PENICILLIN ALLERGY

LABELING AND DE-LABELING

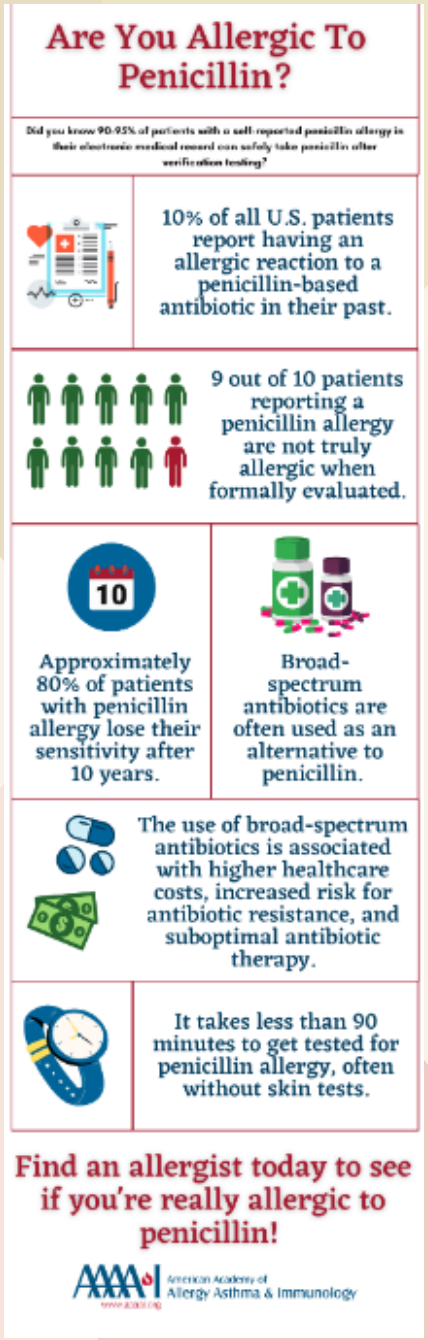
Katina Kokkinos, APRN, FNP-C

OBJECTIVES:

- Identifying true PCN allergic symptoms versus rashes of other origins.
- Proper follow up in other outpatient settings.
- Identifying the role of the allergy department regarding PCN allergies.

DID YOU KNOW...

- That 10% of the U.S. population has penicillin or amoxicillin listed as an allergy; but nearly 95% of these people can *actually* tolerate the drug?
- That the baseline risk for a reaction to a beta lactam antibiotic is only about 2%?
- That 80% of TRUE penicillin allergic patients can tolerate the drug/"outgrow" the allergy within a decade?



TYPICAL SYMPTOMS

- RASH (RESEMBLING HIVES, "BLOTCHES", OR "PIMPLES")
- ITCH
- MILD SWELLING WHERE RASH OCCURS

WHY DOES THIS MATTER?

- How many times do children need antibiotics?
- If amoxicillin is on their allergy list, how effective is the second line treatment?
- Do you sometimes need to use two different antibiotics from different drug classes to clear an infection?
- Do your patients complain about undesirable side effects from other antibiotics, such as stomach upset?
- What is the potential financial burden of other medications?

WHAT CAN THOSE SYMPTOMS POTENTIALLY MEAN?

- WAS RASH FROM INFECTION? VIRAL?
- WAS THIS A SIDE EFFECT/ADVERSE REACTION TO THE DRUG?
- IDIOPATHIC?

CLASSIC CASE STUDY:

IN THE ALLERGY DEPARTMENT

A mom comes in with her 3-year-old son who has a history of PCN allergy. Mom states that patient has a history of frequent AOM. Patient was diagnosed with yet another ear infection about a month ago at his PCP's and patient needed Omnicef to treat, which gives patient a bad stomachache and diarrhea. Mom feels bad that her child is dealing with the ear infection AND GI issues at the same time. She wants to explore the option of de-labeling his PCN allergy but is nervous to proceed because about 2 years ago, he developed a widespread, red, blotchy rash halfway through the amoxicillin course for AOM. Although patient previously tolerated amoxicillin once or twice prior to that incident, and although there was no associated respiratory distress, angioedema, fevers, or skin blistering, mom is still nervous to give amoxicillin because "what if symptoms are more than just a rash next time?"

IGE MEDIATED RESPONSES

Typically occur instantly, but mostly within 2 hours.

Classic symptoms: swelling, respiratory distress, hives, n/v/d.

