Paper: Mechanical thrombectomy with a novel stent retriever with multifunctional zones: Initial clinical experience with the NeVa™ thrombectomy device

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Background and purpose

The NeVa™ (Vesalio, Nashville, Tennessee) thrombectomy device is a CE-approved novel hybrid-cell stent retriever with offset enlarged openings coupled with functional zones and a closed distal end. The device was designed to incorporate and trap resistant emboli. The purpose was to determine the safety and efficacy of the NeVa™ stent.

Methods

Prospective data was collected on the first thirty consecutive patients treated at four stroke centers with NeVa™ as first line treatment between December 2017 and May 2018. Clinical outcome measures included re-perfusion scores after each pass, complications (per-procedural complications,device related adverse events, all intracerebral hemorrhage (ICH) and symptomatic ICH (sICH) on followup imaging), 24 hour NIHSS, mRS at discharge and 90 days. Baseline data as well as treatment parameters were documented.

Results

Mean presenting NIHSS was 16. Sites of primary occlusion were 10 ICA, 16 M1-MCA, 3 M2-MCA and one basilar. There were five tandem occlusions. Reperfusion outcomes after each NeVa pass; TICI ≥ 2b after first pass 63%, after 1 or 2 passes 83%, after 1 to 3 passes 90%. TICI 2c-3 after first pass 47%, after 1-2 passes 57%, after 1–3 passes 60%. TICI ≥ 2b after final pass 93%; TICI 2c-3, 63%. There were no device related serious averse events and no sICH. Clot material was partially or completely incorporated into the device after 70% passes. The mean 24 hour NIHSS was 7 and the 90 day mRS was 0–2 in 53%.

Conclusion

The NeVa™ device demonstrated a high rate of first pass complete reperfusion effect, a good safety profile and favorable 90 day clinical outcomes in this initial clinical experience.