Should Mesh Reinforcement Of Abdominal Incisions Be The Standard Of Care For Open AAA Surgery To Prevent Wound Complications: Based On RCTs

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Disclosures

Incisional hernia

- Up to 38% after open AAA repair
- May impact quality of life
- In the OVER trial 11% of patients had correction of incisional hernia within 9 years of follow-up


Prophylactic reinforcement?

- Is prophylactic reinforcement of the abdominal wall superior to standard closure with respect to
  - Prevention of incisional hernia
  - Prevention of incisional hernia repair

Methods

- Systematic review & meta-analysis
- Randomized controlled trials
- Cochrane Collaboration’s risk of bias tool
- Random-effects model
- Risk ratio (RR) + 95% confidence interval (95% CI)
- GRADE to rate quality of evidence

Results – study characteristics

<table>
<thead>
<tr>
<th>author</th>
<th>centers</th>
<th>mesh</th>
<th>suture</th>
<th>follow up</th>
<th>hernia examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevis</td>
<td>3</td>
<td>39</td>
<td>45</td>
<td>3 yrs</td>
<td>ultrasound when in doubt</td>
</tr>
<tr>
<td>Bali</td>
<td>1</td>
<td>20</td>
<td>20</td>
<td>3 yrs</td>
<td>clinical &amp; CT</td>
</tr>
<tr>
<td>Muysoms</td>
<td>8</td>
<td>56</td>
<td>58</td>
<td>2 yrs</td>
<td>non-systematic imaging</td>
</tr>
<tr>
<td>Jairam</td>
<td>11</td>
<td>113</td>
<td>37</td>
<td>2 yrs</td>
<td>clinical &amp; ultrasound or CT</td>
</tr>
</tbody>
</table>

Bevis et al, BJU Int.2010;106:497-502  
Results – study characteristics

<table>
<thead>
<tr>
<th>Author</th>
<th>Mesh Material</th>
<th>Mesh Technique</th>
<th>Suture Material</th>
<th>Suture Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevis</td>
<td>Polypropylene (Prolene)</td>
<td>Sublay</td>
<td>Non-absorbable monofilament</td>
<td>Suture-to-wound length (SL/WL) ratio of 4:1</td>
</tr>
<tr>
<td>Bali</td>
<td>Bovine pericardium</td>
<td>Onlay</td>
<td>Slowly absorbable polydioxanone</td>
<td>Running loop, SL/WL ratio of 4:1</td>
</tr>
<tr>
<td>Muysoms</td>
<td>Polypropylene (Optilene)</td>
<td>Sublay</td>
<td>Slowly absorbable polydioxanone</td>
<td>Running, single layer and a SL/WL ratio of 4:1</td>
</tr>
<tr>
<td>Jairam</td>
<td>Polypropylene (Optilene)</td>
<td>Onlay (n=61)</td>
<td>Slowly absorbable polydioxanone</td>
<td>Running loop, SL/WL ratio of 4:1</td>
</tr>
</tbody>
</table>

Risk of bias

<table>
<thead>
<tr>
<th>Risk of bias:</th>
<th>Abduction (sham, control)</th>
<th>Blinding of participants, personnel, outcome assessment</th>
<th>Incomplete outcome data</th>
<th>Selective reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevis 2010</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Risk of incisional hernia

Risk of incisional hernia repair

Conclusions

- Mesh reinforcement of the abdominal wall at open AAA repair
  - Prevents incisional hernia
  - Does not lower rates of incisional hernia repair
  - Evidence rated as moderate (GRADE)
Should mesh reinforcement be standard of care?

- Yes!
  - There is indeed a reduction in incisional hernias
  - Longer follow-up will show greater benefit

- Questions
  - Not all incisional hernias are symptomatic
  - Quality of life
  - Repair rates are low (age, comorbidity?)
  - Do AIDA trial results change outcome?