RELATIONSHIP BETWEEN PLAQUE MORPHOLOGY AND POST-PROCEDURAL NEUROLOGIC EVENTS: WHICH PLAQUES ARE HIGH RISK FOR CAS BUT NOT CEA

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DISCLOSURE

- Co-PI for surgery in CREST
- Consultant to Silkroad Medical

PERIPROCEDURAL STROKE/DEATH IN CREST

<table>
<thead>
<tr>
<th></th>
<th>CEA</th>
<th>CAS</th>
<th>P VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29(2.3%)</td>
<td>55(4.4%)</td>
<td>0.005</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>LESION</th>
<th>CEA (%)</th>
<th>CAS (%)</th>
<th>ODDS 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</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>

From the Society for Vascular Surgery

Carotid angiographic characteristics in the CREST trial were major contributors to periprocedural stroke and death differences between carotid artery stenting and carotid endarterectomy

Wesley S. Moore, MD, Jeffrey J. Popma, MD, Gary S. Rebbin, MD, PhD, Jennifer F. Yock, MD, DPhil, Donald S. Giddis, MD, Mohamed gọn, MD, George Howard, MD, PhD, and Thomas D. Bres, MD

on behalf of the CREST Investigators, Los Angeles, Calif, Boston, Mass, Arlington, Va, Cleveland, Oh, Atlanta, Ga, and New York, N.Y.

Objectives: The Carotid Revascularization Endarterectomy versus Stenting Trial (CREST) demonstrated a higher periprocedural stroke and death (S/D) rate among patients randomized to carotid artery stenting (CAS) than carotid endarterectomy (CEA). Here, we hypothesize that differences in CAS surgical anatomy and potentially in carotid plaque characteristics may contribute to the increased S/D rate following CAS. We aimed to evaluate whether carotid plaque and surgical characteristics were associated with increased risk of S/D following CEA versus CAS. Methods: Carotid plaque and surgical characteristics were assessed in 1,452 patients included in the CREST trial. Results: Longer lesion length and lesion location were independently associated with increased S/D rate following CAS. Conclusions: Long lesions and sequential lesions were associated with increased S/D rate following CAS. These findings suggest that longer lesions and sequential lesions may be associated with increased risk of S/D following CAS.
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
- 3. Distal lesions
- 4. Type 3 aortic arch

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
- 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 transfemoral 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