



Evaluating Reported Penicillin Allergy in Preteen and Adolescent Females: A Retrospective Study and Quality Improvement Project

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Introduction

- Unverified penicillin allergy during pregnancy is associated with significant morbidity including longer hospital stays, increased risk of cesarean delivery, and specifically in GBS-positive women, increased frequency of alternative antibiotic use with higher rates of adverse drug reactions.

Methods

- We performed a retrospective chart review of female patients seen in our Pediatric Allergy/Immunology clinic between 2010-2018 who had a listed penicillin allergy at the time of their initial visit.
- Subgroup analysis was performed for patients 11-18 years of age. The study met IRB exclusion.

Pre-Intervention Results

All Female Patients	
Variable	Outcome
Number of patients who met inclusion criteria	180
Number of included patients who had PCN allergy reviewed	134/180 (74.4%)
Number of patients who had PCN allergy reviewed at first visit	111/134 (82.8%)
Number of patients who had definitive recommendations made at any visit	75/134 (55.9%)
Number of all included patients who had PCN allergy cleared by testing or history	58/180 (32.2%) – 11 additional patients did not follow through with recommendations for testing

Female Patients 11-18 Years of Age	
Variable	Outcome
Number of patients who met inclusion criteria	39
Number of included patients who had PCN allergy reviewed	29/39 (74.3%)
Number of patients who had PCN allergy cleared by testing or history	17/39 (43.5%) – 3 others did not proceed with recommended plans and 7 others had plans to assess in the future

Interventional Handout

Penicillin Allergy Evaluation in Female Pediatric Patients

Background

- Approximately 10% of the U.S. population is labeled as penicillin allergic.
- However, less than 1% of the population has a true penicillin allergy when appropriately evaluated.
- In childhood, symptoms reported as a penicillin allergy are often secondary to an underlying infection.
- Additionally, even for patients with a true penicillin allergy, approximately 80% will lose that allergy over a 10 year period.

Penicillin Allergy and Pregnancy

- It might not be on your mind when your child is so young, but someday, your daughter may wish to have children of her own.
- Group B Streptococcus (GBS) is a bacteria that can be found in the vagina and/or rectum of healthy women, which is the case for between 15-35% of pregnant women.
- Babies can get exposed to this bacteria during a vaginal delivery, and GBS can cause severe infections in newborns.
- Giving antibiotics to GBS-positive pregnant women at the time of delivery has been shown to protect newborns from early-onset GBS infection. Intravenous penicillin is the drug of choice to treat GBS.
- If someone is penicillin allergic, there are alternatives, but their efficacies have not been evaluated in clinical trials and large observational studies as opposed to penicillin and ampicillin. These alternatives may also have more side effects.
- Having an unverified penicillin allergy during pregnancy is associated with longer hospital stays and increased risk of cesarean section.
- Therefore, it is important to know if someone has a true penicillin allergy before she gets pregnant as it is preferable to defer allergy testing during pregnancy if possible due to potential safety concerns.

Please speak with your child's Allergist to determine if penicillin allergy testing is appropriate for your child.

Conclusions

- It is critical to target the preteen/adolescent female population regarding penicillin allergy evaluation.
- Our findings suggest that this population is under-evaluated in our clinic.
- As such, factors that limit this assessment need to be explored, and more innovative methods to ensure timely penicillin allergy evaluation in this group are necessary.
- We are in the process of implementing an informational handout on penicillin allergy and pregnancy to all of the female patients seen in our Pediatric Allergy/Immunology clinic.

References

- Desai SH, Kaplan MS, Chen Q, Macy EM. Morbidity in Pregnant Women Associated with Unverified Penicillin Allergies, Antibiotic Use, and Group B Streptococcus Infections. *Perm J.* 2017;21:16-080.
- Shenoy ES, Macy E, Rowe T, Blumenthal KG. Evaluation and Management of Penicillin Allergy: A Review. *JAMA.* 2019;321(2):188-199. doi:10.1001/jama.2018.19283.