WHAT WE ULTIMATELY WANT TO ACHIEVE:

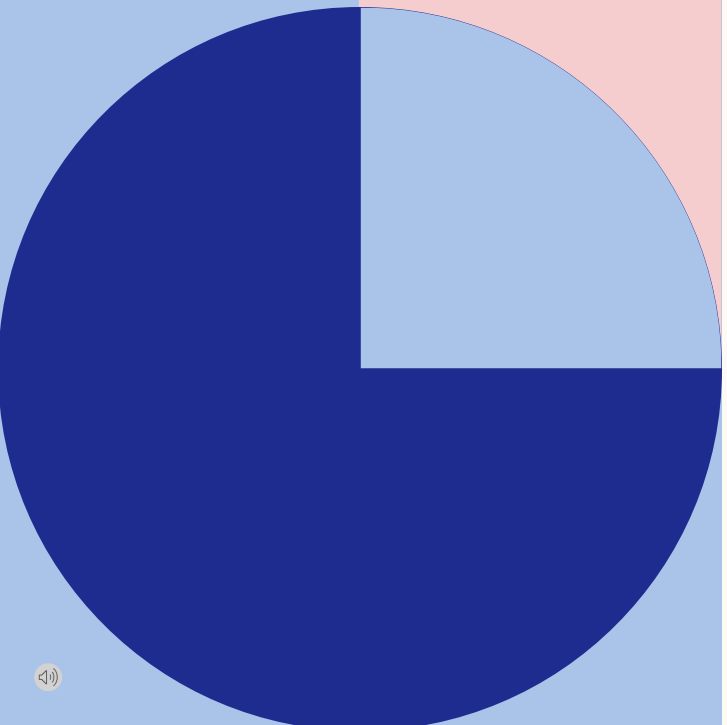
Gold standard of proving/disproving a drug allergy: drug challenge.

Standard dose of medication given (either at 100% or 10%/90%) followed by an hour observation period.

Do any symptoms occur? If not, take off allergy list.

ANOTHER CASE STUDY:

A dad comes in with his 5-year-old daughter. He states that patient was diagnosed with a sinus infection 2 weeks ago and was started on amoxicillin. This was the first time she has ever needed antibiotics in her life, since patient was a very healthy kid growing up. Patient completed one day's worth of amoxicillin (2 doses) and developed widespread hives, lip swelling, and one episode of vomiting. Thankfully, no respiratory distress. Patient took Zyrtec 5 ml which cleared symptoms a few hours later. PCP recommended that patient discontinued medication.



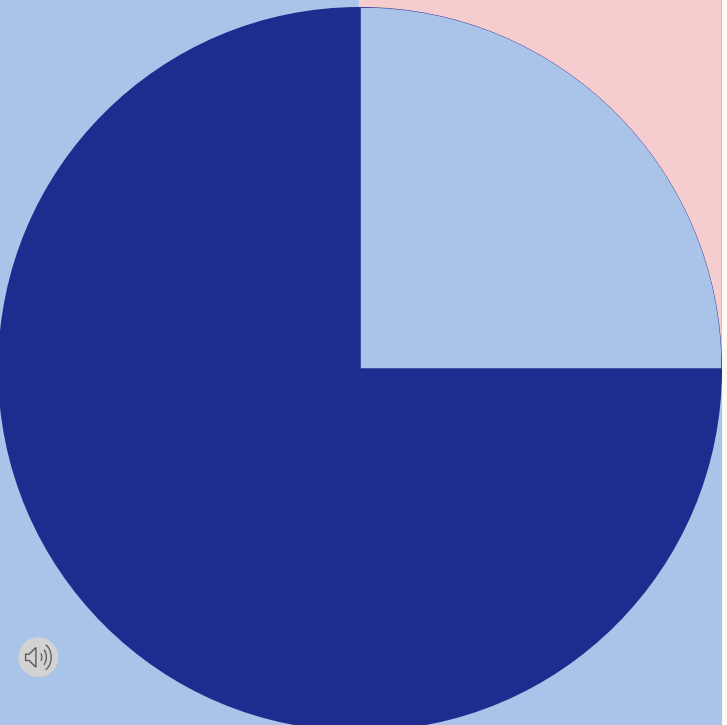
NOW WHAT?

- This reaction happened a bit more suddenly- seems convincing for an IgE mediated reaction.
- Reaction just occurred two weeks ago. Current guidelines say re-evaluate in 1 year.
- Encourage 1 year follow up from date of incident.
- Then, we can consider drug challenge.

ANY OTHER TESTING OPTIONS BESIDES CHALLENGING?

The option to provide skin prick testing and/or intradermal injections are available in the allergy department. However, this is typically done at provider's discretion.

Regarding the last case study, getting skin testing here would be a good idea. Some providers do it at that time- or just wait the year.



