Carotid Occlusive Disease - Are we ready for the next breakthrough

STATE OF THE ART: PROMISING NEXT STEPS

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Nothing to disclose in regard to this presentation
Different Pathologies

- Atherosclerosis
  >90% of the pts.
- Dissection
- Trauma
- Inflammation
What we want to achieve...

**Prevention of stroke:**
- asymptomatic ICA stenosis
- TIA

**Treatment:**
- asymptomatic ICA stenosis
- TIA
  - BMT stenosis <80%
  - CAS stenosis >80%
  - CEA stenosis > 80%
What we want to achieve ...

Treatment of stroke:
- acute phase
  - thrombectomy
  - thrombolysis
- delayed phase
  - CEA or CAS
- major stroke
  - conservative tx
Acute Stroke - Thrombectomy ICA

B.G. f-66  Aphasic and hemiplegic for 4 hrs
P.N. m-71  TIA - Aphasic for 10min - 300 mg aspirin and 600 mg clopidogrel - CAS 7 hrs after symptom onset
TIA - CAS immediately after Loading

AK m-74 yrs
6 years after CEA right carotid
minor stroke left hemisphere
2x TIA right hemisphere
pulsating ear noise
left ICA occluded
right ECA occluded
right ICA several stenoses
Technique
When filter, when proximal balloon protection?

No high level evidence, but data from TCD and DW-MRI
CAS - Always with Cerebral Protection

TCD-HITS 100%
DW-MRI 29%
TIAs 8%
Stroke 3%

*own results: AJNR, 2001; 22-:1251-1259
CAS - Always with Cerebral Protection

**Filter**, when
- asymptomatic patient
- little plaque burden
- no ICA kinks
- no additional distal disease
Filter Protection

- a selection of filters
- they are different
- be familiar with their behaviour
Disadvantages of Filter Protection

- crossing the lesion unprotected
- pore size >100 µ
- not always complete apposition
- retrieval may be difficult

... but flow preserved during the intervention
Proximal Balloon Protection

Flow Reversal NPS Gore

MO.MA
Proximal Balloon Protection
A „surgical“ flow reversal system: MICHITM

Transcervical Arterial Sheath (8F)

Large Bore Arteriovenous Shunt Circuit

Venous Return Sheath (8F)

Flow Controller

ROADSTER trial with the Silk Road Procedure; 2013
Hybrid Stent should prevent

- plaque prolaps
- late embolic events

Prof. Dr. Klaus Mathias, TCT 2013
Hybrid Stents

- 3 products
- trials still running

CGuard
Gore
Terumo
CGuard™ Carotid Embolic Protection with MicroNet™ by InspireMD

mesh size 150-190 μ
Open question:
Does more scaffolding stimulate intimal proliferation and influence the long term results?
Clinical Outcome
New Trials?

No major PRT running in symptomatic patients

SPACE-2 stopped due to slow enrollement - MAE <2%

CREST-2 planned

SEPTEMBER 2013

CREST-2: Guiding Treatments for Asymptomatic Carotid Disease
Examining stenting and endarterectomy in the context of intensive medical management.

By Brajesh K. Lal, MD; James F. Meschia, MD; and Thomas G. Brott, MD
## New Trials?

<table>
<thead>
<tr>
<th>Trial name</th>
<th>Groups</th>
<th>Reference</th>
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<tbody>
<tr>
<td>SPACE-2</td>
<td>asymptomatic stenosis A: CEA+best medical vs. best medical B: CAS+ best medical vs. best medical</td>
<td>Reiff et al., 2014</td>
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<tr>
<td>ACST-2</td>
<td>asymptomatic stenosis CAS vs. CEA</td>
<td>Halliday et al., 2013</td>
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<tr>
<td>ACTI</td>
<td>asymptomatic stenosis CAS vs. CEA 3:1</td>
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CAS Operator Experience in Medicare Beneficiaries

N = 24,701

B.K. Nallamothu et al. JAMA 2011;28:1338-1343
What do the guidelines tell us?

- Clear evidence for symptomatic stenoses ≥70%: CEA
- CAS alternative to CEA in patients with high surgical risk
- CAS alternative to CEA in centers with high volume and complication rate <6%
- Strict selection in asymptomatic patients: stenosis ≥ 60%, complication rate of both methods ≤3%
- Symptomatic stenosis ≥70%: CEA
- CAS equal alternative for CEA
- Complication rate ≤ 6% for both methods
- In elderly patients (>75 years) CEA preferred to CAS
- Unfavorable neck anatomy: CAS preferred to CEA
- Strict selection in asymptomatic patients
Better with Stent!