



Research Week 2020

Assessment of beta-lactam allergies as rationale for receipt of vancomycin for surgical prophylaxis

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Keywords

penicillin allergy, surgery, antibiotic stewardship

Abstract

Background

Beta-lactam antibiotics are the drugs of choice for the majority of patients receiving antimicrobial prophylaxis in surgical procedures. Despite evidence showing low cross-reactivity between classes of beta-lactams, patients with reported allergies commonly receive vancomycin as an alternative to avoid allergic reaction. The objective of this study was to identify potentially inappropriate use of vancomycin surgical prophylaxis among patients with reported beta-lactam allergies.

Methods

Adult patients (≥ 18 years) receiving vancomycin for surgical prophylaxis with a reported penicillin and/or cephalosporin allergy at our institution between August 2017 to July 2018 were evaluated for potential of penicillin allergy testing and/or receipt of standard prophylaxis. Surgery type and allergy history were extracted from the electronic medical record. Per our institution's penicillin-testing protocol, patients with IgE-mediated reactions < 10 years ago were eligible for penicillin skin testing (PST), mild reactions or IgE-mediated reaction > 10 years ago were eligible for direct oral amoxicillin challenge, and severe non-IgE mediated allergies were ineligible for penicillin allergy evaluation or beta-lactam prophylaxis.

Results

Among 830 patients who received vancomycin for surgical prophylaxis, 196 reported beta-lactam allergy and were included (155 with penicillin allergy alone; 21 with cephalosporin allergy; 20 with both cephalosporin and penicillin allergy). Approximately 40% of surgeries were orthopedic. Five patients were ineligible for beta-lactam prophylaxis. Per institutional protocol, 73 of 155 patients (48%) may have qualified for PST; 81 of 155 (52%) patients may have received a direct oral amoxicillin challenge. Only three patients with history of methicillin-resistant *Staphylococcus aureus* appropriately received additional prophylaxis with vancomycin and a beta-lactam.

Conclusions

Patients with reported beta-lactam allergies often qualify for receipt of a recommended beta-lactam antibiotic. There exists an opportunity for improved beta-lactam allergy assessment as an antimicrobial stewardship intervention. Future studies should evaluate outcomes associated with beta-lactam allergy evaluation and delabeling in patients receiving surgical prophylaxis.

