

Outcomes of Administering Cefazolin vs. Other Antibiotics in Penicillin Allergic Patients for Surgical Prophylaxis

Wendy Song; Tim T Y Lau, PharmD; Salomeh Shajari, BSc; Amneet Aulakh, PharmD; Andrew Meikle, MD; Raymond Mak, MD; Nilu Partovi, PharmD; Jennifer Grant, MD CM
ASPIRES, Vancouver Coastal Health; Pharmaceutical Sciences, Vancouver General Hospital; and Faculties of Pharmaceutical Sciences and Medicine, The University of British Columbia, Vancouver, BC, Canada

THE ISSUE

CEFAZOLIN is DRUG OF CHOICE for SURGICAL PROPHYLAXIS in most procedures

- In penicillin-allergic patients, cefazolin is avoided due to concerns of cross-reactions
- Alternative antibiotics are associated with: ↑ surgical site infections (SSIs), ↑ *Clostridium difficile* infections, & ↑ vancomycin-resistant enterococci

CROSS-REACTIVITY between PENICILLINS & CEPHALOSPORINS are due to similarities in their SIDE-CHAIN structures

- Cefazolin has an unique R1 side-chain and does not cross-react with any other penicillins & cephalosporins

In January 2018, some surgeons & anesthesiologists started using cefazolin in penicillin-allergic patients. In October 2018, all surgical pre-printed orders were updated to recommend cefazolin for penicillin-allergic patients, except in those with previous history of severe delayed skin reactions

THE PURPOSE

To determine SAFETY & EFFICACY of CEFAZOLIN vs. OTHER ANTIBIOTICS for surgical prophylaxis in patients with previous anaphylaxis to penicillins

THE METHODS

RETROSPECTIVE CHART REVIEW

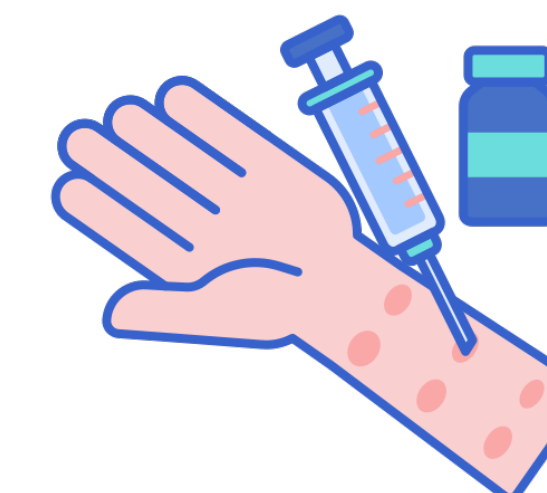
was conducted at Vancouver General Hospital (VGH) from Oct. 9, 2017 – Oct. 9, 2018 for all eligible patients receiving surgical prophylaxis to ensure safety of cefazolin prior to new pre-printed orders

PATIENTS IDENTIFIED

through Patient Care Information Systems database with

HISTORIES OF ANAPHYLAXIS TO PENICILLINS

"Anaphylaxis"
"Throat/facial swelling"



"Shortness of Breath"
"Hives/urticaria"

DATA COLLECTION

- Demographics
- Surgical procedures
- Surgical prophylaxis regimens (cefazolin, clindamycin, vancomycin, other)
- Adverse drug events
- Length of hospital stay

THE MEASUREMENTS

1073 pre-op antibiotic orders in penicillin allergic patients assessed for eligibility

852 orders excluded

- 817 orders from non-anaphylactic patients
- 21 duplicate order entries
- 6 orders missing information
- 1 order administered with penicillin (confounder)
- 7 cancelled orders

221 antibiotic orders from penicillin anaphylactic patients reviewed

77 cefazolin orders

63 clindamycin orders

33 vancomycin orders

48 other antibiotic orders

	Allergic Reactions			Infections		Antibiotic Adverse Effects
	Full Body Pruritus	Rash	Hives	Sepsis	Cellulitis/SSIs	Red Man Syndrome
Cefazolin (n=77)	2 (2.6%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	1 (1.2%)	0 (0.0%)
Clindamycin (n=63)	2 (3.2%)	0 (0.0%)	0 (0.0%)	1 (1.6%)	1 (1.6%)	0 (0.0%)
Vancomycin (n=33)	1 (3.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.0%)
Others (n=48)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.1%)	0 (0.0%)

THE CHALLENGES

- Education required for all healthcare providers to overcome historic fear of using cefazolin in penicillin-allergic patients
- Limited sample size (n=221)
- Inclusion reliant on accuracy of allergy history
- Opiates & anesthetic agents are possible causes of adverse drug events
- Lack of outpatient follow-up



THE KEY LESSONS LEARNED

- ✓ CEFAZOLIN appears SAFE for surgical prophylaxis IN PATIENTS WITH PENICILLIN ANAPHYLAXIS
- ✓ NO CASES OF ANAPHYLACTIC REACTIONS reported with cefazolin in penicillin-anaphylactic patients
- ✓ NO DIFFERENCES IN ALLERGIES & ADVERSE DRUG EVENTS with cefazolin vs. any antibiotic group
- ✓ ANESTHESIOLOGISTS can play role to promote APPROPRIATE ANTIBIOTICS

THE NEXT STEPS

- EDUCATE HEALTHCARE PROVIDERS (surgeons, nurses, anesthesiologists, physicians, pharmacists) on SAFETY OF CEFAZOLIN in penicillin-allergic patients
- Collect DATA POST-IMPLEMENTATION OF UPDATED PRE-PRINTED ORDERS to ensure cefazolin remains safe & effective for our patients

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