Staphylococcus aureus (SA) is one of the most common causes of prosthetic joint infection (PJI). Infections due to MRSA are associated with particularly severe clinical outcomes. The purpose of this study was to identify predictors of PJI due to MRSA as compared to methicillin-susceptible S. aureus (MSSA).

A retrospective cohort study was conducted at Detroit Medical Center (DMC) (an 8-site healthcare system in Southeast MI with over 2200 beds) from 06/2005-12/2011. All patients who had SA isolated from tissue and wound cultures within one year of primary and/or revision surgeries of hip and/or knee joints were included. All culture data were processed and reported by the DMC Clinical Microbiology Laboratory. CLSI breakpoints were used to define methicillin-sensitive SA (MSSA) and methicillin-resistant SA (MRSA). Percents were calculated after excluding missing data.

Parameters abstracted from electronic medical records during the time of surgery included patient's co-morbidities, tobacco use, surgical prophylaxis and other surgery related variables. Renal impairment was defined as serum creatinine higher than 2 fold from baseline or if the patient received hemodialysis or peritoneal dialysis.

In multivariate analysis, independent predictors of PJI due to MRSA included PVD (OR=5.9, 95% CI 1.5-23.0), renal disease (OR=8.5, 95% CI 1.0-73) and LOS>3 days (OR=2.2, 95% CI 0.9-5.3) (Table 2).

Conclusion

PJI due to MRSA was associated with underlying PVD, renal disease and LOS > 3 days. These predictors of PJI due to MRSA can help to target efforts to prevent MRSA PJI, and to decrease the time to effective therapy among patients with MRSA PJI.