A
Page 1

Toolkit A

Penicillin Allergy History

Patient ID/ Sticker:

Date of reaction: _____

Route of last administration: ☐ Oral ☐ Intravenous

Reaction details (check all that apply):

Intolerance histories

- ☐ Isolated GI upset (diarrhea, nausea, vomiting, abdominal pain)
- ☐ Chills (rigors)
- ☐ Headache
- ☐ Fatigue

Low-risk allergy histories

- ☐ Family history
- ☐ Itching (pruritus)
- ☐ Unknown, remote (> 10 yr ago) reaction
- ☐ Patient denies allergy but is on record

Moderate-high risk allergy histories (potential IgE reactions)

- ☐ Anaphylaxis
- ☐ Angioedema/swelling
- ☐ Bronchospasm (chest tightness)
- ☐ Cough
- ☐ Nasal symptoms
- ☐ Arrhythmia
- ☐ Throat tightness
- ☐ Hypotension
- ☐ Flushing/redness
- ☐ Shortness of breath
- ☐ Rash
- ☐ Syncope/pass out
- ☐ Wheezing
- ☐ Dizzy/lightheadedness

Type of rash (if known):

HIGH RISK: Contraindicated penicillin skin testing/challenge (potential severe non-immediate reactions)

- ☐ Stevens-Johnson syndrome (rash with mucosal lesions)
- ☐ Serum sickness (rash with joint pain, fever, myalgia)
- ☐ Thrombocytopenia
- ☐ Fever
- ☐ Organ injury (liver, kidney)
- ☐ Erythema multiforme (rash with target lesions)
- ☐ Dystonia
- ☐ Anemia
- ☐ Acute generalized exanthematous (rash with pustules)
- ☐ Drug reaction eosinophilia and systemic symptoms (rash with eosinophilia and organ injury)

Other symptoms:

Continue to second page

B
Page 1

Toolkit B

Direct Oral Amoxicillin Challenge for Low-Risk Patients

Patient ID/ Sticker:

Testing is not necessary if a penicillin class antibiotic has been tolerated since the index reaction

DO NOT perform any penicillin allergy testing if there is a history of penicillin-associated:

• Blistering rash • Hemolytic anemia • Nephritis • Hepatitis • Fever • Joint pains

Direct oral amoxicillin challenge can be performed in any patient with a history of the following symptoms associated with penicillin:

- Isolated reactions that are unlikely allergic (e.g., gastrointestinal symptoms, headaches)
- Pruritus without rash
- Remote (>10 years) unknown reactions without features of IgE/immediate hypersensitivity
- May also be used for patients with a family history of penicillin allergy or benign somatic symptoms

First penicillin skin test if:

- The reaction was cutaneous
- The reaction had features of IgE/immediate hypersensitivity
- The patient currently has unstable or compromised hemodynamic or respiratory status or is pregnant with low risk allergy history.

Proceed to amoxicillin challenge only if skin test is negative

C
Page 1

Toolkit C

2-Step Amoxicillin Challenge for Moderate-Risk Patients (Skin Testing Not Available)

Patient ID/ Sticker:

Testing is not necessary if a penicillin class antibiotic has been tolerated since the index reaction

Note that this testing is recommended only in locations without access to skin testing materials. This procedure should be performed only after careful consideration of the potential benefit to the patient in question, weighed against the risk of potential harm from an allergic reaction.

DO NOT perform any penicillin allergy testing if there is a history of penicillin-associated:

• Blistering rash • Hemolytic anemia • Nephritis • Hepatitis • Fever • Joint pains

This testing is indicated if:

- The reaction was cutaneous
- The reaction had features of IgE/immediate hypersensitivity
- The patient currently has unstable or compromised hemodynamic or respiratory status or is pregnant with low risk allergy history.

This testing may also be used for low-risk reactions that include:

- Remote (>10 years) unknown reactions without features of IgE
- Pruritus without rash
- Isolated reactions that are unlikely allergic (e.g., gastrointestinal symptoms, headaches)

DIFFERENTIAL DIAGNOSES:

- DRUG RASH
- VIRAL EXANTHEM
- ERYTHEMA MULTIFORME
- SERUM SICKNESS REACTIONS

Try and avoid diagnoses like "amoxicillin allergy" or "antibiotic allergy" until we have proven this.

KEY TAKE-AWAYS:

1. Amoxicillin allergies are overly diagnosed.
2. Even if legitimate, true PCN allergies can be outgrown.
3. It's not inappropriate to send all questionable encounters to allergy but set expectations accordingly.
4. Differentiating between potential rash from illness or rash from antibiotic.
5. Never perform what is outside your comfort level as a practitioner.
6. Always feel free to e-consult with any questions

THANK YOU!