A Randomized, Prospective Study of the Order of Pre-Operative Preparation Solutions for Patients Undergoing Foot and Ankle Orthopaedic Surgery

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Our disclosures is in the Final Program
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Speaker conflicts: Nil

Our disclosure is:

**JFB—DJ Orthopaedics, Carticept Medical, Biomimetic Therapeutics, Foot and Ankle International, Techniques in Foot and Ankle Surgery, Clinical Orthopaedics and Related Research, American Orthopaedic Foot and Ankle Society, Orthopaedic Research and Education Foundation, Orthopaedic Education Foundation, American Board of Orthopaedic Surgery, American Board Medical Specialties**
Background

• Surgical site infection (SSI) is routinely cited as the most common complication following orthopaedic foot and ankle (FA) surgery

• Our institution uses chlorhexidine gluconate (CG) and 70% isopropyl alcohol (IA) for preoperative surgical site preparation.

• Possible synergy between the solutions?
  – IA: superior effect on reducing CFUs\(^1\)
  – CG: adherent property to skin allows continued antimicrobial effects for a longer duration\(^2\)

To Determine if the order of applying CG and IA solution has a significant effect on the residual bacterial pathogens following surgical site preparation for foot and ankle procedures.
Methods

95 consecutive FA patients prospectively randomized in a single blinded study

49 patients CG followed by IA for surgical prep and repeated

CA Group

45 patients IA followed by CG for surgical prep and repeated

AC Group
Methods

- Four total aerobic cultures were obtained from the 3rd dorsal webspace of each patient:
  1. Prior to surgical site preparation
  2. After the foot prep and draping was completed
  3. Prior to final wound site closure
  4. After the wound was closed, prior to bandage

- Patients monitored for infection within 30 days and 6 months.
Results

• The mean duration of surgery was 54 CA v. 52 AC.

100% of swabs from each group had positive cxS prior to surgical site preparation.

• For all post-operative swabs:
  – 18.7% CA cultures were positive v. 10.9% AC cultures (p=0.07)
Positive Culture Swabs Results

<table>
<thead>
<tr>
<th>Time Point</th>
<th>C-A N=49</th>
<th>A-C N=46</th>
</tr>
</thead>
<tbody>
<tr>
<td>After Draping</td>
<td>22.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Before Skin Closure</td>
<td>18.4</td>
<td>15.2</td>
</tr>
<tr>
<td>Prior to Dressing</td>
<td>16.3</td>
<td>13.0</td>
</tr>
</tbody>
</table>

- After Draping: p=0.015
- Before Skin Closure: p>0.05
- Prior to Dressing: p>0.05
Results

• One superficial SSI was seen in each group within 30 days (ns)
  • Both resolved with oral antibiotics

• No additional SSI were seen when the patients were followed out to 6 months.
Conclusions

• CA and AC methods of surgical site preparation in FA surgery are effective in reducing surgical site bacterial colonization.

• AC had significantly fewer + cultures only after prep and draping.

• No differences in + cultures were seen.

• No change in SSI at 30 days and 6 mos
Thank You