Adjuncts to suture-based vascular closure devices (SB-VCD) increase successful femoral closure rate in percutaneous Endovascular Aneurysm Repair (pEVAR)

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Introduction:
- Suture based vascular closure devices (SB-VCD) made pEVAR possible
- Perclose technique of 2 ProGlide for each femoral artery used in pEVAR
- However, failures and complications may occur with SB-VCD in pEVAR
- We introduced 3 novel adjunctive techniques in July 2018
  1. Teflon Pledget Re-enforcement on top of SB-VCD
  2. Bidirectional compression techniques (using gauze)
  3. Bidirectional Compression technique (using patient’s own tissue)

Aim:
- is to evaluate the safety and efficacy of such 3 adjunctive new technique in achieving absolute haemostasis.

Adjunctive Techniques

1) Teflon Pledget Re-enforcement
2) Gauze Bi-directional Compression
3) Tissue Bi-directional compression

Methods:
The novel adjunct techniques for perclose ProGlide were used in 34 groins in 19 patients with median age 78 (iqr 73-84), 12 Males
The following primary and secondary outcomes were documented
- Primary outcome: any events (need for fascial closure, femoral cut down, haematoma formation, return to theatre for groin related complications, ischemic legs due to femoral artery complications
- Secondary outcome: requirement of number of ProGlides®, Usage of FemoStop®

These outcomes were compared with previous year data prior to introduction of the novel adjunct techniques in 89 groins in 48 patients (median age 79 (iqr 74-82 years), 37 Males
Results were compared using Chi Square test for statistical significance

Results:

<table>
<thead>
<tr>
<th>Complications</th>
<th>Without adjunctive techniques</th>
<th>With adjunctive technique</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need surgical cut down</td>
<td>11</td>
<td>0</td>
<td>0.036</td>
</tr>
<tr>
<td>Fascial closure</td>
<td>7</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mild -moderate Haematoma</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Any adverse event</td>
<td>25 (in 89 groins)</td>
<td>1 (in 34 groins)</td>
<td>0.0046</td>
</tr>
<tr>
<td>Requirement of ProGlide per groin</td>
<td>228 in 89 groins (2.56)</td>
<td>70 in 34 groins (2.05)</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Conclusions:
- The new adjunctive techniques with SB-VCD are safe and effective in controlling absolute haemostasis in femoral puncture in pEVAR.
- These adjunctive techniques provide a better haemostasis with confidence in vessel closure.
- Further studies are required to assess their extent of the effectiveness among different centres.