Abstract

Background: Pre-operative antimicrobial prophylaxis is a key strategy for preventing surgical site infection (SSIs). The current ASHP (American Society of Health-System Pharmacists) guidelines recommend cefazolin as a preferred first-line therapy for most surgical procedures. However, the presence of penicillin allergy labels often leads to providers avoiding cefazolin due to preconceived notions of cross-reactivity concern. This avoidance has been shown to result in the use of less effective alternative antibiotics and contribute to poorer outcomes despite evidence demonstrating that risk of cross-reactivity is almost negligible.

Methods: This retrospective observational study was conducted at Mercy Hospital Southeast to evaluate adherence to ASHP surgical prophylaxis guidelines. Adult patients undergoing abdominal hysterectomy, breast surgery, coronary artery bypass graft (CABG), other cardiac surgery, colon surgery, hip prosthesis, knee prosthesis, or spinal fusion between January 1, 2025, and April 30, 2025, were included. Guideline adherence was assessed across five domains: antibiotic selection, dose, timing of administration relative to incision, appropriate intraoperative redosing and timing of intraoperative redosing. Subgroup analyses were performed based on surgical procedure type and presence of beta lactam allergy.

Results: A total of 323 surgical encounters met inclusion criteria. Overall guidelines adherence occurred in 79% of encounters. The most common deviation from guidelines recommendations was inappropriate timing of antibiotic administrations which accounted for 63.3% of all fallouts. Cefazolin was the most frequently administered prophylactic antibiotic, used in 78% of encounters. Among the patients with a documented beta lactam allergy, 96% still received the guidelines-preferred first line agent.

Conclusion: Surgical antimicrobial prophylaxis practices Mercy Hospital Southeast demonstrated strong adherence to guidelines recommended antibiotic selection, including appropriate use of cefazolin in patients with beta lactam allergy labels. However, opportunities exist to improve the timing of antibiotic preoperative administration. This calls for a review and adjustments of workflow operations and continued antimicrobial stewardship.