



Involvement of Allergy and Immunology in Peri-Operative β -Lactam Allergy Management

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August 2019

Background

- 1st generation cephalosporins: gold standard antimicrobials peri-operatively
- β -Lactam Allergy: alternative antibiotics
- Retrospective cohort study found that pts with a Penicillin allergy had a 50% increased odds of SSI
- While ~10% of patients report a history of Penicillin allergy, ~90% are not truly allergic
- Cross-reactivity rate between 1st generation cephalosporins or cephalosporins with similar R1 side chains and penicillins is about 1%

Cost of antimicrobials at RUMC

- Cefazolin 2g IV --- \$1.33
- Vancomycin 1250mg IV --- \$3.00
- Clindamycin 900mg IV --- \$2.50

Prevalence of β -Lactam Allergy at RUMC Peri-Operative Clinic

- 433/2610 (17%)

Questionnaire

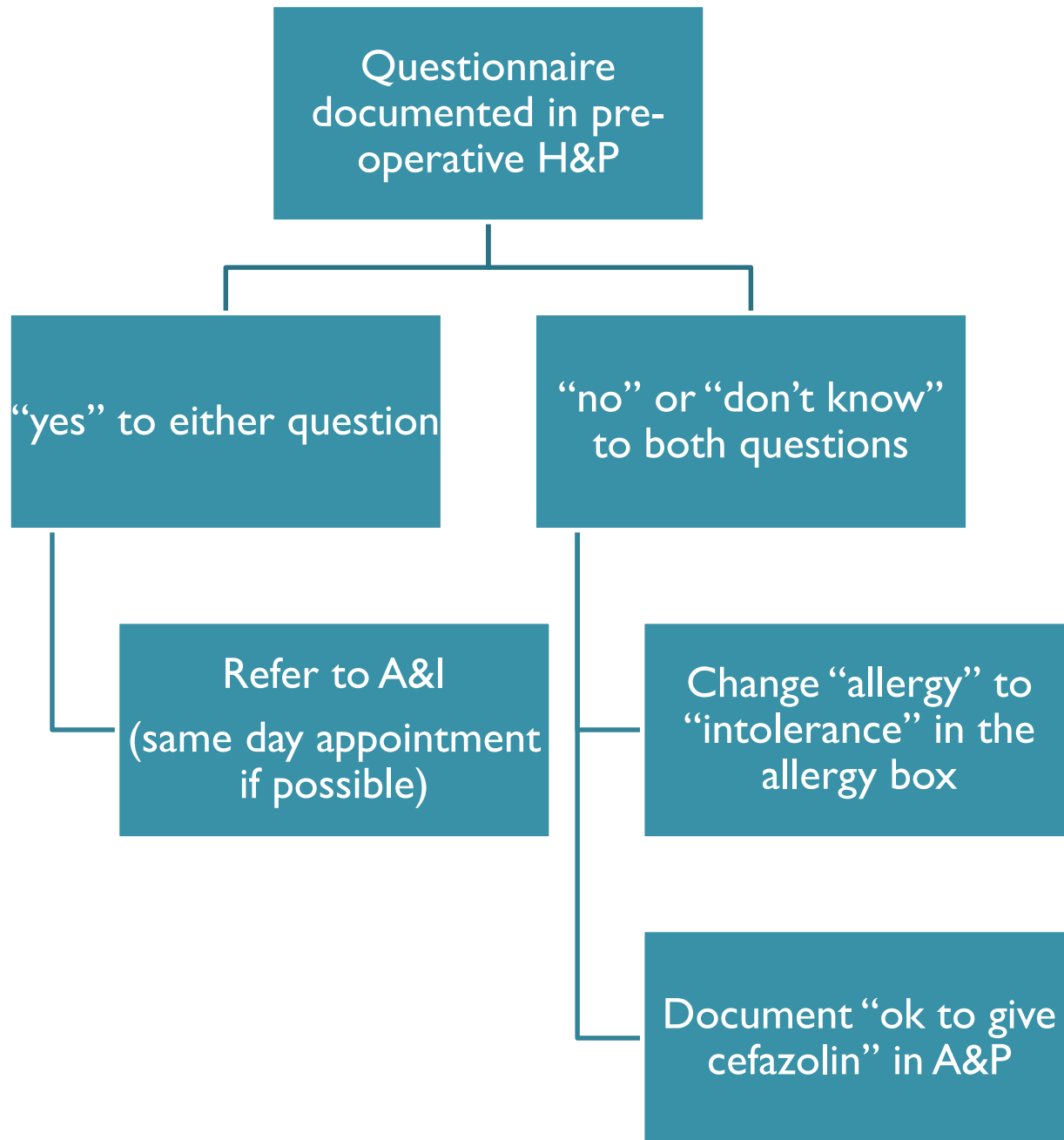
- 1: Do you have any allergic reaction to Cefazolin?
 - If yes: refer to A&I and hold Cefazolin
 - If no/Don't know: go to question 2
- 2: Did you have any of the following reactions to a penicillin?
 - Urticaria/hives that begin within 2 HOURS of drug taken
 - Shortness of breath / wheezing
 - Facial / throat / tongue swelling
 - Passed out / blood pressure dropped
 - Needed epinephrine
 - Fever or other severe systemic illness
 - Blistering rash involving skin or mucous membranes
 - If yes to any: refer to A&I and hold Cefazolin
 - If no or don't know to all: safe to administer Cefazolin

