

Ischemic

2.1. Logistics

001

REMOTE TELEPROCTORING WITH THE TEGUS SYSTEM FOR MECHANICAL THROMBECTOMY IN A NON-COMPREHENSIVE STROKE CENTER: INITIAL PRELIMINARY DATA ON CLINICAL EXPERIENCE

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Introduction Mechanical thrombectomy (MT) is typically performed by experienced neurointerventional radiologists. However, logistical and geographic limitations often hinder access to rapid MT, especially in remote areas.

Aim of Study To explore the use of remote teleproctoring to support MT conducted by general interventional radiologists (IR) at thrombectomy capable centers, compared to on-site proctoring outcomes.

Methods The Arnau de Vilanova Hospital in Spain, serving 500,000 people over 12,000 km², used to transfer stroke patients requiring MT to a comprehensive stroke center 160 km away. To overcome COVID-19 mobility restrictions, the Tegus Teleproctoring System was installed. From April 2021 to May 2023, general IR conducted MT either with on-site proctor supervision or teleproctoring support. We aim to compare clinical outcome of patients receiving MT according to proctoring method

Results During the study, 51 MTs were performed: 17 with TEGUS teleproctoring and 34 with on-site proctoring. Both groups had similar baseline characteristics, except for NIHSS scores (Tegus 9 (IQR 6-20) v/s 18 (IQR 12-22), p: 0,034). No significant differences were found in door-to-revascularization time (82 (SD 28.2) v/s 84 (SD 26.4) min, p: 0.895). The final mTICI distribution and 90-day mRS scores were comparable. There were no reports of symptomatic intracranial hemorrhage in either group.

Conclusion This study shows the feasibility of remote teleproctoring during emergent cases of MT in a remote hospital. It could improve the learning curve of interventional radiologists with limited experience in MT, and lower the territorial inequity associated to MT.

Disclosure of Interest no.

2.3. Treatment

002

FIRST IN MAN STUDY OF OTR4132, A HEPARAN SULFATE MIMETIC NEUROPROTECTOR, INJECTED INTRA-ARTERIALLY AFTER ENDOVASCULAR THROMBECTOMY IN PATIENTS WITH ACUTE ISCHEMIC STROKE: THE MATRISS TRIAL

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Introduction There is an important need for the development of neuroprotective therapeutic agents that could be combined to reperfusion strategies in acute ischemic stroke to further improve functional outcome. OTR4132 is a polymer of glucose engineered to mimic heparan sulphate (HS), which demonstrated neuroprotective effects in animal models.

Aim of Study To assess the safety, tolerability of OTR4132 and to identify the highest, well-tolerated, and safest single dose in acute stroke patients

Methods The MATRISS study is a multi-center, first-in-man, open label, dose-escalation study. OTR4132 was administered intra-arterially at a rate of 1mL/min over 10 minutes, following endovascular thrombectomy recanalization (TICI score 2b - 3). The primary endpoint was the rate of investigational treatment-related severe adverse events occurring from baseline to 7 days after inclusion. All other safety and efficacy endpoints were exploratory.

Results Nineteen patients were recruited in the study between March 2022 and March 2024 and 6 different doses of OTR4132 were tested (from 0.2 mg to 2.5 mg).

No serious adverse event attributable to the investigational treatment was noticed at any of the 6 tested doses.

Although, the study was not powered to demonstrate efficacy, in the highest dose groups, the rate of severe intracranial hemorrhages at 24 hours was lower, better functional recovery

was noticed, and MRI volumetric analyses suggested a dose effect in the reduction of stroke volume at 3 months.

Conclusion These encouraging results need to be confirmed in a placebo-controlled clinical study.

Disclosure of Interest yes Frederic Sedel, Martin Inizan and Denis Barritault are employees and shareholders of OTR3.

