Is It Time to Revisit the Threshold for Intervention in AAA?

Matt Thompson

St Georges Vascular Institute, London, UK
Financial Disclosure Slide

- Consultancy fees, Speakers bureau, Research funding
  - Medtronic
  - Endologix
50% smoking
50% elective repair
The results from the four trials to date demonstrate no advantage to immediate repair for small AAA (4.0 cm to 5.5 cm), regardless of whether open or endovascular repair is used and, at least for open repair, regardless of patient age and AAA diameter.

Thus, neither immediate open nor immediate endovascular repair of small AAAs is supported by currently available evidence.
Small Aneurysm Trial 12 Year

- 75% patients in surveillance arm underwent surgery
- Primary outcome – all cause mortality
- Twice as many deaths from rAAA in surveillance cohort
Still Equipoise???

<table>
<thead>
<tr>
<th></th>
<th>Male (&lt;.5.5cm)</th>
<th>Female (&lt;5.5cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>26.6</td>
<td>17.1</td>
</tr>
<tr>
<td>Finland</td>
<td>18.5</td>
<td>40.0</td>
</tr>
<tr>
<td>Hungary</td>
<td>25.7</td>
<td>48.4</td>
</tr>
<tr>
<td>Norway</td>
<td>13.6</td>
<td>30.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>17.5</td>
<td>38.2</td>
</tr>
<tr>
<td>UK</td>
<td>6.0</td>
<td>9.0</td>
</tr>
</tbody>
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- Investigate influence of threshold for AAA repair on mortality from AAA
- Does repair at smaller AAA diameter prevent aortic related death???

*EJVES 2015; 49: 646*

MT 2016
Variation in Transatlantic Practice – AAA Related Death

- HES (29,300) and NIS (278,921) 2005-2012 – elective AAA repair


- UK NVR and US NSQIP – 2014 – AAA diameter at repair

- UK NAAASP – 2009-2014 – prevalence at diameter
AAA Diameter at Repair 2013-2014 (Male)

Weighted mean diameter in England was 6.37cm / USA was 5.83cm

After adjustment AAA in England were 0.54 cm larger (SE 0.033) than intact AAA repaired in the USA
## AAA Diameter and Repair Below Threshold (2013-14)

<table>
<thead>
<tr>
<th></th>
<th>England</th>
<th>USA</th>
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</thead>
<tbody>
<tr>
<td>AAA diameter cm (male)</td>
<td>6.41 (1.29)</td>
<td>5.86 (1.34)</td>
</tr>
<tr>
<td>AAA diameter cm (female)</td>
<td>6.17 (1.08)</td>
<td>5.63 (1.20)</td>
</tr>
<tr>
<td>Male &lt;5.5cm</td>
<td>8.87%</td>
<td>39.21%</td>
</tr>
<tr>
<td>Female &lt; 5.0 cm</td>
<td>4.91%</td>
<td>17.19%</td>
</tr>
</tbody>
</table>
Rate of Intact AAA Repair 2005-2012

England 27.11 – 31.85 per 100,000

USA 57.85 – 64.17 per 100,000

Adjusted OR 2.058
(95% CI 2.033 to 2.083)
Distribution of Prevalence AAA Diameter (NAAASp 2009-14)

48 men per 100,000 above the mean diameter for AAA repair in England, compared to 76 men per 100,000 above the mean diameter for AAA repair in the USA.
Rate of Hospitalisation with rAAA 2005-2012

England 21.34 – 16.3 per 100,000

USA 10.1 – 7.29 per 100,000

Adjusted OR 2.232 (95% CI 2.191 to 2.22)
Rate of Aneurysm Related Death 2005-2012

England 53.55 – 34.43 per 100,000

USA 16.24 – 9.03 per 100,000

Adjusted OR 3.596
(95% CI 3.549 to 3.644)
Summary

- Elective AAA repair twice as common in US *cf.* England

- Explained by repair at lower diameter in USA

- Threshold difference exaggerated in women

- Higher diameter at repair associated with twofold increased in rAAA and threefold increase in aortic related mortality
Discussion

- SAT commenced 1991!!!
- Widely misinterpreted
- Is 55mm threshold still appropriate?
- Individual or community?
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