Micromesh technology in carotid artery treatment – what is next?

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Disclosure

Speaker name: Max Amor, MD.

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I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Endovascular Carotid artery treatment requires Prevention of embolisation

**Peri-procedural/ Temporary** embolic protection
Several protecting devices to block distal embolisation of detached debris (Access, Post-stenting dilatation...)

**Post-procedural/ Sustained** embolic protection
Roadsaver – dual layer micromesh Carotid stent

- Braided Nitinol carotid stent with a built-in Nitinol micromesh for sustained embolic protection
First clinical cases
33 Patients with high risk carotid artery lesions treated with Roadsaver dual layer stent

Midterm results
Single center experience

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Details of procedure

- DAPT before: All
- 24 Men, 9 Women. From 49 y to 88 y (Mean 72±10y)
- 8 Symptomatic, 25 Asymptomatic
- Sedation: Midazolam: All
- Femoral Approach: All
- Protection: 32: Filters 28, MOMA 4
- Atropine before inflation: All
- Direct Stenting: 8
- Post-Dilatation: All
Complications after 48 h before discharge and 30th day

- No significant local complications requiring surgery
- No clinical neurological events
- No new silent defects or anomalies at the 24h CT scan
## Roadsaver Carotid Stent. Mid-term Results (33 Pts)

(23 to 6 months, 16.7±6.6 months)

<table>
<thead>
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<th>Events</th>
<th>30th days</th>
<th>6 months</th>
<th>1 year</th>
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<td><strong>Clinical</strong></td>
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<td>Fracture</td>
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</table>
Long LICA Lesion

Central Dual Layer segment
Harmonious deployment

OCT IMAGES OF ROADS AVER
Nitinol Micromesh Technology for temporary Embolic Protection

Novel, Concentric, Nitinol Micromesh Embolic Protection Device
Nanoparasol Filter (Terumo)

**Design and technical specifications**
- Concentric filter design
- Wire independent
- Construction: Braided Hybrid Micromesh
- Material: all Nitinol with Tantalum markers
- Average Pore Size < 170µ
- Large size for 4.5 – 6.5 mm vessels
- Small size for 3.0 – 4.5 mm vessels
- Delivery System: 3.5Fr. RX
- Retrieval Catheter: 4.5Fr. RX
Nanoparasol: Current Status

- CE Mark
- Early clinical testing ongoing in EU
- Ongoing study in the US (N=300) (Roadsaver + Nanoparasol) (FDA requirement)
• P.D 76 y.o male
• Risk factors: HBP, dyslipidemia, Diabetes mellitus
• Medical History: ischemic heart disease
• Severe stenosis of the Right internal carotid artery by Ultrasound assessment
Angiographic assessment
Procedure

Wiring the Right Internal Carotid Artery with 0.014 guidewire of choice
Procedure
Advancement of Nanoparasol, monorail
Procedure
Nanoparasol – 0.014 wire retrieving, Nanoparasol wire in place
Procedure
Nanoparasol deployment, peel away
Procedure
Nanoparasol - position in RICA
Predilatation ULTRASOFT 4.5X20mm
Procedure

Roadsaver – deployment, ideally 2.5 cm between proximal end of the nanoparasol and distal end of the stent
Procedure
Filter and stent position
Procedure
Nanoparasol - retrieving
Final result
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Conclusion

- Nitinol Micromesh Technology provides unmatched flexibility for versatile embolic protection purposes
- The use of a dual layer micromesh in carotid stents demonstrated promising safety and efficiency results
- The pre-clinical and early clinical testing of the novel concentric Nitinol micromesh filter appears to be an interesting development, which requires further clinical evaluation
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