A COMPARISON STUDY OF PHYSICIAN OPERATOR DOUBLE STENT-RETRIEVER AS FIRST-LINE APPROACH IN SLIC (SUPER LARGE-BORE INGESTION CLOT)

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10.1136/neurintsurg-2022-ESMINT.80

Introduction and Aim of Study Preoperative simulation of endovascular implant deployment can improve procedural accuracy. The current study aims at establishing software reliability for flow diversion by comparing accuracy against human operators.

Methods Neurointerventional physicians blinded to procedural details were provided preoperative 3DRA volumetric data along with annotated images marking the distal end of a deployed Evolve (Stryker Neurovascular) flow diverter (FD) stent from 51 cases. Physicians were asked to estimate the stent’s proximal end using volumetric data for vessel sizing and the dimensions of the FD. Similar estimation of the deployed length was performed using the PreSize Neurovascular software (Oxford Heartbeat Ltd.). Physician and software estimated lengths were compared to the actual deployed stent length (control). Inter-rater correlation coefficient (ICC) and Bland-Altman plots defined agreement of each group versus the control.

Results Investigated FDs had a mean length of 17.59mm (12–30mm) and a mean diameter of 4.21mm (3.25–5.00mm). Mean accuracy of physician predicted deployed FD lengths was 68.8% (95%CI 67.4–70.2%) versus the software’s of 94.9% (95%CI 93.6–96.1%), showing significantly higher accuracy for the software (p<.001). Mean ±SD discrepancy between estimated and control lengths was 6.49±6.54mm for the physicians and -0.18±1.44mm for the software, indicating a tendency of the former to overestimate deployed length. ICC(range 0–1), measuring the degree of correlation between estimated and control deployed length, was 0.60 (95%CI 0.34–0.81) for the physician and 0.98 (95%CI 0.96–0.99) for the software group.

Conclusions Software simulated deployment of FDs was more accurate than that estimated by neurointerventional physicians.

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Do you have any conflict of interest to declare?: Yes

Conflict of Interest Statement Consulting agreement Stryker Neurovascular

SLIC (SUPER LARGE-BORE INGESTION CLOT) TECHNIQUE: ACUTE ISCHEMIC STROKE LARGE VESSEL OCCLUSION TREATMENT WITH SUPER LARGE BORE ASPIRATION AND NOVEL INSERT CATHERETERS

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10.1136/neurintsurg-2022-ESMINT.81

Introduction Super large bore aspiration (SLBA) has shown high rates of complete ingestion. Herein, we report the initial clinical feasibility, safety and efficacy of this novel “SLIC” (Super Large-bore Ingestion Clot) technique for stroke. Methods We performed a retrospective review of three centers neurointerventional databases. SLIC entails a triaxial assembly: an 8 Fr 0.106” guide catheter, an 0.088” 62cm catheter extender and a Tenzing 8 insert catheter that completely consumes the inner diameter of the catheter extender SLBA catheter. The Tenzing 8 navigates to the proximal aspect of the occlusion. The 0.088” catheter extender is delivered over the Tenzing 8, which is withdrawn thereby exerting an aspiration force, applied through the Base Camp catheter and 0.088” catheter extender as a single assembly. Results Between February 2021 and January 2022, 33 consecutive patients of LVO were treated with SLBA. The median age of was 70 years (30–91) and 17 were male (51%). The median presenting NIHSS and ASPECTS score was 21 (1–34) and 8 (5–10), respectively. Delivery of the large bore 0.088 catheter to the site of the occlusion was achieved in all cases. The successful recanalization rate (mTICI≥2B) was 100%, with single pass efficacy in most of the cases (82%). Final mTICI was 3 in 73.5%, 2C in 20.6%, and 2B in 5.9%. There were no adverse events or post-procedural symptomatic hemorrhages.

Conclusions Our initial experience with SLBA resulted in 100% mTICI≥2B with 82% first pass success. Navigation of the large-bore catheter extender over the Tenzing insert was successful and safe in this early experience.

REFERENCES

Do you have any conflict of interest to declare?: No

DOUBLE STENT-RETRIEVER AS FIRST-LINE APPROACH IN MECHANICAL THROMBECTOMY – A RANDOMIZED IN VITRO EVALUATION

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10.1136/neurintsurg-2022-ESMINT.82

Introduction Repeated number of passes during mechanical thrombectomy (MT) leads to worse clinical outcomes in acute ischemic stroke. Previous studies suggested simultaneous double stent-retriever (SR) as a rescue technique when single-SR fails. We aim to investigate the potential benefits of the primary double-SR technique.

Aim of the Study To compare the rate of first-pass recanalization (%FPE) with double-SR vs single-SR technique.

