Current Management of Carotid Occlusive Disease: A Vascular Surgeon’s Perspective

Clifford J. Buckley, MD, FACS
Professor of Surgery
Texas A&M College of Medicine

NCVH 2016
Disclosure

I have no relevant financial relationships with proprietary entities producing health care goods or services related to the content of this presentation.

Content may not reflect position of US Government
What to do with hemodynamically important or significantly ulcerative carotid lesion?

- **When** to treat?
- **Treatment** method?
  - Best medical therapy
  - Endarterectomy – CEA
  - Angioplasty & stent - CAS
Historical Evidence for Decision Process

- Current practice management for carotid stenoses based on 30+ year old clinical trials
  
- Compared available Medical Management to CEA

  - NACET - Symptomatic 70-99% stenoses
    Randomized trial 1981-1994

  - ACAS - Asymptomatic 50-99% stenoses
    Randomized trial 1983-2003

Executive Committee for the Asymptomatic Carotid Atherosclerosis Study. JAMA 1995
Historical Evidence for Decision Process

- Medical management
  - Risk factor modification + ASA
  - No Statin or current antiplatelet therapies
  - No modern agents for managing comorbidities
Historical Evidence for Decision Process

- **Results**
  - **Symptomatic stenoses**
    - 3%/yr prevention benefit from CEA
    - 6% stroke/death risk @ 30 days
  - **Asymptomatic stenoses**
    - 0.5-1%/yr. prevention benefit from CEA
    - 3% stroke/death risk @ 30 days

Halliday, et al. 10-year stroke prevention after successful carotid endarterectomy for asymptomatic stenosis *Lancet 2010*
Current Evidence for Decision Process

• Medical management - better today
  • Co-morbidities
  • Risk factors

• Incidence of stroke in general population
  • Progressively declining over past 30 years
  • Stroke risk ~ 0.5%/year now

Current Evidence for Decision Process

- **CREST Trial**
  - CEA outcomes improved
    - Stroke and/or death
      - Symptomatic \( \sim 4.7\% \)
      - Asymptomatic \( \sim 2.7\% \) or less
  - CAS Outcomes
    - Stroke and/or death
      - Symptomatic – 6.4%
      - Asymptomatic – 4.5%

- Outcomes of MI and cranial nerve injury
  - ? Relevance - controversial

Silver FL, et al. Safety of stenting and endarterectomy by symptomatic status in the Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST) Stroke
Factoids

- Screening risk stratified populations with Duplex Carotid Imaging – **No Benefit!**
  - No level I or II evidence to support this strategy
- CAS in USA reimbursed only
- Tx of symptomatic > 50% stenosis/ulceration
- Cerebral protection device must be used
- Participation in FDA IDE trial
- Participation in PMA registry

Centers for Medicare & Medicaid Services. National Coverage Determination (NDC) for Percutaneous Transluminal Angioplasty (PTA) (20.7) 2010
SO------?
What to Do With the Patient With Symptomatic Carotid Disease

- **Best Overall Therapy**
  - **Aggressive medical management**
    - Statins
    - Antiplatelet agents
    - Optimal risk factor control
    - Optimal comorbidity treatment
  - CEA or CAS – Governed by outcomes and skill of interventionalist

Abbott 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
SO------?
What to Do With the Patient With Asymptomatic Carotid Disease

- Aggressive medical management
- Intervention for evidence of disease progression
  - Worsening of lesion by duplex imaging
    - Vulnerable plaque – GSM <25
    - Critical stenosis - >80%
    - End diastolic spectral velocity >120cm/sec
    - Acceptable risk for intervention
- Onset of cerebral or retinal ischemic symptoms

Which Intervention is Best for the Asymptomatic Patient with Worsening Carotid Stenosis?

- CEA & CAS are NOT equivalent for stroke prevention when performed by average surgeon / interventionist

- Isolated Centers of Excellence / operators have produced documented equivalence in both symptomatic & asymptomatic patients

- CAS using flow-reversal (Silk Road System) have produced stroke / death rates 1.5% or less


Who Benefits from CEA?

• Asymptomatic patients of low or average risk regardless of age
  • Peri-procedural stroke/death risk ~ 1.4%

• Patients with acute cerebral or retinal SSx who need intervention < 7 days

• Adverse anatomy for CAS

• Cost considerations

Who May Benefit from CAS?
Patients at “high risk” for CEA

- CAS in asymptomatic patients considered high surgical risk or < 70 years of age
- Peri-procedural stroke/death risk ~2.5%

<table>
<thead>
<tr>
<th>Cardiac Issues</th>
<th>Vascular Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>NY Class III/IV CHF</td>
<td>Contralateral carotid occlusion</td>
</tr>
<tr>
<td>LVEF &lt; 30%</td>
<td>Recurrent stenosis after CEA</td>
</tr>
<tr>
<td>Unstable angina</td>
<td>Neck radiation</td>
</tr>
<tr>
<td>Recent MI</td>
<td>Hostile anatomy</td>
</tr>
<tr>
<td></td>
<td>Carotid bifurcation &gt;/= C2</td>
</tr>
</tbody>
</table>
Thank You
Current Management of Carotid Occlusive Disease: A Vascular Surgeon’s Perspective

Clifford J. Buckley, MD, FACS
Professor of Surgery
Texas A&M College of Medicine

NCVH 2016

Central Texas Veterans Health Care System