How good is current best medical therapy (BMT) for stroke prevention in patients with asymptomatic carotid stenosis?

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Disclosure for Dorothee Saur

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 conflicts of interest
Patient presentation
RP, femal, 75Y

- TIA with aphasia and weakness of the right arm over 30 min
- Risk factors: smoking, hypertension

DW-MRI

Duplex ultrasoundsonography

right (!) ICA

300/100 cm/s

-> **asymptomatic** ~ 70% (NASCET) ICA stenosis

-> **Therapy:** aspirin, simvastatin 40mg, antihypertensive medication, quit smoking

However, optimal therapy of asymptomatic ICA stenosis is **unclear.**
Efficacy of „conventional“ medical therapy (MT)
Evidence from randomized trials

5-Years rate of events ([TIA], stroke, death)

<table>
<thead>
<tr>
<th>Study</th>
<th>MT Rate (Years)</th>
<th>CEA Rate (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACS (1993)</td>
<td>20%</td>
<td>10%</td>
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<tr>
<td>n = 444</td>
<td></td>
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<tr>
<td>ACAS (1995)</td>
<td>11%</td>
<td>5,1%</td>
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<tr>
<td>n = 1662</td>
<td></td>
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<tr>
<td>ACST (2004)</td>
<td>11,8%</td>
<td>6,4%</td>
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<tr>
<td>n = 3120</td>
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</tbody>
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Σ CEA is superior to medical therapy alone

VACS=Veterans’ Affairs Cooperative Study; ACAS=Asymptomatic Carotid Atherosclerosis Study; ACST =Asymptomatic Carotid Surgery Trial
Management of contemporary BMT

• **Treatment of hypertension**
  - \( RR < 140 / 90 \text{ mm Hg} \) (Class I- LoE: A)
  - type of therapy less important than response (Class I- LoE: A)

• **Control of Hyperlipidemia**
  - statin therapy
    - \( \text{LDL cholesterol} < 100 \text{ mg/dl} \) (Class I, LoE: B)
    - diabetes: \( \text{LDL cholesterol} < 70 \text{ mg/dl} \) (Class IIa, LoE: B)
    - non-statin therapies* are not yet established in preventing stroke (Class IIb, LoE: C)

• **Management of Diabetes mellitus**
  - usefulness of diet, exercise and glucose-lowering drugs (Class IIa, LoE: A) with \( \text{HbA1c values} < 7.0\% \)

*ezetimibe, bile acid sequestrants, fibrates, niacin

ASA ect. Guideline, Brott, JACC, 2011
Management of contemporary BMT

- **Antithrombotic Therapy**
  - aspirin 75 – 325 mg /d is recommended (Class I, LoE: A) for prevention of MI / cardiovascular events; benefit for primary stroke prevention not established
  - if aspirin is contraindicated: clopidogrel 75 mg / d, ticlopidine 2 x 250 mg /d

- **Lifestyle changes**
  - smoking cessation (Class I, LoE: B)
  - physical activity at least 40 min/d at 3-4 d/week (Class I, LoE: B)
  - weight reduction for lowering blood pressure
  - mediterranean diet rich in fruits and vegetables

- **Duplex ultrasonography** yearly in patients with NASCET > 50%

ASA ect. Guideline, Brott, JACC, 2011
Efficacy of current BMT for stroke prevention
Evidence from prospective (cohort) studies

Johnson, 1985
Toronto, 1986
VACS, 1993
ACAS, 1995
ECST, 1995
ACBS, 1997
CHS, 1998
ACSRS, 2005
ASED, 2005
SMART, 2007

n = 3292

Annual (ipsilateral) stroke rate

1.5% for CEA in ACAS/ACST

Σ annual stroke rate associated with BMT has fallen („25-year fall“)

Abbott, Stroke, 2009
Efficacy of current BMT for stroke prevention
The OXVASC study (prospective, population-based)

\[ \sum \text{low risk mainly due to use of statins and RR-lowering medication} \]

Marquardt, Stroke, 2010
How good is current BMT for stroke prevention?
Evidence from prospective cohort studies

Annual risk rate for ipsilateral stroke

Σ decrease of annual risk of stroke from ~2.5-3% to ~1%

Marquardt, Stroke, 2010
Summary

- Current BMT of asymptomatic carotid stenosis consists of antiplatelet therapy, intensive risk factor treatment including statins and lifestyle modification.

- Current BMT has reduced rates of ipsilateral stroke to \(~ 1\%\) per year.

- Results from large randomized trials comparing CAS, CEA AND BMT are required to determine optimal treatment for asymptomatic carotid stenosis.

CREST-2 Trial
[Closed]
[start in 12/2014]
The best intervention is prevention and the best prevention is noninvasive.
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