PREVENTION OF INCISIONAL HERNIA AFTER OPEN AAA REPAIR VIA MIDLINE LAPAROTOMY INCISION BY MESH AUGMENTED PRIMARY CLOSURES (PRIMAAT)

I. VAN HERZEELE, F. BERREVOET, F. MUYSMOS

CONFLICT OF INTEREST

Study was supported by Research grant from Johnson & Johnson and from the Belgian Society for Abdominal Wall Surgery.

I, Isabelle Van Herzeele, have no conflicts of interests to report with regards to this presentation.

INCIDENCE OF INCISIONAL HERNIA

Risk factors: aneurysm, obesity, smoking, wound infection

Detection method: CE, US, CT

Duration follow up: 5 years

Claes K et al. Hernia 2014; 18:797-802

"NEVER JUDGE A SURGEON BEFORE YOU HAVE SEEN HIM CLOSING THE WOUND."


PRIMAAT TRIAL

Prospective Randomised Multicenter Belgian Trial

Objective

To reduce the incidence of incisional hernia after midline laparotomy for treatment of elective AAA 24 months postoperatively from 25% to 5%.

Sample size calculation = 120 patients
Inclusion criteria
All patients undergoing elective AAA treatment through a midline laparotomy

Exclusion criteria
- Emergency surgery for aortic aneurysm.
- Presence of mesh in abdominal wall from previous operations
- ASA score >=4

Study design
Control group
NON MESH
- Closure of the abdomen with a running single layer slowly absorbable suture according to international recommendations (SL/WL ≥ 4/1) for laparotomy closure
- By abdominal wall surgeon

Study design
Treatment group
MESH
- Closure of abdomen with implantation of light weight polypropylene mesh (Ultrapro™) in retromuscular position
- By abdominal wall surgeon

Demographics
No statistically significant differences

Peri-operative
Failure to get a SL/WL ≥ 4 in 2/3 of patients!
Mesh augmentation 16 min extra!
Incisional hernia

<table>
<thead>
<tr>
<th></th>
<th>No mesh</th>
<th>Mesh</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 12 months</td>
<td>10 (17.2%)</td>
<td>0 (0.0%)</td>
<td>0.0013</td>
</tr>
<tr>
<td>At 24 months</td>
<td>16 (27.6%)</td>
<td>0 (0.0%)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Follow up

16 Incisional hernias

4/16 Incisional hernia's repaired

Risk factors

Pulmonary complications

Incisional hernia

<table>
<thead>
<tr>
<th></th>
<th>No mesh</th>
<th>Mesh</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 12 months</td>
<td>10 (17%)</td>
<td>0 (0.0%)</td>
<td>0.0013</td>
</tr>
<tr>
<td>At 24 months</td>
<td>16 (28%)</td>
<td>0 (0.0%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>At 60 months</td>
<td>21 (36%)</td>
<td>0 (0.0%)</td>
<td>ongoing</td>
</tr>
</tbody>
</table>

Wound complications

Future perspectives

Incisional hernia

<table>
<thead>
<tr>
<th></th>
<th>No mesh</th>
<th>Mesh</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 12 months</td>
<td>10 (17%)</td>
<td>0 (0.0%)</td>
<td>0.0013</td>
</tr>
<tr>
<td>At 24 months</td>
<td>16 (28%)</td>
<td>0 (0.0%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>At 60 months</td>
<td>21 (36%)</td>
<td>0 (0.0%)</td>
<td>ongoing</td>
</tr>
</tbody>
</table>
CONCLUSION

- **Retro-muscular MAR** reduces incisional hernias at 2 year follow-up compared with primary closure of midline laparotomies for AAA

- Closure of the abdomen by experienced abdominal wall surgeons

- MAR did not lead to any adverse events

PRIMAAT trial
Prospective randomized multicenter Belgian trial