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

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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 diverting (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.

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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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 assigned: single-SR or double-SR, in combination with a 0.071” distal aspiration catheter.

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

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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.