

The impact of surgical site infection (SSI) on duration of hospitalization among elderly patients following orthopedic surgery

J. Lee, K.E. Schmader, R. Sloane, K.S. Kaye

Duke Univ Med Ctr

Background: Orthopedic SSI adversely affects health outcomes in elderly patients (>64 years of age). The objective of this study was to quantify the impact of SSI on the duration of hospitalization (LOS) in elderly patients following orthopedic surgery.

Methods: A matched outcomes study was conducted in 8 hospitals between 6/1991 and 7/2002. Cases were defined as elderly patients who developed SSI following orthopedic surgery. Controls were elderly orthopedic surgery patients who did not develop SSI. Controls were frequency matched to cases by procedure type, year and hospital. Data were abstracted from patient charts and hospital databases. The outcome was total LOS (including readmissions) during the 90-day postoperative period. Multivariable analysis was performed using linear regression.

Results: 169 SSI cases were identified and 171 controls were selected. The mean age of study patients was 74.7 years, 66% were female and 83% were Caucasian. The most frequent procedures were hip arthroplasty (n=74, 21.8%), fracture repair (n=55, 16.2%), and knee arthroplasty (n=40, 11.8%). The most common SSI pathogen was *Staphylococcus aureus* (n=95, 56.1% of SSI cases; 54.7% of *S. aureus* pathogens were methicillin-resistant). In bivariate analysis, SSI was associated with an increased LOS after surgery (13 days for SSI cases vs. 4 days for controls; $p < 0.001$). In multivariate analysis, SSI remained an independent predictor of increased LOS [2.5 fold increase; 95% confidence interval (CI) 2.1-3.0; or 9.4 days/SSI (95% CI 7.1-12.3)]. Additional predictors of LOS were inability to bathe independently (4.6 fold increase), increased procedure duration (1.3 fold increase), postoperative glucose ≥ 200 mg/dl (1.3 fold increase) and surgery on the same day as hospitalization (0.8 fold decrease).

Conclusion: Among elderly orthopedic surgery patients, SSI significantly increased the duration of LOS compared to uninfected controls.