Hypothesis

- Use of a screening tool developed by A&I team at RUMC to de-label β -Lactam allergy in patients undergoing a procedure is associated with:
 - more patients receiving cefazolin
 - lower rate of SSI
 - lower cost of antimicrobials
 - unchanged rate of ADR

Subject selection

- Inclusion Criteria:
 - Patients with documented β -Lactam Allergy
 - Patient seen in pre-operative clinic 3 months prior to and 3 months after implementation of screening tool
 - January 22, 2019
 - Patients 18 years and older
- Exclusion Criteria:
 - Patients 18 years and younger



Baseline Characteristics of Cohort		
	Pre-Pilot	Post-Pilot
Allergy:		
Penicillins	37	45
Cephalosporins	8	3
Penicillins & Cephalosporins	5	2
Sex:		
Female	24	35
Male	26	15
Surgery/Procedure:		
Orthopedic	14	21
Ear, Nose, & Throat	12	6
Neurosurgery	14	9
Obstetrics & Gynecology	4	6
Ophthalmology	2	2
Urology	2	3
Dermatology	1	3
General (abdominal)	1	0

Results

Post-Pilot Screening Questionnaire	# of pts	%
Question #1 (Allergic reaction to Cefazolin)		
Yes	3	6%
No	12	24%
Unknown	14	28%
Not asked	21	42%
Question #2 (IgE mediated/systemic rxn to PCN)		
Yes	15	30%
No	8	16%
Unknown	6	12%
Not asked	21	42%

Referral to A & I		
	Pre-Pilot	Post-Pilot
Referred	1	14
Went to Appointment	1 (100%)	6 (43%)
Deferred	0	8 (57%)

A & I Testing Results		
	Pre-Pilot	Post-Pilot
Penicillin Skin Test	0	5
Negative		5
Positive		0
Amoxicillin Oral Challenge	0	5
Negative		5
Positive		0

Perioperative Antibiotics		
	Pre-Pilot	Post-Pilot
Cefazolin (+/- additional)	7 (14%)	11 (22%)
Cefoxitin (+/- additional)	0	1 (2%)
Cefepime (+/- additional)	0	2 (4%)
Alternative, broad-spectrum	32 (64%)	25 (50%)
None or no surgical record	11 (22%)	11 (22%)

Adverse Drug Reactions & SSI		
	Pre-Pilot	Post-Pilot
Adverse Drug Reactions		
Yes	0	0
No	41	43
N/A	8	7
Unknown	1	0
Surgical Site Infections		
Yes	1 (2%)	3 (6%)
No	41	40
N/A	7	6
Unknown	1	1

Summary

- Number of patients who were referred to and saw A&I and underwent Penicillin ST and Amoxicillin OC increased
- All patients who underwent Penicillin ST and Amoxicillin OC had no IgE mediated symptoms
- Number of patients who received a cephalosporin increased
- No difference in ADR
- Higher number of SSI in post-pilot group

Limitations


- Retrospective chart review
- Preliminary data
- IM attendings forgot/not informed about questionnaire
- Providers hesitant to modify allergy box
- Unclear documentation
- Failure to read Peri-Operative H&P
- Limited testing during A&I appointment
- All procedures included in analysis
- Drug allergy management differs among A&I attendings

Acknowledgements

- Faculty Development Program
 - Stokes Peebles, MD, FAAAAI
- Sponsoring Faculty Staff
 - Sindhura Bandi, MD
- Co-Investigators
 - Hassan Ahmad, MD
 - Sarah Won, MD
 - Hiroaki Hayashi, MD
 - Hayley Hodgson, Clinical Pharmacist

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