THE TOTAL ANKLE REPLACEMENT LEARNING CURVE: TOURNIQUET TIME AND INTRAOPERATIVE COMPLICATIONS VARY WITH IMPLANT SELECTION AND SURGEON EXPERIENCE

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Disclosure

The Total Ankle Replacement Learning Curve: Tourniquet Time and Intraoperative Complications Vary with Implant Selection and Surgeon Experience

Gregory Berlet, MD

Our disclosures are in the Final AOFAS Program Book.

There is a potential conflict with this presentation due to: Consultant, Wright Medical (GCB, CFH, THL)
Introduction

• Total ankle replacements (TAR)
  – More prevalent with recent improvements in implant and instrumentation design
  – Technically demanding procedures
  – Surgical technique varies with implant type
Purpose

• Report TAR “learning curve”
  – Inferred from tourniquet time and intraoperative complication rate

• Data reported from 3 different TAR implants as surgeon experience increased
  – STAR™, Salto Talaris®, INBONE®
Methods

• Institutional review board (IRB) approved
• Retrospective review
  – TAR database
  – Single center, 4 fellowship trained foot and ankle surgeons
  – All patients over 3 year period (2007-2010) included
Results: Tourniquet time

- 127 primary TAR
  - INBONE®: 71
  - Salto®: 43
  - STAR™: 13

- Females: 70
  - Avg age 61
    - (range 39 -79)

- Males: 57
  - Avg age 66
    - (range 39 -83)
Results: Intraoperative Complications

**Malleolar Compromise**

<table>
<thead>
<tr>
<th>Implant</th>
<th>#</th>
<th>Malleolar Compromise</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAR</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Salto</td>
<td>43</td>
<td>8 (19%)</td>
</tr>
<tr>
<td>INBONE</td>
<td>71</td>
<td>4 (6%)</td>
</tr>
</tbody>
</table>

*Square=Salto, Triangle=Inbone, Diamond=no compromise*
Conclusions

• As surgeon volume and implant familiarity increased:
  – trends toward shorter operative times and fewer intraoperative complications were found

• Intraoperative complications:
  – Highly implant specific
  – Highest with Salto Talaris® prosthesis, concentrated early in series
  – INBONE® malleolar fractures more evenly distributed across time series
Conclusions

• Improved OR efficiency and quality (decreased intraoperative complications) with increasing surgeon experience

• Despite overall surgeon experience, learning curve reset with each new prosthesis
  – Intraoperative complications (malleolar fracture) dependent on both implant type and surgeon experience
References