The Effect of Universal Intranasal Povidone Iodine Antisepsis on Total Joint Replacement Surgical Site Infections

Lynne Brown, RN, BSN, MBA, CIC; Mark Shelly, MD; Linda Greene, RN, MPS, CIC; Ann Marie Pettis, RN, BSN, CIC; Sherry Romig, RN
The Effect of Universal Intranasal Povidone Iodine Antisepsis on Total Joint Replacement Surgical Site Infections

Lynne Brown, RN, BSN, MBA, CIC; Mark Shelly, MD; Linda Greene, RN, MPS, CIC; Ann Marie Petitsu, RN, BSN, CIC; Sherry Romig, RN

ABSTRACT

Background/Objectives
Postoperative infections are frequent after total joint arthroplasty. When they do occur however, they result in significant morbidity. Consideration with Staphylococcus aureus (SA) increases the risk for surgical site infections (SSIs). Previous studies have shown that Mupirocin reduces SA infections in those patients who are colonized. However, mupirocin resistant SA is increasingly being reported. Therefore, preventative intranasal povidone iodine (PI) was implemented in a busy orthopedic service as an alternative to mupirocin to assess the effect on infection rates from all pathogens.

Methods
All knee and hip arthroplasty patients were instructed to shower with chlorhexidine gluconate (CHG) preoperatively at home. Treatment with intranasal PI antiseptics on the day of surgery began in April 2012. We compared the rate of infection in the 34 months before this intervention (6/2008-3/2012) to the rate following implementation of the new process (5/2012-12/2014). A Fisher's exact test was performed to test the impact of the intervention.

RESULTS

Arthroplasty SSI Rate (%), All Joints

| Joint | Before | After | Diff P
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip</td>
<td>39/252</td>
<td>8/200</td>
<td>0.03</td>
</tr>
<tr>
<td>Knee</td>
<td>21/140</td>
<td>5/160</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Arthroplasty SSI (all pathogens)

| Joint | Before | After | Diff P
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip</td>
<td>39/252</td>
<td>8/200</td>
<td>0.03</td>
</tr>
<tr>
<td>Knee</td>
<td>21/140</td>
<td>5/160</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Arthroplasty SSI (Staph aureus only)

| Joint | Before | After | Diff P
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip</td>
<td>39/252</td>
<td>8/200</td>
<td>0.03</td>
</tr>
<tr>
<td>Knee</td>
<td>21/140</td>
<td>5/160</td>
<td>0.33</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- The overall rate of SSI decreased significantly following PI intranasal antiseptic.
- A statistically significant reduction in hip arthroplasty SSI rate was achieved.
- A larger sample size is necessary to reach a statistically significant reduction in the knee arthroplasty SSI rate.
- This intervention warrants further investigation as a horizontal approach to decrease arthroplasty infections.

For additional information please contact:
Lynne Brown, RN, BSN, MBA, CIC
Infection Prevention
Highland Hospital
Lynne_brown@umc.rochester.edu

Note: Funding for APC Conference Attendance Sponsored by 3M