Methods Three types of clot analogs (soft and elastic, stiff, and fragment-prone) were used to create terminal internal carotid artery (T-ICA, N=44) and middle cerebral artery (MCA, N=58) occlusions in the left (2 co-dominant M2 branches, N=56 experiments) and right sides (1 dominant M2 branch, N=46) of an in vitro neurovascular model. After embolization, MT technique was randomly (1:1) assigned: single-SR or double-SR, in combination with a 0.071” distal aspiration catheter.
Results FPE was achieved in 43.1% of MT procedures (44/102). Overall, double-SR achieved a non-significantly higher %FPE than single-SR (49% vs. 37.2%, p=0.230). The difference between techniques was not clearly evidenced on the right side of the anatomy (39.1% vs 47.8%; p=0.552). However, double-SR significantly outperformed single-SR on the left side (57.1% vs 28.6%, p=0.031), where 25% of MCA occlusions (10/40) extended into both M2 divisions, and the presence of the saddle thrombus lead to procedural failure of single-SR.

Conclusions Under certain anatomical conditions, the double-SR technique combined with distal aspiration may induce a higher%FPE than single-SR. The perfs of using double-SR as the primary approach are highlighted when treating saddle occlusions.

REFERENCES

Do you have any conflict of interest to declare?: No

P62 CONTINUING EARLY MTICI 2B REPERFUSION DURING MECHANICAL THROMBECTOMY IS NOT BENEFICIAL FOR ALL PATIENTS


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Introduction Successful reperfusion (mTICI2c/3) and a low number of passes are key determinants for good clinical outcome in acute stroke patients since the number of retrieval attempts correlate negatively with functional outcome. Final mTICI2c/3 is superior to final mTICI2b(3), but it remains unclear if this is true for the subgroup of patients with early (≤2 retrieval attempts) mTICI2b reperfusion who are secondarily improved to mTICI2c/3.

Aim of this Study The goal of this study was to analyse if patients benefit clinically when early mTICI2b was continued.

Methods 362 consecutive patients with acute stroke due to M1-occlusion who received MT were retrospectively analysed. mTICI score was assessed after each retrieval attempt and patients with early mTICI2b were dichotomized in “mTICI2b-stopped” (MT was stopped after early mTICI2b) and “mTICI2b-continued” (MT was continued after early mTICI2b). Groups were compared with primary endpoint being modified ranking scale after 90 days (mRS90).

Results 100/362 patients with a M1-occlusion fulfilled the inclusion criteria. 78 were included in “mTICI2b-stopped” and 22 in “mTICI2b-continued”. 50% of the patients in “mTICI2b-continued” were secondarily improved to mTICI2c/3. No significant difference was found between the two groups regarding good clinical outcome at mRS90 (OR 0.75, 95%CI 0.19–2.87, p=0.67). Symptomatic intracranial hemorrhage was significantly higher in “mTICI2b-continued” compared to “mTICI2b-stopped” (31.8% vs. 10.3%, p=0.031).

Conclusion Continuing MT after early mTICI2b might improve functional outcome of the patients who are successfully converted to mTICI2c/3 but an increase in complications due to further retrieval attempts may diminish the potential functional benefit.

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Do you have any conflict of interest to declare?: Yes

Conflict of Interest Statement Dr. Thomalla reports personal fees from Acandis, grants and personal fees from Bayer, personal fees from Bristol Myers Squibb/Pfizer, personal fees from Boehringer Ingelheim, personal fees from Daiichi Sankyo, personal fees from Portola, and personal fees from Stryker outside the submitted work. Dr. Fiehler reports grants and personal fees from Acandis, grants and personal fees from Cerenovus, grants and personal fees from Medtronic, grants and personal fees from Microvention, personal fees from Penumbra, and personal fees from Phenox outside the submitted work; and chief executive officer of Eppdata. Dr. Flottmann reports personal fees from Eppdata GmbH outside the submitted work. The authors report no conflicts.

P63 CAROTID STENTING VERSUS CAROTID ENDARTERECTOMY FOR SYMPTOMATIC CAROTID WEB: A SYSTEMATIC REVIEW AND META-ANALYSIS


Introduction Carotid webs are increasingly recognised as a cause of recurrent stroke even in patients receiving anticoagulant or antiplatelet therapy. Carotid stenting (CAS) and endarterectomy (CEA) have both been used to treat the disease but the optimal therapy has not yet been established.

Aims of study To compare outcomes of CAS and CEA to treat carotid web in the published literature using systematic and meta-analytic techniques.

Methods The review was prepared in accordance with PRISMA guidelines. A systematic search was performed in the PubMed, EMBASE, and the Cochrane CENTRAL Library for all published studies on the treatment of symptomatic carotid web up to January 1 2022. Studies reporting procedural technical details and outcomes including disease recurrence, perioperative complications, and mortality were included.

Results 33 published items were identified including 133 patients. There were no prospective randomised controlled trials and all studies were retrospective case series. 68% of patients underwent CAS and 32% CEA. The mean age of CAS patients was 41 years and CEA patients 53 years. Technical success of the procedure was 100% in both groups and there were no recurrent stroke or TIA in follow up period. There were no deaths reported at 30-days or at long term follow-up.