Guidelines For Management of Carotid Stenosis are Outdated, Inconsistent & Flawed: Time For An Overhaul & Update

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All Available Evidence
1. Asymptomatic CS: Medical Rx alone
   - Stroke risk has fallen >80% with medical treatment alone to 0.5%/year - routine carotid procedures no longer tenable.
   - CAS is more dangerous than CEA.
   - Cannot identify high-risk patients who benefit
2. Symptomatic CS: Less evidence available
   - Have not recently measured outcomes with medical Rx alone.
   - Limited subgroups benefited from CEA in RTs.
   - 6% 30-day rate of stroke / death is now too high as a standard.
   - CAS causes about 2x strokes/deaths c/w CEA.
   - Procedures often more harmful in routine practice.
   - No measurements of outcomes for 'high-CEA' patients

What do Guidelines Say?
A Systematic Review
Abbott et al, Stroke, Nov 2015

1. ISI & Pubmed searches, citations, professional networks
2. Recommendations re CEA &/or CAS Jan 08 - Jan 15
3. Only the latest recommendations/ writing group
4. Each reviewed independently by >2 authors

Results
Stroke: Nov, 2015

- 34 Guidelines
- 20 regions/countries
- 6 Languages (English, German, Chinese, Korean, Dutch, Spanish)

Recommendations: Asymptomatic Stenosis

<table>
<thead>
<tr>
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<th>Average- CEA risk</th>
<th>High-CEA risk: Anatomy/ Comorbidities/Undefined</th>
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<tbody>
<tr>
<td>CEA endorsed</td>
<td>96% (24/25)</td>
<td>0</td>
</tr>
<tr>
<td>CAS endorsed</td>
<td>63% (13/27)</td>
<td>48% (13/27)</td>
</tr>
<tr>
<td>CAS no</td>
<td>30% (8/27)</td>
<td>4% (1/27)</td>
</tr>
<tr>
<td>MT alone endorsed</td>
<td>4% (1/28)</td>
<td>11% (3/28)</td>
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</tbody>
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28 guidelines with procedural recommendations for ACS; 25 on CEA & 27 on CAS
Recommendations: Symptomatic Stenosis

<table>
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<tr>
<th>Average-CEA risk</th>
<th>High-CEA Risk: Anatomy/Comorbidities/Undefined</th>
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<td>50-69%</td>
<td>50-99% Approx.</td>
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**CEA- endorsed** 100% (31/31) 100% (31/31) 0

**CAS- endorsed** 55% (18/33) 58% (18/33) 82% (27/33)

**CAS- no** 24% (8/33) 27% (9/33) 0

**MT alone-endorsed** 0 0 6% (2/33)

33 guidelines with procedural recommendations for ACS; 31 on CEA & 33 on CAS

### Notable Confusion- Qualifying Terminology

<table>
<thead>
<tr>
<th>GLs</th>
<th>Terms Used</th>
<th>Symbols</th>
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### Numerous Omissions

- ACS not defined 92% (26/28)
- SCS not defined 88% (29/33)
- Av/Hi 'CEA-risk' not defined 97% (33/34)
- ACS 30-day procedural standard not given 100% (28/28)
- SCS 30-day procedural standard not given 96% (32/33)
- All general MT missing 32% (ACS) & 9% (SCS)
- All peri-procedural MT missing 50% (ACS) & 52% (SCS)
- No search engine access 44%

### Conclusions

**Contemporary International Guidelines**

- CEA & CAS endorsements based only on 12-34 yr old data.
- Did not limit endorsements to pts who benefited in RTs
- Over-rely on randomisation to rank evidence as best.
- Understate the value of current medical treatment.
- Biased to over-use of proven dangerous & costly procedures, especially CAS.
- Poorly organised, inconsistent, difficult to access.
- Clearly time for an overhaul & update!!!

**A Systematic Review of Guidelines for the Management of ACS & SCS**

*Stroke. Published online Oct 8th, 2015*

Aune L. Abbott (Australia), Kosmas I. Paraskevas (UK), Stavros K. Kakko (Greece), Jonathan Golledge (Australia), Henning Eckstein (Germany), Larry J. Diaz (US), Longxing Cao (China), Qiang Fu (China), Tissa Wijeratne (Australia), Thomas W. Leung (China), Miguel Montero-Baker (USA), Byung-Chul Lee (Korea), Sabine Pircher (Australia), Martje Bosch (Australia), Martine Dennekamp (Australia) & Peter Ringleb (Germany).

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