Appropriateness of AAA care: Adherence to guidelines

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The 2018 SVS Guidelines recommend elective repair in asymptomatic patients with an AAA >5.4 cm, unchanged from 2009.

Previous studies have shown that 60–85% of patients under surveillance required repair within 3-4.5 yrs.

Aneurysm repair is less common in the UK than in the US (OR 0.49, CI 0.48-0.49) but aneurysm-related death was more common in England than in the United States (OR 3.60, CI 3.55-3.64).

Mean aneurysm diameter at the time of repair was larger in the UK (6.4 cm vs. 5.8 cm, P<0.001).

1) CAESAR. Eur J Vasc Endovasc Surg, 2010  
2) ADAM. NEJM, 2002  
3) Karthikesalingam et al. NEJM, 2016
BACKGROUND

OBJECTIVES

- To evaluate appropriateness of care in patients with AAA repair:
  - Aneurysms diameter ≤5.4 cm vs ≥5.5 cm
- To determine factors that predict repair of aneurysms with a diameter of ≤5.4 cm
- To determine quality markers of appropriate care in patients treated with aneurysms ≤5.4 cm
• Data abstracted from the Targeted National Surgical Quality Improvement Program (NSQIP) database (2011-2015)

• Male patients who underwent elective EVAR or OAAR
  – Symptomatic patients or those with aneurysmal extension into the visceral or iliac vessels were excluded
RESULTS – NSQIP analysis

EVAR – Mean of 5.7cm (IQR 5.2cm-6.0cm)
OAAR – Mean of 6.1cm (IQR 5.2cm-6.5cm)
## RESULTS – NSQIP analysis

<table>
<thead>
<tr>
<th>COMPLICATION</th>
<th>Endovascular repair</th>
<th>Open repair</th>
<th>P-value</th>
<th>Endovascular repair</th>
<th>Open repair</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤5.4cm (n=901)</td>
<td>≥ 5.5cm (n1,214)</td>
<td>P-value</td>
<td>≤5.4cm (n=70)</td>
<td>≥ 5.5cm (n=143)</td>
<td>P-value</td>
</tr>
<tr>
<td>Death</td>
<td>5 (0.5%)</td>
<td>8 (0.7%)</td>
<td>0.76</td>
<td>2 (2.8%)</td>
<td>4 (2.8%)</td>
<td>1.0</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>11 (1.2%)</td>
<td>14 (1.1%)</td>
<td>0.88</td>
<td>2 (2.8%)</td>
<td>4 (2.8%)</td>
<td>1.0</td>
</tr>
<tr>
<td>Pulmonary complications</td>
<td>8 (0.9%)</td>
<td>12 (1%)</td>
<td>0.81</td>
<td>7 (10%)</td>
<td>16 (11.2%)</td>
<td>0.79</td>
</tr>
<tr>
<td>Colitis</td>
<td>1 (0.11%)</td>
<td>3 (0.2%)</td>
<td>0.64</td>
<td>5 (7.1%)</td>
<td>3 (2.1%)</td>
<td>0.06</td>
</tr>
<tr>
<td>Lower extremity ischemia</td>
<td>10 (1.1%)</td>
<td>14 (1.2%)</td>
<td>1.0</td>
<td>0 (0%)</td>
<td>5 (3.5%)</td>
<td>0.17</td>
</tr>
<tr>
<td>VTE</td>
<td>5 (0.55%)</td>
<td>3 (0.25%)</td>
<td>0.29</td>
<td>1 (1.4%)</td>
<td>5 (3.5%)</td>
<td>0.66</td>
</tr>
</tbody>
</table>
## RESULTS – NSQIP analysis

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59 years or younger</td>
<td>REFERENCE GROUP</td>
<td></td>
</tr>
<tr>
<td>60 to 69 years old</td>
<td>0.88</td>
<td>0.61 – 1.27</td>
</tr>
<tr>
<td>70 to 79 years old</td>
<td>0.69</td>
<td>0.48 – 0.98</td>
</tr>
<tr>
<td>80 years or older</td>
<td>0.45</td>
<td>0.30 – 0.65</td>
</tr>
<tr>
<td><strong>SURGICAL TECHNIQUE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open repair</td>
<td>REFERENCE GROUP</td>
<td></td>
</tr>
<tr>
<td>Endovascular repair</td>
<td>1.62</td>
<td>1.19 – 2.21</td>
</tr>
</tbody>
</table>
RESULTS - NSQIP analysis summary

- 42% of patients underwent AAA with a diameter of 5.4 cm or less.
  - More common with EVAR than Open repair
  - More common in young patients

- No differences in perioperative outcomes for repairs of aneurysms ≤5.4 cm compared to ≥5.5 cm independently of the surgical technique
VQI DATABASE SELECTION

• National database
  – Allows evaluation of trends over time (2003-2017) at national level as well as regional comparison
  – Long term outcomes comparison will be limited by center compliance

• Medicare-match
  – Allows trends comparison (2003-2015)
  – Good long term data
  – Smaller sample (~16K) / +65yo
  – Does not allow for regional variations

• Regional database
  – Smallest sample
  – Does not allow for regional variations
AIMS

- To evaluate appropriateness of care in patients with AAA repair:
  - Trends in management of asymptomatic AAA with diameter of ≤5.4 cm vs ≥5.5 cm
  - What about ≤5.0 cm?
  - Indications? Specific anatomy?
- To determine factors that predict repair of aneurysms with a diameter of ≤5.4 cm (or ≤5.0 cm)
  - Surgeon experience (A LOT of hurdles to get this information)
  - Gender differences
  - Racial differences (Access to care?)
- To determine quality markers of appropriate care in patients treated with aneurysms ≤5.4 cm
  - DC on POD #1, ICU stay, RBC use
  - Better follow up compliance?
  - Lower reintervention rate (*Longer follow-up available with Medicare-match database)
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FEEDBACK??