What Are the Hard Data Regarding the Impact of Medical Therapy on Stroke Prevention in Established Severe Carotid Stenosis?

K. Mathias, MD, PhD
Clinical and Interventional Angiology
AK St. Georg Hamburg
Germany
Disclosure

I have nothing to disclose in regard to this presentation and have no financial interest.

Fresenius Medical Care
Shareholder

W.L. Gore, Inc.
Supervisor “Scaffold Trial”
Honorarium
First Remarks

I will only talk about asymptomatic carotid stenosis.

Invasive treatment (CAS, CEA) of symptomatic carotid stenosis (>60%) is a “must”.
Asymptomatic carotid stenosis is a clinical definition without regard to the type of plaque, silent infarctions or hemodynamic problems, e.g. isolated MCA.
First Remarks

Medical treatment is necessary in all patients with significant carotid stenosis (>60%).

But is BMT sufficient to prevent strokes in asymptomatic patients?
Which role plays the carotid artery?

- Carotid artery stenosis: 15%
- Cardioembolic stroke: 30%
- Cryptogenic stroke: 35%
- Cerebral artery disease: 20%

Asymptomatic carotid artery stenosis is a significant health concern, as out of the 135,701 carotid revascularizations performed in the U.S. in 2005, 122,986 (92%) were for asymptomatic carotid artery stenosis.

What do the trials tell

Revascularization of asymptomatic carotid stenosis >60%

ACAS 1995
ACST 2004
CREST 2010
## Asymptomatic Carotid Stenosis >60%

### CEA & CAS Outcomes

<table>
<thead>
<tr>
<th>Study</th>
<th>Patients</th>
<th>FU</th>
<th>M&amp;M</th>
<th>M&amp;M/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACAS 1995</td>
<td>1662</td>
<td>2.7</td>
<td>4.0%</td>
<td>1.48%</td>
</tr>
<tr>
<td>ACST 2004</td>
<td>3120</td>
<td>3.4</td>
<td>6.4%</td>
<td>1.88%</td>
</tr>
<tr>
<td>CREST 2010</td>
<td>1181</td>
<td>2.5</td>
<td>3.6%</td>
<td>1.44%</td>
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</tbody>
</table>
Choice of Treatment

- local referral patterns
- access to CEA
- access to CAS

Recent trends have raised questions about the applicability of prior randomized trials.
Two factors must be considered:

- Mortality is related to heart disease
- Degree of stenosis did not predict benefit of CEA (ACST)

A recent meta-regression analysis of 30 studies with asymptomatic ICA stenosis demonstrated:

<table>
<thead>
<tr>
<th>Stroke rate before 2000</th>
<th>2.83%</th>
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</thead>
<tbody>
<tr>
<td>Stroke rate after 2000</td>
<td>1.13%</td>
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</table>

The annual stroke rate may be below 1%.

But subgroups with increased risk are not separately considered.


A.L. Abbott et al.: Medical (nonsurgical) intervention alone is now best for prevention of stroke associated with asymptomatic severe carotid stenosis: results of a systematic review and analysis. Stroke 2009;40:e573-83

Best Medical Treatment

All asymptomatic ICA stenoses - same stroke risk?
Best Medical Treatment

calcification

hemorrhage

thick fibrous cap

liquid core

Oppenheim et al. Radiographics 2009
Carotid revascularization represents a controversial area in the management of asymptomatic ICA stenosis.

SPACE 2

CREST 2
PR CAS Trials are needed

Why SPACE 2 failed

- Psychological barrier for the patient
- Insufficient enrolment rate

... CEA and CAS of asymptomatic carotid stenosis are paid in Germany. When you have a large number of patients you may loose money by randomization.
PR CAS Trials are needed

CREST 2

- Similar protocol as SPACE 2, but CAS in asymptomatic patients is generally not reimbursed in the US.
- Results will be available in the far future.

What shall we do today?
My Personal Proceeding

- high degree stenosis (>80%)
- irregular plaque surface
- no severe co-morbidity
- life expectancy > 5 years
- no increased anatomical risk

In these cases I will perform CAS!

Many patients report improved memory and vividness during FU visits! Placebo effect? Improved brain perfusion?
Carotid revascularization has to prove again its superiority to BMT alone.

Trials should include plaque analysis, cerebral reserve capacity and cognitive tests to define a subgroup of patients with an increased stroke risk.