P-005 THE RISING RATE OF NEUROTHROMBECTOMY PROCEDURES

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Introduction A prospective study in 2017 at 10 high-volume stroke centers demonstrated an incidence of neurothrombectomy (NT) procedures approximating once every 3 days with a mean daily stroke burden of 85 minutes. With the expansion of the interventional time window for large vessel occlusion following DAWN and DEFUSE 3, the rate of NT consults and procedures are on the rise.

Methods Neurointerventional physicians at 10 participating stroke centers prospectively recorded time requirements for all NT consultations over 30 consecutive 24-hour call periods, including both false positive consultations and NT procedures. Data was collected between May-October 2018, depending on the center.

Results Data was collected from a total of 300 days of call. A total of 294 NT consultations were reported (mean 0.98 per day), including 128 false positive consultations. A total of 166 procedures were performed across the 10 centers (mean 0.55 per day). Six of the 9 centers that also participated in the 2017 study had higher procedural rates per day in 2018 compared to 2017. Fifty-six percent of all consultations and 48% of procedures occurred during non-peak work hours, respectively. Additionally, the ratio of procedures performed to false consultations increased from 0.65 in 2017 to 1.3 in 2018. The average daily NT time requirement per 24 hour call was 124 minutes.

Conclusions NT procedural rates at the same centers have increased from 1 every 5 days in 2016, to 1 in 3 in 2017, to now 1 every 2 days in 2018. The average NT call burden has increased to over 2 hours per 24 hour call shift. This study demonstrates that NT procedural and consultation volumes have increased even further following publication of DAWN and DEFUSE.

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P-006 CAROTID ARTERY STENTING IN ACUTE STROKE USING A MICROPOROUS STENT DEVICE: A SINGLE CENTRE EXPERIENCE

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Introduction Carotid artery stenting (CAS) is an effective treatment for clinically significant carotid artery stenosis in selected patients. The increasing utilisation of endovascular management for acute ischaemic stroke has led to the use of CAS in the emergent setting for patients presenting with acute stroke and concomitant carotid artery stenosis. A variety of carotid artery stents are available and differ in material, shape and cell geometry. Microporous stents represent a new type of stent with significantly reduced cell size. We present a single-centre retrospective case series of emergent CAS (eCAS) procedures using a dual-layer micromesh nitinol stent in the acute stroke setting.

Materials and methods Ethics approval was granted by the institutional review board. Clinical data of all patients who underwent CAS using the Casper stent (Microvention, Tustin, CA, USA) at a tertiary level 24-hour mechanical thrombectomy (MT) service over a two-year period (June 2016-June 2018) were retrospectively obtained and reviewed. Data collected included patient demographics, presenting symptoms, pre- and postprocedural National Institute of Health Stroke Scale (NIHSS) score, imaging findings including severity of stenosis or presence of tandem occlusion, use of intravenous thrombolysis (IV tPA) and/or antiplatelet agents, thrombectomy device and stents used, modified thrombolysis in cerebral infarction (mTICI) score and follow-up modified Rankin scale (mRS) data. Any complications were identified and categorised. All eCAS procedures were performed using the Casper dual-layer micromesh nitinol stent system.

Results Twenty eCAS procedures were performed in nineteen patients during this period. Patients received between 1 and 2 Casper stents of varying sizes. The majority of patients had tandem lesions (12/20; 60%) and carotid lesions were most commonly located in the proximal ICA (n=15; 75%). Median NIHSS score on admission was 17 (IQR 9–22). IV tPA was administered prior to six eCAS procedures (30%). Stent deployment was technically successful in all patients and was performed concurrently with MT in fifteen cases (75%). Recanalization rate was 95%. No intraprocedural complications occurred. Symptomatic intracranial haemorrhage (sICH) occurred in two patients (10%) and both resulted in death. No other procedure-related deaths occurred. Stent thrombosis occurred in two patients. No other stent-related complications occurred. Non-neurological complications included coagulopathy (3/20; 15%), hypotension (2/20; 10%), acute kidney injury (1/20; 5%) and aspiration pneumonia (1/20; 5%).

Median NIHSS score at 24 hours postprocedure was 3 (IQR 1–12). Thirty-eight percent of patients had a good clinical outcome (modified Rankin scale between 0–2) at 3–6 month follow up.

Conclusion eCAS using the Casper stenting system is effective and technically feasible in patients presenting with acute stroke and concomitant carotid artery stenosis.

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P-007

FIRST PASS EFFECT ANALYSIS USING THE TREVO STENT-RETRIEVER ACUTE STROKE (TRACK) REGISTRY

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Background and objective The first pass effect (FPE) has become a novel measure for neurointerventionalists, achieving a complete recanalization with a single thrombectomy device pass, which has been shown to be associated with higher rates of good clinical outcomes. We describe and expand the FPE to one of a large US post-marketing registry (TRACK, Trevo Stent-Retriever Acute Stroke) to elucidate the effect of a single device pass and clinical outcome.

Methods TRACK was a core-laboratory adjudicated multicenter registry of 634 patients from 23 centers aimed to evaluate the use of the Trevo device in everyday clinical practice. The TRACK registry was utilized to identify an FPE subgroup (n=140). Baseline features including demographics and clinical data were compared with the non-FPE patients (n=469). Clinical outcome measures included modified Rankin Scale score (mRS) at 30 and 90 days, National Institutes of Health Stroke Scale (NIHSS) score, symptomatic intracranial hemorrhage (sICH), and mortality. FPE was defined as a single pass/use of

a device with TICI 2c/3 recanalization, and no use of rescue therapy.

Results 609 patients were included in the FPE (140/609, 23%) vs non-FPE (469/609, 77%) subgroup analysis from the TRACK registry. There was no association between patient demographics and FPE group, including age (p=0.36), sex (p=0.50), race (p=0.49), location of occlusion (p=0.26), baseline NIHSS (p=0.61) past medical history including hypertension (p=0.57), atrial fibrillation (p=0.55), diabetes mellitus (p=0.74), hyperlipidemia (p=0.28), coronary artery disease (p=0.27), or history of smoking (p=0.12). The non-FPE group was associated with higher use of intraarterial tPA (FPE: 11% vs non-FPE: 23%). The onset to puncture time in minutes was not significantly different between groups (p=0.31); however, the total procedural time, total fluoroscopic time, and puncture to reperfusion time had significantly shorter mean time in FPE group (p<0.0001 for all variables). Clinical outcomes based on mRS at 30 and 90 days were significantly in favor of the FPE group, p=0.0069 and p<0.0001, respectively. Good clinical outcome (mRS 0–2 at 90 days) was achieved in 63% of FPE group (77/122) compared to non-FPE at 44% (177/398), p=0.0004; furthermore, NIHSS at discharge was significantly lower in FPE group (9.1 ± 11.2) compared to non-FPE (12 ± 11), p=0.0004. Distal emboli in the same territory (EDT) was lower in the FPE group (1/104, 1%) compared to non-FPE (110/371, 30%), p<0.0001; however, no association in embolization into new territory (ENT), sICH, or death (0.99, 0.85, 0.79, respectively).

Conclusion The achievement of complete revascularization from a single Trevo Stent-Retriever device pass is associated with higher rates of good clinical outcomes. Additionally, FPE in our subgroup registry analysis was associated with shorter procedural times, lower NIHSS at discharge, and significantly lower rates of EDT. Our analysis was not able to identify any patient demographics that would be associated to achieve first pass effect. Further research is warranted to confirm findings and identify additional factors achieving good clinical outcome after thrombectomy.

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