INTRODUCTION

MRSA has been implicated in head and neck post-operative infections, resulting in complicated hospital courses and, ultimately, increased lengths of stay, mortality, and hospital charges.1-2. The nature of head and neck surgical procedures may increase the risk for MRSA infections.

1. The nares and cheek are the most common site of colonization with MRSA. The proximity of the operating sites to the areas of colonization is the origin of MRSA SSIs3,4.

2. Greater exposure to antibiotics (for recurrent head and neck infections or perioperative use), has been correlated with increased MRSA SSIs in head and neck cancer patients3,5,7.

3. In addition to prophylactic antibiotics, head and neck cancer patients undergoing major surgery have other risk factors that further increase their chances of MRSA SSIs.

1. These patients may have weakened host defenses due to their malignancy and/or chemoradiation5,8.

2. Head and neck oncological surgeries generally have longer operating times and prolonged post-operative hospital stay, which may increase the likelihood of nosocomial MRSA8.

3. Many head and neck cancer procedures require free flaps for reconstruction, which has also been associated with increased rates of infection6.

4. The purpose of this study was to identify patients with MRSA SSIs following any head and neck procedure. Because the complications of post-operative MRSA infections can be severe, it is important to elucidate the risk factors and complications as well as create a foundation for future studies investigating prevention and treatment of post-operative MRSA infections in otolaryngology.

METHODS AND MATERIALS

A retrospective chart review was conducted after obtaining institutional IRB approval.

RESULTS

Table 1: Variables for Multivariate Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Independent Values</th>
<th>Dependent Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Length of Stay (LOS)</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>Days to Infection</td>
<td></td>
</tr>
<tr>
<td>Prealbumin</td>
<td>Days to OR Return</td>
<td></td>
</tr>
<tr>
<td>Albumin</td>
<td># of OR Returns for Infection</td>
<td></td>
</tr>
<tr>
<td>Prior Hospitalization LOS Readmission Procedure Duration</td>
<td>Length of Readmission</td>
<td></td>
</tr>
<tr>
<td>Estimated Blood Loss</td>
<td></td>
<td></td>
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</tbody>
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Table 2: Variables for Chi² Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Independent Values</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Re-admission for SSI</td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>MRSA</td>
<td></td>
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<tr>
<td>Diabetes</td>
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<tr>
<td>Hypertension</td>
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<tr>
<td>Immunosupression</td>
<td></td>
<td></td>
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<tr>
<td>Prior XRT, Chemo, or HN surgery</td>
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<td></td>
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</tbody>
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Figure 1: Number of patients with positive cultures for each organism. Of the 24 patients with MRSA, 14 had cultures that grew two or more organisms. PSDA = pseudomonas aeruginosa, MSSA = methicillin sensitive staphylococcus aureus.

Figure 2: Procedure Type

Figure 3: Prior hospitalization within one year prior to surgery was significantly longer in patients with MRSA SSIs (7.3 days) compared to patients with other SSIs (2.3 days), p = 0.007.

Figure 4: Length of hospital stay was significantly longer in patients with MRSA SSIs (20.8 days) compared to patients with other SSIs (11.3 days), p = 0.00043.

DISCUSSION

Our data shows an increased LOS in the MRSA SSI group that is almost twice of that seen in the SSIs from other organisms, which is consistent with other reports focusing on MRSA in head and neck cancer patients.

The higher previous LOS within the year leading up to the procedure is also expected since hospitals are a common source of MRSA colonization.

We found no difference in other risk factors or complications when comparing MRSA SSIs with other SSIs.

Other risk factors that were found to be associated with head and neck MRSA SSIs in our literature search included: age > 65 years, neoplasms, smoking and alcohol use, prior antibiotics, long surgical duration, blood loss7-10.

Other complications that have been shown to be related to MRSA SSIs in other studies include: fistula formation and increased hospital costs1,2.

FUTURE DIRECTIONS

Another long-term complication to include in future analyses is the use of prolonged or lifelong antibiotics.

Given the LOS and extent of antibiotic treatment are greater for MRSA SSIs, future analyses can include determining the additional cost of MRSA SSIs in hospital charges.

Seeing as PSDA was also a highly prevalent organism that has the potential for many complications, it would be also worth comparing patients with P. aeruginosa SSIs with other surgical site infections in a similar fashion.

REFERENCES