MRSA Carrier Rate in Orthopaedic Trauma Patients: A Prospective Cohort Study

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**Purpose:** Screening for methicillin-resistant *Staphylococcus aureus* (MRSA) is commonly performed prior to elective orthopaedic surgery in order to identify carriers, enable decolonization, and ensure adequate antibiotic prophylaxis. However, due to the acute nature of orthopaedic trauma, the MRSA colonization status of these patients is often unknown at the time of surgery. The aims of this study were (1) to identify the MRSA colonization rate among patients undergoing surgical treatment by the orthopaedic trauma service, and (2) to determine if screening may be an effective tool for reducing postoperative infection in this patient population.

**Methods:** An MRSA screening protocol was initiated for all patients undergoing surgical treatment by the orthopaedic trauma service at an academic Level I trauma center over a 3-month period. Patient demographics, American Society of Anesthesiologists status, medical comorbidities, and tobacco/substance use were recorded. Patients with follow-up of less than 6 weeks were excluded. Patients were divided into 2 groups: “acute” (immediate or delayed definitive surgery for an acute fracture) and “non-acute.” The non-acute group included patients requiring surgical intervention for nonunion, malunion, hardware removal, infection eradication, or any other non-fracture-related condition.

**Results:** Our screening protocol captured 71% (175/248) of eligible patients during the study period. The overall MRSA carrier rate was 3.4% (6/175). When separated by group, the acute cohort had an MRSA carrier rate of 1.4% (2/143). Only 1 MRSA infection was identified in the acute group, occurring in a patient who tested negative for MRSA. The non-acute group had a significantly higher carrier rate at 12.5% (4/32, P = 0.01). In this group, a single MRSA infection occurred in an MRSA-positive patient. Compared to the acute group, the odds ratio for MRSA colonization in the non-acute group was 10.1 (95% confidence interval 1.87, 75.2).

**Conclusion:** There is a low MRSA colonization rate (1.4%) in patients presenting to our institution for acute fracture care. An MRSA screening protocol for this group was not found to be an efficient or cost-effective tool for reducing surgical site infection. Orthopaedic trauma patients undergoing non-acute or elective surgery have a significantly higher MRSA carrier rate (12.5%). This patient group, which includes patients with nonunion and malunion or those requiring hardware removal or infection eradication surgery, may benefit from MRSA screening. Further research is required to determine the potential benefit of MRSA decolonization prior to elective fracture-related surgery.