**DRUG ALLERGY**

Allergy Testing in Children With Low-Risk Penicillin Allergy Symptoms

**PURPOSE OF THE STUDY.** To determine if children with a reported penicillin allergy were truly allergic.

**STUDY POPULATION.** Children aged 3.5 to 18 years with a parent-reported history of penicillin allergy presenting to the emergency department of a busy academic center were included.

**METHODS.** Parents of eligible children completed a questionnaire regarding previous symptoms with penicillin exposure. Children deemed low risk on the basis of either delayed-onset or mild symptoms then underwent penicillin skin testing and oral challenge.

**RESULTS.** A total of 744 parents of children aged 3.5 to 18 years presenting to an urban emergency department were initially approached for participation in the study. Of those parents, 597 completed screening questionnaires; and of these, 434 (73%) children were determined to have low-risk symptoms of penicillin allergy. A total of 132 of the children with low-risk symptoms were excluded from additional testing for various reasons. The most common symptoms in the low-risk group were nonurticarial rash (73%) and itching (63%), with only 17% reporting hives. Of the 302 patients eligible for penicillin testing, 100 completed both skin prick and intradermal testing to PRE-PEN and penicillin G, followed by oral challenge to amoxicillin. Only 3 of the 100 children had positive skin test results to penicillin; however, all 100 (100%) of these children passed the oral challenge to penicillin and, therefore, were deemed not allergic.

**CONCLUSIONS.** In this study, it was found that children who were identified as low risk for immunoglobulin E-mediated hypersensitivity to penicillin on the basis of history were not truly allergic to penicillin as determined by evaluation through skin testing and oral challenge.

**REVIEWER COMMENTS.** Ten percent of the general population reports having a penicillin allergy, but 90% of those people are not truly allergic. In this study, authors support accumulating evidence from other large studies in which it was demonstrated that the vast majority of children who experience delayed-onset rashes do not have an allergy to penicillin and are not at risk for an immediate-onset reaction or anaphylaxis with repeat exposure. Health care providers should be cautious when placing a penicillin allergy on a patient’s permanent medical record and should be proactive in addressing previously reported allergic reactions.

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**Antibiotic Use After Removal of Penicillin Allergy Label**

**PURPOSE OF THE STUDY.** To evaluate the clinical and economic impact of negative penicillin testing results for children with a previous penicillin allergy label.

**STUDY POPULATION.** This study included caregivers and primary care providers (PCPs) of 100 children between the ages of 4 and 18 years with negative test results for penicillin allergy after percutaneous, intracutaneous testing and an oral challenge.

**METHODS.** A follow-up case series investigation was performed on 100 children with “low-risk” allergy symptoms who had a negative penicillin allergy evaluation result. Low-risk symptoms included a nonurticarial rash, itching, diarrhea, and vomiting. The study authors hypothesized that no serious allergic reactions would occur with reexposure and that prescribing practices would change as a result of testing. A brief telephone survey was administered to parents and PCPs. Parents were questioned regarding antibiotic use since penicillin testing, any recent allergic reactions, parental comfort level with future penicillin use, and if the negative results of allergy testing were discussed with the children’s PCPs. In the PCP questionnaire, PCPs were asked about the notation of a penicillin allergy in the medical record, about any antibiotic prescriptions since testing, and if any allergic reactions occurred with new prescriptions. The study authors performed a cost analysis using amoxicillin as the treatment of choice for pediatric sinopulmonary infections. Antibiotic costs were determined on the basis of the median age of 8 years (weight 26 kg). The median retail price was obtained from an online pharmacy discount program (www.goodrx.com). Cost savings were calculated by subtracting the total antibiotic cost for treatment with a penicillin from the total cost of treatment with a nonpenicillin. Cost avoidance calculations were based on the price of a cefdinir prescription in lieu of treatment with amoxicillin. Lastly, the total cost data were extrapolated to the study center population of 6700 patients who were allergic to penicillin (an estimated 10% of 67 000 emergency department patient visits per year).

**RESULTS.** In this cohort of 100 children, 81 families and 98 PCPs were contacted. A total of 46 prescriptions were reported within 1 year of penicillin allergy evaluation. Of those prescriptions, 58% included amoxicillin. Parental perceptions of penicillin use after testing were also explored: 59 (73%) parents reported that they would be
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