Disclosures

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• Joseph L. Eremus, M.D.
  – None
Background

- Arthrodesis has long been used for end-stage treatment of arthritis in the foot and is a common procedure in the ankle for those not candidates for arthroplasty.

- Symptomatic hardware is a common complication reported in the literature (3-15.2%)\(^1\)\(^-\)\(^4\)
Previous Studies

Mohamedea A (2010)
- Anterior Ankle Plating
- 15.2% Rate of ROH

Plaass C (2009)
- Another Anterior Plating Study
- 9.7% Rate of ROH

Ross SD (1985)
- Screw only technique
- 12.3% Rate of ROH
Background Continued

- Plate and Screws Technique
- Screw only Technique
- Intra-Osseous Technique
Study Purpose

- The goal of the study was to compare radiographic and clinical outcomes of foot and tibiotalar fusions across three separate groups; plate and screws group, screw only group, and Intra-osseous group.
Materials and Methods

• Retrospective Chart Review of 123 patients and 197 joints
  – Control group of 44 patients and 76 joints undergoing arthrodesis with “screws only”
  – “Plate and Screws” group of 27 patients and 50 joints
  – “Intra-osseous” group of 27 patients and 36 joints

Power analysis suggested a sample size of 32 joints in each group to achieve a power = 0.8

All means were compared using the student t-test software with a p value <.05 as significant
# Results

## Hindfoot and Ankle Arthrodesis Techniques

### Demographic Data

<table>
<thead>
<tr>
<th></th>
<th>“Screws Only” Group</th>
<th>“Plate and Screws” Group</th>
<th>“Intra-Osseous” Group</th>
<th>Combination (“Screws” and “intra-osseous”) Group</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>44</td>
<td>27</td>
<td>25</td>
<td>27</td>
<td>123</td>
</tr>
<tr>
<td>Number of Joints Fused</td>
<td>76</td>
<td>50</td>
<td>35</td>
<td>36</td>
<td>197</td>
</tr>
<tr>
<td>Diabetes</td>
<td>12 (27%)</td>
<td>10 (37%)</td>
<td>9 (36%)</td>
<td>10 (37%)</td>
<td>43 (35%)</td>
</tr>
<tr>
<td>HCV/HIV</td>
<td>5 (11.3%)</td>
<td>2 (7.4%)</td>
<td>3 (12%)</td>
<td>3 (11%)</td>
<td>13 (10.6%)</td>
</tr>
<tr>
<td>BMI (Avg.)</td>
<td>27.1</td>
<td>29.3</td>
<td>25.5</td>
<td>30.4</td>
<td></td>
</tr>
<tr>
<td>Active Smoker</td>
<td>20 (45.5%)</td>
<td>17 (62.9%)</td>
<td>13 (52.0%)</td>
<td>13 (48.0%)</td>
<td>63 (51.2%)</td>
</tr>
</tbody>
</table>

*denotes statistical significance (p<0.05)
## Results

### Hindfoot and Ankle Arthrodesis Techniques

#### Clinical Outcomes Data

<table>
<thead>
<tr>
<th>Metric</th>
<th>“Screws Only” Group</th>
<th>“Plate and Screws” Group</th>
<th>“Intra-Osseous” Group</th>
<th>Combination (“Screws” and “intra-osseous”) Group</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure of fusion (# of joints)</td>
<td>4 (5.3%)</td>
<td>2 (4%)</td>
<td>2 (5.7%)</td>
<td>2 (5.5%)</td>
<td>10 (5%)</td>
</tr>
<tr>
<td>Pain at 1 year attributable to hardware</td>
<td>2 (4.5%)</td>
<td>8 (29.6%)</td>
<td>1 (4%)</td>
<td>4 (14.8%)</td>
<td>15 (12.2%)</td>
</tr>
<tr>
<td>Pain requiring hardware removal</td>
<td>1 (2.3%)</td>
<td>8 (29.6%)</td>
<td>1 (4%)</td>
<td>3 (11.1%)</td>
<td>13 (10.1%)</td>
</tr>
</tbody>
</table>

*Denotes clinical significance

**See Footnote

**All anterior tibiotalar plates
Discussion

• No differences existed between the two cohorts for age, sex, BMI, HIV/HCV status, smoking status.
• Rates for symptomatic hardware requiring removal were similar for all groups except the “plates and screws” group.
• No differences in fusions rates were seen between any group.
Conclusions

• Anterior plating of the tibiotalar joint has high rates of symptomatic hardware requiring removal. Careful consideration must be taken prior to selecting these implants.

• No implant used in this study demonstrated superiority when related to fusion rates.

• Cost and ease of use may be more important factors to consider when choosing and implant for arthrodesis in the foot and ankle.
Resources