Carotid-related strokes with intracranial embolism – endovascular treatment with simultaneous or staged CAS (or CEA)

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Disclosure

Speaker name:
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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
• Evidence from large prospective randomized trial for endovascular therapy of ischemic stroke
• Stent-Retriever assisted thrombectomy is emerging as the standard of care for stroke patients with ‘brain at risk’
• Problem: How to deal with ‘tandem’ lesions of the ICA?
Case

- 77 year-old pt, onset of symptoms 4h, NIHSS 14
Case

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Case

• ICA: PTA 4mm Monorail device -> 4/20 Preset Stent Retriever
Case

- Stent Angioplasty ICA (Wallstent) -> ASS100mg, Clopidogrel 75mg
Case 2

- CT 24h post
- ...and CT 36h post
Options

- PTA (Balloon) – Thrombectomy – Carotid: Leave it
- PTA (Balloon) – Thrombectomy – Carotid: Stent it
- PTA (Balloon) – Thrombectomy – Carotid: Staged CEA (or staged CAS)
- PTA (Balloon) – Carotid: Stent it - Thrombectomy
Leaving vulnerable plaque -> increase the risk for Re-Stroke
Definite treatment of stroke and potential origin in 'one-stop-shop'

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<th>Pro</th>
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<td>• Leaving vulnerable plaque -&gt; increase the risk for Re-Stroke</td>
<td>• Stenting may cause immediate thrombembolism</td>
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<td>• Definite treatment of stroke and potential origin in 'one-stop-shop’</td>
<td>• Stent Thrombosis</td>
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<td>• Need for double anti-platelet regimen</td>
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<td>• Risk for hemorrhage</td>
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Show me the data!
Evidence

- Tandem lesions frequently excluded
  - SWIFT-Prime, THRACE
- Tandem lesions included
  - MR Clean 75/233 Tandem lesions (32.2%)
  - Escape 54/318 Tandem lesions (17.0%)
  - Revascat 19/102 Tandem lesions (18.6%)

Subgroup analysis from the ESCPAE trial

- **Outcome of stroke treatment:**
  - Similar between pt with and without tandem lesion
  - No symptomatic intracerebral hemorrhage in pt with emergency ICA revascularization
  - Use of antithrombotic agents ‘variable’

Figure 1  Workflow of subjects (n=30) in the intervention group.

Assis et al 2017 J NeuroIntervent Surg
Subgroup analysis from the MR Clean trial

Extracranial Carotid Disease and Effect of Intra-arterial Treatment in Patients With Proximal Anterior Circulation Stroke in MR CLEAN

Olvert A. Berkhemer, MD, PhD; Jordi Borst, MD, PhD; Manon Kappelhof, MSc; Albert J. Yoo, MD, PhD; Lucie A. van den Berg, MD; Puck S.S. Franzen, MD; Debbie Beumer, MD; Wouter J. Schoneveld, MD, PhD; Paul J. Nederkoorn, MD, PhD; Marieke J.H. Werman, MD, PhD; Henk A. Marquering, PhD; Hester F. Lingma, PhD; Yvo B.W.E.M. Roos, MD, PhD; Robert J. van Oostenbrugge, MD, PhD; Diederik W.J. Dippel, MD, PhD; Wim H. van Zwan, MD, PhD; Charles B.L.M. Majoie, MD, PhD; Bart J. Emmer, MD, PhD; and Aad van der Lugt, MD, PhD; on behalf of the MR CLEAN Investigators†

Background: The presence of extracranial carotid disease (ECD) is associated with less favorable clinical outcomes in patients with acute ischemic stroke caused by intracranial proximal occlusion. Acute intra-arterial treatment (IAT) in the setting of extracranial and intracranial lesions is considered challenging, and whether it yields improved outcomes remains uncertain.

Objective: To examine whether the presence of ECD modified the effect of IAT for intracranial proximal anterior circulation occlusion.

Annals of Internal Medicine

Original Research

Limitation: The study was not powered for subgroup analysis.

Berkhemer et al Ann Int Med 2017
Thrombectomy assisted by carotid stenting in acute ischemic stroke management: benefits and harms

Henrik Steglich-Arnholm\textsuperscript{1} · Markus Holtmannspötter\textsuperscript{2} · Daniel Kondziella\textsuperscript{1} · Aase Wagner\textsuperscript{2} · Trine Stavngaard\textsuperscript{2} · Mats E. Cronqvist\textsuperscript{2} · Klaus Hansen\textsuperscript{1} · Joan Højgaard\textsuperscript{1} · Sarah Taudorf\textsuperscript{4} · Derk Wolfgang Krieger\textsuperscript{1,3}

- 47 pt with thrombectomy and CAS
- Time of CAS left to discretion of the interventionalist
- Dual anti-platelet therapy for at least 3 months
- 2/47 pt (4%) symptomatic hemorrhage
- 8/47 pt (17%) stent thrombosis
- 4/47 pt (9%) died
Mechanical thrombectomy in tandem occlusion: procedural considerations and clinical results

H. Lockau · T. Liebig · T. Henning · V. Neuschmelting ·
H. Stetefeld · C. Kabbasch · F. Dorn

- 37 pt with thrombectomy and CAS
- ICA stenting prior to thrombectomy in 12/37 pt (32.4%)
- ICA stenting after thrombectomy in 25/37 pt (67.7%)
- Thrombectomy first: 'tendency’ for favorable outcome (not significant)
Meta analysis

Stent-Retriever Thrombectomy for Acute Anterior Ischemic Stroke with Tandem Occlusion: A Systematic Review and Meta-Analysis

Rotem Sivan-Hoffmann1,2,3, Benjamin Gory1,2, Xavier Armoiry4,9, Mayank Goyal5, Roberto Riva1, Paul Emile Labeyrie1, Anne-Claire Lukaszewicz6,7, Jean-Jacques Lehot6,7, Laurent Derex8, Francis Turjman1,2

- 11 studies, 237 pt
- 193/237 pt treated with acute stent placement for ICA occlusion
- Mean NIHSS 17, mean time to recanalization 283.5 min
- Overall recanalization rate 81%
- 7% symptomatic ICH, no impact on mortality
Summary

• Large prospective studies fail to provide a definite answer
• Single center observation:
  • Emergency CAS not associated with increased risk of hemorrhage
  • No comparative trials immediate vs staged CAS/CEA

**Conclusion:** Intra-arterial treatment may be at least as effective in patients with ECD as in those without ECD, and it should not be withheld in these complex patients with acute ischemic stroke.