

Impact of Postoperative Antibiotic Prophylaxis Duration on Surgical Site Infections in Autologous Breast Reconstruction

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Abstract

Background: Some surgeons prescribe prolonged postoperative antibiotics following breast reconstruction; however, evidence is lacking to support this practice.¹⁻³ We utilized the Tracking Operations and Outcomes for Plastic Surgeons (TOPS) database to evaluate the association between postoperative antibiotic duration and the rate of surgical site infection (SSI) in autologous breast reconstruction.

Methods: The intervention of interest for this study was postoperative duration of antibiotic prophylaxis: either discontinued 24 hours after surgery or continued beyond 24 hours. The primary outcome variable of interest for this study was the presence of SSI within 30-days of autologous breast reconstruction. Cohort characteristics and 30-day outcomes were compared using χ^2 and Fischer's exact tests for categorical variables and Student T-tests for continuous variables. Multivariate logistic regression was utilized to control for confounders.

Results: A total of 1,036 patients met inclusion criteria for our study. 659 patients (63.6%) received antibiotics for 24 hours postoperatively, and 377 patients (36.4%) received antibiotics for greater than 24 hours. The rate of SSI did not differ significantly between patients given antibiotics for only 24 hours and those continued on antibiotics beyond the 24-hour postoperative time period (5.01% vs. 2.92%, $p = 0.109$; figure 1). Furthermore, antibiotic duration was not predictive of SSI in multivariate regression modeling.

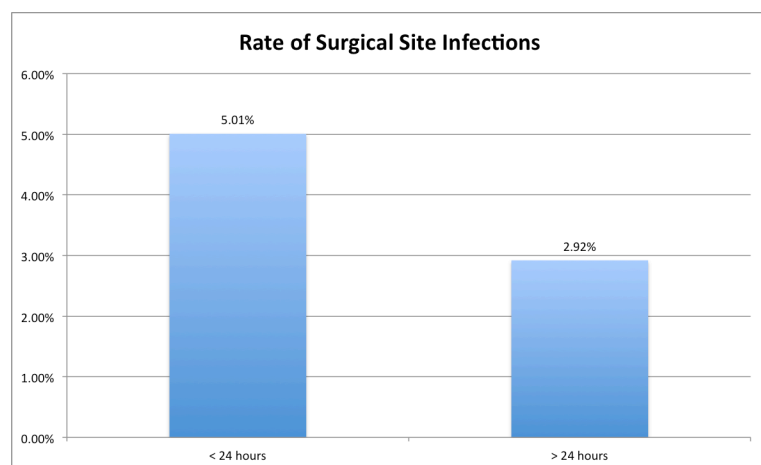


Figure 1. Rate of Surgical Site Infections

Conclusion: Our study represents the largest to date to examine the association between postoperative antibiotic duration and surgical site infection rate in autologous breast reconstruction. We did not find a statistically significant difference in the rate of SSI in patients who received 24 hours of postoperative antibiotics compared to those that received antibiotics for greater than 24 hours. Our study does not provide evidence to support continuing antibiotics beyond 24 hours postoperatively for patients undergoing autologous breast reconstruction.

References:

1. Brahmbhatt, R. D., Huebner, M., Scow, J. S., et al. National practice patterns in preoperative and postoperative antibiotic prophylaxis in breast procedures requiring drains: survey of the American Society of Breast Surgeons. *Annals of surgical oncology*.19: 3205-3211, 2012.
2. Phillips, B. T., Bishawi, M., Dagum, A. B., et al. A systematic review of antibiotic use and infection in breast reconstruction: What is the evidence? *Plastic and reconstructive surgery*. 131: 1-13, 2013.
3. Phillips, B. T., Wang, E. D., Mirrer, J., et al. Current practice among plastic surgeons of antibiotic prophylaxis and closed-suction drains in breast reconstruction: Experience, evidence, and implications for postoperative care. *Annals of plastic surgery*. 66: 460-465, 2011.

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