At What Size (Diameter) Should Asymptomatic Thoracic Aortic Aneurysms (TAAs) Undergo Treatment By TEVAR

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Veith Symposium 2018

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Disclosures

- No disclosures

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Decision making in TAA management

- Natural history
- Underlying connective tissue
- Medical therapy
- Co-morbidity
- Aneurysm morphology
- Patient wishes

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Natural history

![Graph showing risk of complications vs diameter of TAAA](J Thor Card Surg 1997:113; 476-91)

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Growth rates

- Increase with diameter
- Small - low rates expansion
- 40-44 mm - 3.3% >55 mm in 2 years
- 50-54 mm - 7.4% >55 mm in 2 years
- Few data in large TAA

![Graph showing growth rates](Br J Surg. 2016;103:1823-1827)

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Other factors influencing growth

- Quality of data / number of studies low

- Connective tissue disease
- Location of aneurysm (distal > proximal)
- Chronic dissection – no evidence
- Medical co-morbidity – conflicting evidence
- Previous aortic surgery – protective?

![Graph showing other factors](Eur J Vasc Endovasc Surg. 2016;51:674-81)
Novel prediction methods


Influence of TAA morphology

- Saccular – rupture risk
- Anatomical complexity
- peri-operative risk
- durability
- Zone 1 outcomes worse than zone 2
- Access

Long-term survival poor following TEVAR for TAA


ESVS Guidelines

Eur J Vasc Endovasc Surg. 2017;53:4-52
Interpretation of the evidence?

- Discrete choice experiment
- 6 variables
  - Age / sex / ASA grade / aneurysm diameter / adequate landing zone distal to LSA / length of aortic coverage
- 25 hypothetical scenarios
- 50 specialists

When to intervene?

Significant uncertainty in a variety of scenarios
Greatest uncertainty in older (80-85yrs) + larger TAA

<table>
<thead>
<tr>
<th>TEVAR</th>
<th>Surveillance</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ diameter</td>
<td>▲ Women</td>
</tr>
<tr>
<td>ASA grade 4</td>
<td>Aorta cover &gt;25cm</td>
</tr>
</tbody>
</table>

Proximal landing zone – No effect

Conclusions

- Little consensus among specialists
- Few robust data on natural history
  - Opportunity for novel prediction methods – imaging?
- Long-term survival poor

When to intervene?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sex</th>
<th>ASA grade</th>
<th>Aneurysm diameter</th>
<th>Aneurysm length proximal to LSA (mm)</th>
<th>Length of aortic coverage (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-35</td>
<td>Male</td>
<td>5</td>
<td>5.0</td>
<td>26</td>
<td>39</td>
</tr>
<tr>
<td>36-50</td>
<td>Female</td>
<td>3</td>
<td>4.5</td>
<td>24</td>
<td>30</td>
</tr>
</tbody>
</table>

Please indicate your preferred choice of management in this case by ticking the relevant box below:
- Surveillance
- TEVAR

When to intervene?

For most patients 60mm reasonable
- Smaller in connective tissue disease (50-55mm)
- Adverse morphology / fitness increase threshold
- Other sub-groups less clear