Beta-lactam Antibiotic Allergies

Importance of Identification, Clarification, and Potential De-Labeling of Penicillin Allergies to Potentially Lower Harm & Costs to Patients

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Background

- 1/10 of US population labeled penicillin allergic
  - 5 million children penicillin allergy label
  - 3/4 of children labeled before 3rd birthday
- 1/20 people with a reported penicillin allergy are truly allergic
  - Infrequently true IgE-mediated reactions
  - 80% of patients with lose sensitivity after 10 years
- Anaphylaxis is rare

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Background cont.

- Over 20,000 children in CMHN have had a penicillin allergy label
- Over 12,000 with active allergy labels
- Majority without a severity or clarification of the allergy

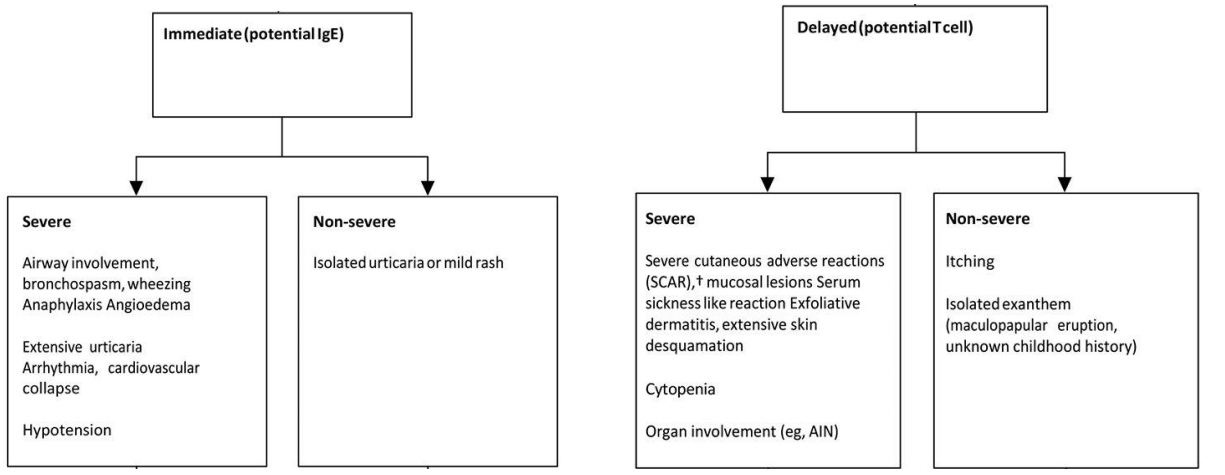
Patient outcomes

- 35% receive regimens deviating from standard of care
- Up to 30% greater risk of MDRO infections
- 3x increased risk of adverse drug reaction
- Increased rate of clinical failure
- 50% increased odds of surgical site infections

Costs

- Prescriptions are 30-40% costlier
- $34 million cost saving if half of children seen for OM, prescribed amoxicillin instead of cefdinir
- Total inpatient cost saving from $1145 - $4254/patient if de-labeled

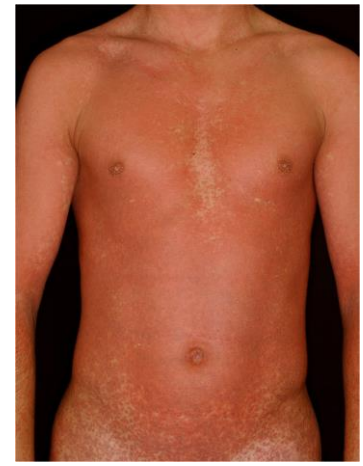
Immunologically-Mediated HSR



Lancet. 2019 Jan 12;393(10167):183-198. doi: 10.1016/S0140-6736(18)32218-9

Other causes of rash

- Drug-infection interaction
- Drug-drug interaction
- Infection



Allergy Asthma Clin Immunol. 2015 Jan 9;11(1):1. doi: 10.1186/1710-1492-11-1

What is not an allergy

- Family history of a reported allergy
  - Beta-lactam allergies are not correlated among family members
- Intolerances
  - Nausea/cramping/diarrhea/headache only are not allergies
- Rashes occurring after antibiotic is completed

Clarify the Allergy

- Timeframe
  - ≤ 48 hours from starting medication is higher risk IgE mediated
  - ≥ 72 hours from starting medication is likely non-allergic or T-cell mediated
- Rash?
  - Describe, maculopapular or morbilliform rash is uncommon for IgE mediated reaction
- Additional Symptoms?
- Any medications needed?

What can you do?

- Remove label without testing in patients if:
  - Family history without demonstrated allergy in patient
  - Nausea/diarrhea/headache only
  - Rash occurred after stopping medication
  - Tolerated a penicillin class antibiotic after said allergy
- If there is only history of mild rash near end of course consider re-trying a penicillin
- Over 90% of children challenged can tolerate antibiotic

Referral

- Referral options for skin testing and/or oral challenge: ID or Allergy Immunology
  - Patients who have a penicillin class allergy such as penicillin, amoxicillin, ampicillin, oxacillin, piperacillin-tazobactam allergy listed can go to either
  - Refer to Allergy Immunology specifically if there is concern for multiple drug classes, already followed by A&I, concern for specific drug within class

Communication is Key to Success!

- Once a patient is de-labeled, it is important to remove the allergy from the chart
- Preferred pharmacies should be notified
- Family and Providers should be aware that the label was removed for IgE mediated reactions
- This does not exclude the patient from a delayed rash in the future
- It does mean a life-threatening allergic IgE mediated reaction has not been noted, and medication can be safely taken if needed