89-Patient Single-Center Experience

PAPER: The NeVa stent-retriever – a single-centre, real-world experience

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BACKGROUND:

Stent-retriever-based mechanical thrombectomy (MT) is an effective treatment for acute ischemic stroke (AIS) caused by large vessel occlusion (LVO). First-pass effect (FPE) is one most powerful predictors of positive outcomes in LVO AIS patients treated with MT.

METHODS:

We performed an independent central reader review of our prospectively maintained database to identify all patients treated first with the NeVa stent retriever at our single high-volume Comprehensive Stroke Centre between January 2021 and December 2024.

The inclusion criteria included:

- Age ≥18
- National Institutes of Health Stroke Scale (NIHSS) score >5
- ASPECT score ≥5
- LVO on CT angiography
- Pre-morbid mRS 0-2
- Life expectancy of >6 months
- The NeVa device was the first stent-retriever device attempted for the treatment of the identified intracranial occlusion

RESULTS:

Patient Characteristics

- Overall, 89 patients met our inclusion criteria.
- The median age was 73 yrs (range 28-88; 52% male).
- The median presentation NIHSS was 16 (range 5-30)
- 49% received IV tPA prior to MT.
- 93% of target occlusions were in the anterior circulation (n = 83)
- The median ASPECT score on plain CT was 8 (range 5-10)

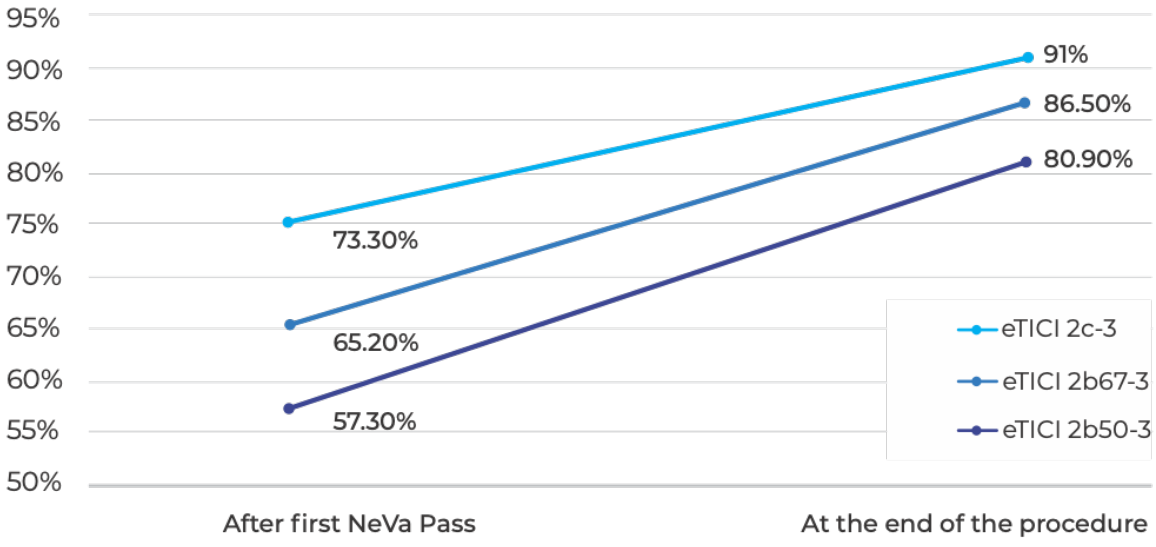
Procedural Characteristics

- A Balloon Guide Catheter (BGC) was used in 80% of cases and a distal aspiration catheter was used in all cases.
- Longer NeVa models (≥29 mm) were used in 89% of cases.
- The median number of passes when only NeVa was used was 1 (range 1–6) with the mean number of passes at 1.4
- Procedural Results

Procedural Results

- First-pass and final recanalization outcomes are per the below table:

	eTICI 2c-3	eTICI 2b67-3	eTICI 2b50–3
First-Pass	51 (57.3%)	58 (65.2%)	67 (75.3%)
At the end of the Procedure	72 (80.9%)	77 (86.5%)	81 (91.0%)



- Good functional outcome (mRS ≤2) was achieved in 40% of patients (n = 81).
- There were no device-related or intra-procedural serious adverse events.

DISCUSSION:

- The first-pass recanalization performance of the NeVa device in the context of this series exceeds the reported performance of other strent-retreivers in the literature.

	eTICI 2c-3
NeVa	57.3%
Solitaire	32%
Trevo	27.8% to 40.8%.

