WHAT LESION CHARACTERISTICS ARE HIGHER RISK FOR CAS THAN CEA: How Should they influence the Choice of Treatment in Symptomatic and Asymptomatic Patients

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DISCLOSURE

• Co-PI for surgery in CREST

PERIPROCEDURAL STROKE/DEATH IN CREST

<table>
<thead>
<tr>
<th>Procedure (Risk)</th>
<th>Procedure</th>
<th>Stroke</th>
<th>TIA</th>
<th>TMB</th>
<th>ASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Stroke/Death</td>
<td>15%</td>
<td>8.4%</td>
<td>3.2%</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>CEA Stroke/Death</td>
<td>6.2%</td>
<td>4%</td>
<td>1.6%</td>
<td>2.2%</td>
<td></td>
</tr>
</tbody>
</table>

PROCEDURE RISK AS A FUNCTION OF PRESENTATION

![Graph showing hazard ratio for CEA and CAS over age]

Primary outcome – 4 year
QUESTION

• Are age and gender surrogates for arterial characteristics that are high risk for CAS but not CEA

METHODS

• Patient and arterial plaque characteristics were assessed as possible CEA/CAS result modifiers using a logistic regression model

RESULTS

• Increased risk of stroke/death with CAS compared to CEA occurred with,
• Long Lesions >12.85mm (median)
• Dysynchronous or sequential lesions
• Lesions distal to the carotid bulb

RESULTS S/D

<table>
<thead>
<tr>
<th>LESION</th>
<th>CEA</th>
<th>CAS</th>
<th>ORDS RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG</td>
<td>1.9%</td>
<td>6.1%</td>
<td>3.45</td>
</tr>
<tr>
<td>SEQUENTIAL</td>
<td>0.7%</td>
<td>5.8%</td>
<td>9.21</td>
</tr>
<tr>
<td>REMOTE-SEQ SHORT</td>
<td>1.6%</td>
<td>5.2%</td>
<td>3.55</td>
</tr>
<tr>
<td>REMOTE-SEQ LONG</td>
<td>0.0%</td>
<td>6.3%</td>
<td>INFINITE</td>
</tr>
</tbody>
</table>

Long Lesion

Sequential Lesions
WE CAN NOW BEGIN TO POPULATE A LIST OF CONDITIONS HIGH RISK FOR CAS

CONDITIONS HIGH RISK FOR CAS-from CREST
• 1. Long lesions->12.85mm
• 2. Sequential lesions

CONDITIONS HIGH RISK FOR CAS-from CREST
• 1. Long lesions->12.85mm
• 2. Sequential lesions
• 3. Distal lesions

CONDITIONS HIGH RISK FOR CAS-OTHER
• 1. Long lesions->12.85mm
• 2. Sequential lesions
• 3. Distal lesions
• 4. Type 3 aortic arch

CONDITIONS HIGH RISK FOR CAS-OTHER
• 1. Long lesions->12.85mm
• 2. Sequential lesions
• 3. Distal lesions
• 4. Type 3 aortic arch
• 5. Atherosclerotic aortic arch
CONDITIONS HIGH RISK FOR CAS-OTHER
• 1. Long lesions->12.85mm
• 2. Sequential lesions
• 3. Distal lesions
• 4. Type 3 aortic arch
• 5. Atherosclerotic aortic arch
• 6. Tortuosity of the ICA
• 7. Circumferential calcification

CONCLUSIONS
• Pts with these high risk characteristics, both symptomatic and asymptomatic, should be excluded from CAS and offered CEA (> 67% of pts in CREST)
• In the absence of these high risk characteristics, less than 1/3rd in CREST, CAS should yield results equal to CEA