Paper #15

A Decade of Protocol Developments for SSI Prevention: Intraoperative Betadine Irrigation Prevails

Notes

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Introduction: Due to its significant morbidity and high costs, surgeons have always strived to reduce and even eliminate surgical site infection (SSI) following TKA. Our aim was to compare the efficacy of intraoperative measures introduced over the last decade to prevent SSI.

Methods: We identified 10,949 consecutive primary TKA performed from 2006-2017. Over the course of the study period, several step-wise measures were implemented heterogeneously, including (1) intraoperative dilute betadine irrigation, (2) skin closure with subcuticular monofilament sutures instead of staples, and (3) application of an occlusive dressing. Patients also received systemic and local antibiotic prophylaxis. All SSIs (CDC definition) were identified within 90 days of the index procedure. Statistical analyses were performed with logistic regression accounting for both patient and surgical factors.

Results: During the study period, 19.4% of patients (n=2,124) received betadine irrigation (0.24% SSI), 27.1% of patients (n=2,964) had monofilament suture closure (0.37% SSI), 22.0% of patients (n=2,411) received an occlusive dressing (0.33% SSI), and 70.0% of patients (n=7,665) received none of the aforementioned measures (0.60% SSI). Based on univariate analysis, betadine irrigation was the only measure that significantly reduced the incidence of infection (odds ratio [OR] 0.38, 95% CI 0.15-0.96). Even after accounting for ten variables, the SSI risk reduction with the use of betadine irrigation was nearly significant (OR 0.28, 95% CI 0.07-1.1; p=0.067) and was independently significant on omnibus testing (p=0.044). Further, suture closure (OR 1.17, 95% CI 0.31-4.5), application of an occlusive dressing (OR 0.64, 95% Cl 0.15-2.7), and year of surgery were not significantly associated with a reduction in SSI.

Conclusion: While the implementation of multiple measures may have contributed to improvements in SSI prevention, intraoperative betadine irrigation appears to have played the greatest individual role. Our experience supports the addition of betadine irrigation to the perioperative armamentarium.

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