Evaluation of perioperative antibiotics in breast reconstructive surgery

Ian Murphy, PharmD[1], Maryrose Laguio-Vila, MD[1], Mary Staicu, PharmD[1]

[1]Rochester General Hospital, Rochester, NY

Introduction

- Surgical site infections (SSI) are estimated to be responsible for over one third of the annual costs associated with healthcare-acquired infections
- Perioperative antibiotics have been shown to reduce rates of SSI when administered in compliance with guidelines
- This was a retrospective chart review evaluating perioperative surgical prophylaxis guideline compliance for patients undergoing either mammary augmentation with silicone implants, mammary implant exchange, or revision breast reconstruction

Methodology

- A retrospective chart review was conducted in patients ≥18 years of age who underwent breast reconstructive surgery between Jan and Dec 2018
- The primary objective was to evaluate perioperative antibiotic prescribing and surgical prophylaxis guideline compliance
- The secondary objectives were to describe post-operative complications including *C. difficile* infection (CDI) within 3 months, SSI within 30 days of procedure, 30-day all-cause mortality and readmission, and hospital length of stay

Results

- Fifty patients were included
- Overall, 45 (90%) patients received cefazolin, the recommended pre-operative agent per institutional guidelines
- In total, 48 (96%) patients had antibiotics administered within the time-frame specified by institutional guidelines
- In total, 38 (76%) patients received post-operative antibiotics, despite institutional guidelines stating that post-operative antibiotics are not recommended for breast reconstructive procedures
- Only 12 (24%) patients received perioperative antibiotics in compliance with institutional guidelines when accounting for pre-operative agent selected, pre-operative timing, and use of pre-operative antibiotics
- CDI was experienced by 1 (2%) patient who received cefazolin pre- and post-operatively, as well as cephalexin as an outpatient
- Only 2 (4%) patients were readmitted, one patient with a fever and one with CDI

The majority of patients undergoing breast reconstructive surgery received unnecessary perioperative antibiotics.

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Corresponding author: ian.murphy@rochesterregional.org

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Figure 1. Institutional Breast Surgery Prophylaxis Guidelines

Preoperative Agent			Postoperative Agent
First-Line Agent	**Allergy to First-Line Agent**		
Cefazolin 2-3 g	**Second-Line** Vancomycin 1-2 g	**Third-Line** Clindamycin 900 mg	Not Recommended
Administration			
Within 1 hour of procedure	Within 2 hours of procedure	Within 1 hour of procedure	

Table 1. Baseline Demographics (n=50)	
Female gender, n (%)	48 (96)
Antibiotic allergy, n (%)	16 (32)
Renal Function, n (%)	
CrCl ≥ 60 mL/min	30 (60)
CrCl < 60 mL/min	20 (40)
Age, mean years (SD)	49.6 (13.6)
Weight, mean kilograms (SD)	73.1 (2.9)

Figure 2. Procedures Included in Study (n=50)

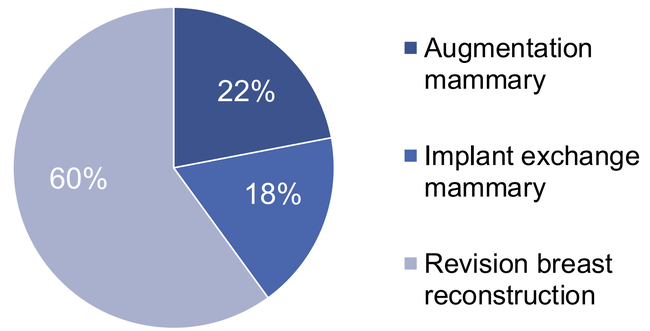

Table 2. Primary Endpoints (n=50)	
Guideline appropriate pre-op antibiotic, n (%)	45 (90)
Appropriately timed pre-op antibiotic, n (%)	48 (96)
Post-op antibiotics prescribed, n (%)	38 (76)
Outpatient antibiotic prescription, n (%)	35 (70)
Overall guideline compliance, n (%)	12 (24)

Table 3. Secondary Endpoints (n=50)	
Surgical site infection within 30 days, n (%)	0 (0)
Reoperation within 30 days, n (%)	0 (0)
CDI within 30 days, n (%)	1 (2)
30-day readmission, n (%)	2 (4)
30-day mortality, n (%)	0 (0)
Documented adverse reactions, n (%)	2 (4)
Hospital length of stay, mean days (SD)	1.3 (0.46)
Inpatient antibiotic duration, mean days (SD)	1.3 (0.46)
Outpatient antibiotic duration, mean days (SD)	3.7 (2.74)
Total antibiotic duration, mean days (SD)	4.9 (2.91)