ischemic stroke (AIS) undergoing endovascular thrombectomy (EVT) (https://www.clinicaltrials.gov/ct2/show/NCT04099615). This capacity is independent and higher than clinical and advanced imaging variables.

**Aim of Study** To validate Brain20®, a portable, non-invasive, AI-based device to monitor in real-time the presence and characteristics of N20 in AIS.

**Methods** 65 patients with AIS undergoing EVT within 24 hours from onset are included in three comprehensive stroke centers. Eligibility criteria are no significant pre-stroke functional dependence, baseline NIHSS score ≥ 6 points, occlusion (mTICI 0–1) of the intracranial ICA, MCA-M1 or M2 suitable for EVT per local protocols, without infarct volume restrictions measured by ASPECT score or by CTP/DWI-MRI prior to EVT. The primary objective is to confirm an optimal/good reliability of N20 registration before EVT higher than 75% by two blind expert neurophysiologists, assuming a true proportion equal to 87.5%. Secondary endpoints are the predictive accuracy of N20 response recorded by Brain20® before and after EVT on functional outcome evaluated by the mRS at 7 and 90 days and analyzed by using ROC curves. A futility interim analysis is planned after the inclusion of 25% of the sample.

**Results** The trial is sponsored by Time is Brain S.L. and will start early July 2023. Primary endpoint results are expected by the end of this year.

**Conclusion** Brain20® could be a useful medical device to predict salvageable brain and functional recovery of patients along the stroke chain.

**Disclosure of Interest** Co-Founder and CEO of Time is Brain S.L.

**4.1 CASE PROPOSAL – Aneurysms**

**O31/303** THREE STORIES ON eCLIPS

Jan-Hendrik Buhk*, Asklepios Hospital St. georg, Neuroradiology, Hamburg, Germany

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**Introduction** Wide-neck shallow bifurcation aneurysms remain challenging for endovascular treatment and often demand complex combinations of implants.

**Aim of Study** Here, we present 3 cases, in which the eCLIPS device facilitated treatment of shallow wide-necked aneurysms with encouraging results and relatively low procedural complexity.

**Methods** 3 female patients are presented.

**Pat. #1:** 52-year-old with history of almost full recovery after severe SAH from tiny basilar tip aneurysm and early relapse. Scheduled treatment with eCLIPS and coils.

**Pat. #2:** 68 year old with complex ICA terminus aneurysm. Treatment with eCLIPS and coils.

**Pat. #3:** 76 year old with very wide-neck basilar tip aneurysm, no comorbidities, urgent treatment wish. Individual decision pro treatment with eCLIPS. In this case, the eCLIPS flow diverter was used, no additional coils.

**Results** All treatments were successful, no peri-procedural infarcts.

**Pat. #1:** 1.5 year follow up shows stable complete occlusion. Clinical status is stable.

**Pat. #2:** Stable small residual filling after 6 months. Minor late infarction in possible relation to implants noted, as consequence dual platelet inhibition reinstalled.

**Introduction** In the treatment of acute ischemic stroke, localising the clot and identifying its mechanical characteristics are two of the main highlighted challenges for the choice of the extraction technique.

**Aim of Study** This study aims to: 1) explore the interaction forces between a guidewire and a synthetic clot for different occlusion conditions in a simplified arterial model; 2) develop algorithms to identify the beginning and the end of the clot and therefore deduce its length.

**Methods** Clot analogues of different stiffnesses and sizes were injected with a controlled pressure in a silicone conical arterial phantom. A robotic device instrumented with a force sensor controlled the movement of a guidewire at 1 mm/s both in crossing the lesion and in retracting the guidewire after clot penetration.

**Results** For a given pressure and clot volume, a rigid clot produces higher forces than a soft clot. However, at the same location, we can have a softer clot inserted at a high pressure or a stiffer clot inserted at a low pressure, resulting in similar forces. Based on the slope of the measured force during penetration, the beginning of the clot can be successfully detected. The clot’s end can be identified through the force measurement while retracting the guidewire.

**Conclusion** This in vitro study shows that multiple factors influence the lodgement of the clot and the corresponding forces that the guidewire encounters. Through a proximal force measurement, the extremities of the clot can be detected.

**Disclosure of Interest** Nothing to disclose.
3.3 OTHER – Miscellaneous

CONTINUOUS EVALUATION OF THE ESMINT/EYMINT E-FELLOWSHIP AS A EUROPEAN TELE-LEARNING NETWORK FOR NEUROINTERVENTIONAL TRAINEES

1Matthias Bechstein, 1Helena Guerreiro, 1Marie Teresa Nawka, 2Vladimir Kalousek, 1Jens Fiehler, 1Uta Meta Paula Hanning. 1University Medical Center Hamburg-Eppendorf, Department of Diagnostic and Interventional Neuroradiology, Hamburg, Germany; 2Clinical Hospital Center Sestre Milosrđe, Department of Radiology, Zagreb, Croatia

Introduction The European EYMINT tele-observership (e-fellowship) was initially launched in 2020 and has since enrolled 72 neurointerventional fellows. These have live remote access to procedures performed by individually assigned specialists (mentors) at geographically distant high volume neurointerventional centers.

Aim of Study 1) Assessment of situational awareness during remote attendance of neurointerventional procedures. 2) Assessment of learning progress among participants.

Methods Prospective evaluation of telestreamed cases from 2020 to 2023 via anonymous questionnaires for trainees and mentors.

Results From 06/2020 to 04/2023 a total of 498 cases were transmitted to fellows using telestream technology (33% Aneurysm, 29% AVM/DAVF, 27% Ischemic Stroke). Although not being physically present, a high level of situational awareness for the procedure (levels 4+5 on a Lickert scale from 1–5) was reported by 81.9% of fellows. The impact of the fellowship on knowledge improvement during neurointerventional training was reported to be large by 55% of participants. Technical knowledge (handling of devices) and procedural knowledge (sequence of interventional steps) were equally described to be the areas of particular improvement. Remote attendance of complex aneurysm cases (intrasaccular devices, flow diversion) seemed to deliver most value in terms of learning progress. Nevertheless, some participants stated more value from a different perspective on a common procedure, i.e. a thrombectomy.

Conclusion Tele-observerships may supplement neurointerventional hands-on training in particular of low-frequency high-complexity procedures.

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