003

DEVELOPING AN ELECTRICAL IMPEDANCE SENSOR TO IDENTIFY PLATELET CONTENT IN ACUTE ISCHEMIC STROKE CLOTS: RESULTS FROM THE EX VIVO CLOTBASE INTERNATIONAL REGISTRY

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Introduction Development of a medical device that uses an electrical impedance signature to identify clot characteristics that influence success of treatment could improve stroke patient outcomes.

Aim of Study To assess how well electrical impedance platelet signature identified platelet composition of acute ischemic stroke (AIS) clots, which may be negatively associated with successful first-pass effect.

Methods Blood clots from 423 patients were analysed in the Clotbase International Registry. Impedance measurements were taken following clot retrieval by thrombectomy. Clot samples were fixed in formalin, paraffin-embedded and platelet composition quantified with anti-CD42b antibody in 3 µm sections using immunohistochemistry. Expression was quantified using Orbit Image Analysis and correlated with impedance estimation. Spearman's correlation coefficient was calculated using a training set of 305 clots. Mann-Whitney U-test assessed statistically significant differences between groups.

Results Impedance-based platelet estimations correlated well with the platelet content determined by CD42b immunohistochemistry, with a slope of 0.6 and Spearman's correlation of $r=0.5$ ($p<0.0001$). In 221 cases, clot was removed successfully in 1 pass with mTICI 2c or better (FPE). FPE was not achieved in 202 cases (including mTICI 0-2b and clot requiring >1 pass). Platelet content was significantly lower in FPE than non-FPE cases as assessed using histology ($p=0.02$) and impedance signature ($p=0.04$).

Conclusion Electrical impedance estimation of platelet content in AIS clots is consistent with histological findings. Further work will continue to improve the specificity of the

impedance signature, advancing development of a medical device that could guide clinical decision making in the stroke acute care setting.

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Disclosure of Interest no.

2.2. Imaging

004

CLINICAL SIGNIFICANCE AND PREVALENCE OF POSTINTERVENTIONAL SUBARACHNOIDAL HYPERDENSITIES ON FLAT-DETECTOR CT AFTER MECHANICAL THROMBECTOMY IN DOMINANT, CO- AND NON-DOMINANT M2 OCCLUSIONS: A MUTLICENTRIC STUDY

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Introduction Subarachnoidal hyperdensities (SH) on flat detector CT (FDCT) after mechanical thrombectomy (MT) are associated with neurological decline and less favorable clinical outcome; SH are more common in distal occlusions and after multiple device passes. With technical advancements, neurointerventionalists are aiming to treat further distal occlusions, with several randomized trials underway

Aim of Study We aimed to further identify the prevalence and clinical significance of SH on FDCT following MT, especially in patients with dominant, co- and non-dominant caliber M2 occlusions

Methods 640 patients from two comprehensive stroke were analyzed for the presence of SH on FDCT and then classified according to a visual grading scale. 351 patients were included. The primary outcome was mRS at 90 days and was analyzed with the Wilcoxon-Mann-Whitney rank-sum test. To identify predictors regression analysis, Kruskal-wallis analysis and X^2 test were performed

Results Prevalence of SH on FDCT was 144/351 (40.9%) with patients experiencing a significant more unfavorable outcome ($p=0.014$). Distal occlusions and a higher number of device passes were significantly associated with SH ($P<0.001$) and ($P=0.006$), respectively.

SH was significantly more frequent ($p=0.014$) in co- and non-dominant M2 occlusions 41/63 (65.07%) compared to dominant M2 occlusions 35/79 (44.3%), with a significant effect $p < 0.001$ OR= 4.18 (95%CI 2.28-7.69). Higher number of device passes >3 and < 6 had a significant effect on the occurrence of SH $P < 0.001$ OR= 3.42 (95%CI 1.76-6.67).

Conclusion SH is associated with worse functional outcome, with co- and non-dominant M2 occlusions and higher numbers of device passes >3.

Disclosure of Interest no.