How to pick the asymptomatic carotid stenosis at risk

FRANS MOLL
Disclosure

Speaker name: 

...FRANS MOLL..........................................................

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
How to pick A.C.S. patients for CEA/CAS

To answer this question

• Group together CEA and CAS, call it “Intervention”

• Confusion about Asympt. Patients versus Asympt. Stenoses
## How to pick A.C.S. patients for CEA/CAS

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment vs</th>
<th>Comparison</th>
<th>Ratio</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACST-2</td>
<td>ax</td>
<td>CAS vs CEA</td>
<td>1 : 1</td>
<td>n = 5000</td>
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<tr>
<td>ACT-1 (US)</td>
<td>ax</td>
<td>CAS vs CEA</td>
<td>2 : 1</td>
<td></td>
</tr>
<tr>
<td>SPACE-2</td>
<td>ax</td>
<td>BMT vs CEA/CAS</td>
<td>1 : ½/½</td>
<td></td>
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<tr>
<td>CREST-2</td>
<td>ax</td>
<td>BMT vs CEA</td>
<td>1:1</td>
<td>n = 2480</td>
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<tr>
<td>ECST-2</td>
<td>ax + sx</td>
<td>BMT vs CEA</td>
<td>1 : 1</td>
<td></td>
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</table>
How to pick A.C.S. patients for CEA/CAS

Today, the only thing we may conclude

• **In females**, an intervention almost zero beneficial
  (except extreme hypoperfusion/flow dynamics)

• **In males**, lots of statistical efforts to “prove” that an intervention is still justified and properly indicated

• **What happens when the “third arm” best medical treatment is included in new RCT’s?** (again, except extreme hypoperfusion)
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Identification of the carotid plaque at risk

• tailored (medical) treatment and intervention, not only in cancer but also in vascular diseased patients

• next steps
<table>
<thead>
<tr>
<th>Glucose</th>
<th>Invasive Plaque Detection</th>
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<tbody>
<tr>
<td>Imaging</td>
<td>BIO BANK</td>
</tr>
<tr>
<td></td>
<td>Quantification</td>
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</tbody>
</table>

- Non-invasive Imaging
- Invasive Qulidification
- CAROTID PLATE
- Quantification
<table>
<thead>
<tr>
<th>3-D Duplex scan</th>
<th>CAR O T I D P L A Q U E</th>
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<tbody>
<tr>
<td>Imaging</td>
<td>Validation</td>
</tr>
<tr>
<td>Endovascular “light” sources</td>
<td>BIO BANK</td>
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<tr>
<td>Invasive Plaque</td>
<td>Quantification</td>
</tr>
<tr>
<td>OCT and Infraredx</td>
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</tbody>
</table>
The Problem

Lipid Core Plaque

- 1.2 million heart attacks annually
- Complications during stenting
  - in 10%, stenting causes MI
  - in 20%, stenting patients must return
A combined IVUS-NIRS catheter system
The TVC Imaging System Insight™
Catheter Technology

Schulz et al. JACC 2009

- **NIRS**: LCP Detection
- **IVUS**: Structural Assessment
TVC System Composite

Simultaneous co-registered NIR and IVUS image

- Easy to use measurement tools for stent sizing and placement

- Manual scrub and video functions enable reviewing IVUS imagery in multiple modes for visualizing structures, blood flow and possible disease

- Simultaneous display of NIR and IVUS data on longitudinal view enables quick glance review of LCP involvement in relation to targeted region of treatment
High quality 7T MR images of the carotid artery demonstrate an inversely proportional relation between hyperintensity and the presence of calcification in atherosclerotic plaque.

<table>
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<th>Magnetic Resonance</th>
<th>Validation</th>
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CONCLUSION

• Still, asympt. males may benefit from an intervention, despite that too many will be “treated”. The sum is in favor of an intervention
• Asympt. females will only benefit from an intervention in (extreme) hypoperfusion
• Tailored (medical) treatment and intervention will be the standard in the NEAR future
I will treat the disease with the knife.....
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