

## **Title of Presentation:**

### *Defining the Incidence and Pattern of Community Acquired Methicillin Resistant Staphylococcus Aureus in Hand Infections Over a Four Year Period*

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#### **Learning Objectives (After attending this session, the attendee should be able to):**

- define the incidence and risk factors of CA-MRSA in Hand infections at a busy urban medical center.

#### **BACKGROUND:**

There is an alarming increase in the prevalence of community-acquired methicillin resistant *Staphylococcus aureus* (CA MRSA) in hand and upper extremity infections. The purpose of this study was to further define the incidence and patterns of bacterial resistance and attempt to better identify those patients at risk at our medical center.

#### **METHODS:**

A retrospective chart review of 247 patients treated with surgical decompression of upper extremity infections over a 4-year period from January 2003 to December 2006 was performed at an urban tertiary medical center. The study period was divided into four annual periods. Infections believed to be nosocomial (post-operative complications) and those treated without surgical drainage were excluded. There were 193 patients with community-acquired infections. Each surgical specimen obtained during the initial evaluation and treatment was cultured and subjected to antibiotic susceptibility testing. An extensive database was created in order to track each bacterial culture, patient's profile, antibiotic use, length of stay, and possible risk factors. Particular attention was paid to those found to be *Staphylococcus aureus*, who were divided into methicillin sensitive versus methicillin resistant. There was modification in our clinical protocol following the first 2 years. The outcome was also assessed separately following this change in clinical protocol.

#### **RESULTS:**

Of the 193 patients, 94 were MRSA (48.7%), 30 were MSSA (15.5%) and 69 (35.7%) were due to other organisms. There was an increase in both the total number of hand infections and the number of MRSA infections. Two-way ANOVA was done and patients were found to be similar in all four periods with respect to mean age and sex. Smoking was the most significant predictor for CA-MRSA with an Odds Ratio of 3.69 (95% CI of 1.5 – 9.1), while the mechanism of injury (foreign body) was a predictor for MSSA with an Odds Ratio of 0.21 (95% CI of 0.046 – 0.96). Although not statistically significant, the mean length of stay for CA-MRSA patients was 6.82 days compared to 5.17 days for MSSA patients ( $p = .07$ ). After implantation of the new treatment protocol, the number of antibiotics used for CA-MRSA decreased from 3.4 (in 2004) to 3.0 (in 2006) and for MSSA from 4.0 (in 2004) to 2.3 (in 2006), respectively.

#### **CONCLUSIONS:**

The number of community-acquired MRSA hand and upper extremity infections has increased at our medical center. Health care providers must be proactive in identifying and treating even the most routine hand infection with aggressive debridement and appropriate antibiotics, in particular with a high index of suspicion for CA-MRSA.