DEBATE: CMS Data Based Studies Tell Us Correctly About CEA And CAS Results In Real World Practice

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Real World Perspective
- Randomized trial results may not generalize
  - Patient: age, comorbidity burden
  - Provider: operator skill and training, procedure volume, complication rates

Richard Cambria, MD
Formidable Opponent

Why is CMS data appropriate?
- 52.3 million enrolled in Medicare in 2013
  - 43.5 million aged ≥65 years of age
  - 72% receive coverage through traditional Medicare fee-for-service

Available Data to Track Patients:
- Inpatient
- Outpatient
- Physician visits
- Home Health
- Skilled Nursing Facility
- Hospice
- Durable medical equipment
- Rx medications
Able to Track Patient, Provider, and Hospital Outcomes:

Patient-Level Outcomes

Hospital-Level Comparisons

Utilization of Procedures:

Can we identify procedures? YES

• ICD-9-CM procedure codes
  ▪ CEA: 38.12
  ▪ CAS: 00.63
  ▪ Galinn

Limitations:
Some data elements not available

• Detailed medical information
• Stroke severity
• Degree of stenosis
• Ipsilateral vs. contralateral events
• Cognitive and functional data
• Patient / MD preferences

Relationship Between Physician and Hospital Procedure Volume and Mortality After Carotid Artery Stenting Among Medicare Beneficiaries

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Circ Cardiovasc Qual Outcomes. 2015;8:881-889

CMS data 2005-2009

Table 1. Baseline Patient Characteristics and Characteristics of Physicians and Hospitals Performing Carotid Artery Stenting (CAS)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Overall N=19724, N (%)</th>
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11/20/2015
Strategies to Enhance Data Quality: Linkage with detailed clinical data

Table 2. Unadjusted 30-Day Mortality Risks, Unadjusted Rel. Risk and 95% CI by Past-Year Physician CAS Volume (N=19,724)

<table>
<thead>
<tr>
<th>Past-Year CAS Volume</th>
<th>Number of Deaths</th>
<th>N (%)</th>
<th>Risk of Mortality (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>33</td>
<td>1295 (6.6)</td>
<td>2.6 (1.7–3.4)</td>
</tr>
<tr>
<td>1–4</td>
<td>103</td>
<td>4628 (23.4)</td>
<td>2.2 (1.8–2.7)</td>
</tr>
<tr>
<td>5–9</td>
<td>77</td>
<td>4170 (21.1)</td>
<td>1.9 (1.5–2.3)</td>
</tr>
<tr>
<td>10–19</td>
<td>76</td>
<td>4908 (24.9)</td>
<td>1.8 (1.2–1.9)</td>
</tr>
<tr>
<td>≥20</td>
<td>65</td>
<td>4723 (23.9)</td>
<td>1.4 (1.1–1.7)</td>
</tr>
</tbody>
</table>

Patient disease severity
- High surgical risk: 17,988 (91.2)
- Symptomatic status: 9,357 (47.4)
- Mean degree of carotid stenosis, % (SD): 85.1 (9.7)
- Median IQR: 85 (80–90)
- <50: 68 (0.3)
- 50–69: 473 (2.4)
- ≥70: 19,183 (97.3)
- Embolic protection device use: 19,302 (97.9)

Performing physician specialty
- Vascular surgeon: 3,345 (17.0)
- Cardiologist: 10,287 (52.2)
- Radiologist: 2,661 (13.0)
- Neurosurgeon: 708 (3.6)
- Neurologist: 243 (1.2)
- General surgeon: 873 (4.4)
- Cardiothoracic surgeon: 497 (2.5)
- Other specialty: 810 (4.1)

Mean past-year CAS volume (SD): 13.8 (14.8)
Median IQR: 9 (4–19)
In Conclusion…

- Database studies can provide useful information if interpreted with caution
- So I plead with you…
  ....and plead with my **Formidable Opponent**