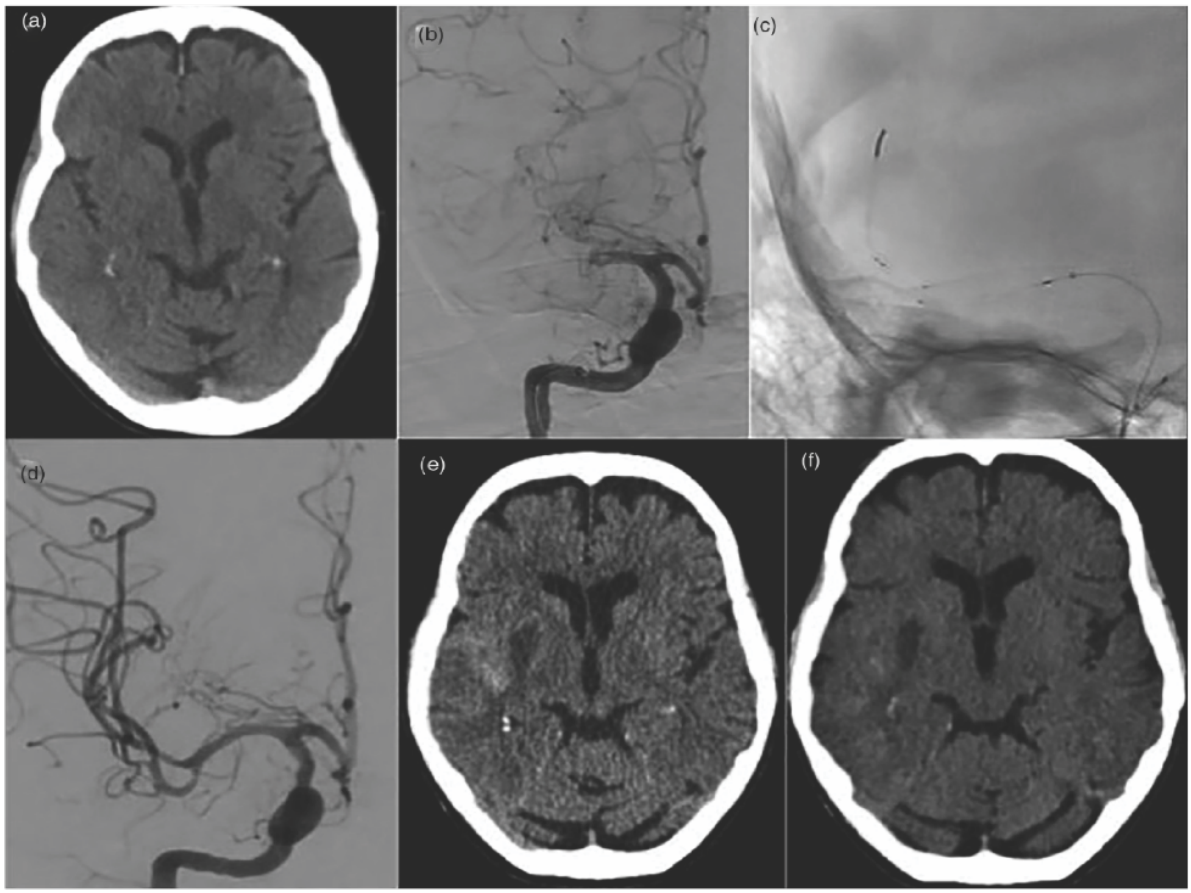
- Our first-pass TICI 2c-3 results in an unselected population are improved but comparable to the largest series to date:

	eTICI 2c-3
Bhogal et al. (n=89)	57.3%
Bajrami et al (n=145)	53.8%
Akpinar et al (n=118)	44.9%
Ribo et al. (n=30)	47%
Borggrefe et al (n=29)	48.3%
Average of 5 publications	**48.5%**
NeVa CLEAR study	**48.6%**

- We believe that the combination of these factors may have led to a significantly higher FPE and mFPE in our cohort compared to previous studies:
    - High rate of BGC use (79.8% of cases)
    - Clot related factors (79.8% were hyperdense clots, ≈19 mm average clot length
    - Dwell time (5 min)
- Our functional independence at follow-up in the present study were lower in comparison to the NeVa CLEAR study. This could reflect the nature of this series as well as being caused by other non-device/ procedure-related factors such as poor access to rehabilitation.

    a. A patient in their 70s presented with an NIHSS score of 6 and ASPECT score 9 After CTA confirmed an occlusion, the patient was transferred for mechanical thrombectomy

b. Initial angiography confirmed occlusion of the right mid-M1
c. A NeVa 4.0 × 30 mm was deployed for 5 minutes per our standard practice.
d. Angiography demonstrated eTICI 3 recanalization after the first pull
e. The 24-hour CT scan showed infarction within the basal ganglia (ASPECT score 8) with high density seen in the Sylvian fissure
f. with minimal sub-arachnoid haemorrhage seen on the virtual non-contrast spectral reconstruction



CONCLUSION:

The NeVa stent-retriever has a very high rate of FPE and final recanalization in this real-world cohort of patients from the NeVa One registry. These results are higher than those previously published and may support longer NeVa device use with a BGC and proximal aspiration to optimize FPE.

LINK TO THE ARTICLE:

https://pubmed.ncbi.nlm.nih.gov/40398472/