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PENICILLIN ALLERGY: FACTS FOR PATIENTS

PENICILLIN ALLERGY

Allergies to penicillin are common, with about 10 percent of people reporting an allergy. However, most people who believe they are allergic may be able to take penicillin without any adverse effects – either because they were never truly allergic or because their allergy to penicillin has resolved.

People may become less allergic to a medication over time. If not exposed to penicillin for 10 years after their initial reaction, around 80 percent of people may not experience another reaction if exposed again.

WHAT IS PENICILLIN?

Penicillin is part of a family of antibiotics known as beta lactams, however there are many individual medications that are classified under this family. They include penicillin G, cloxacillin, ampicillin, amoxicillin, piperacillin, and many more.

Anyone who is allergic to one of the penicillins is generally presumed to be allergic to all medications in this family and should avoid exposure, unless they have been specifically evaluated for this problem.

REACTIONS TO PENICILLIN

When reporting past reactions to antibiotics, it is important to provide as much detail as possible to the doctor or health care provider about the reaction. This is because symptoms vary from patient to patient, and many unexpected reactions can occur after taking penicillin.

Adverse reactions

“Adverse reaction” is the medical term for any undesirable reaction caused by a medication. Adverse reactions may be either allergic or non-allergic. Non-allergic reactions are far more common, and may include nausea, abdominal pain, and diarrhea.

It is important to distinguish non-allergic adverse reactions from true allergic reactions. If a patient reports a drug allergy, which may have only been a non-allergic adverse reaction, they may be treated with a less effective or more toxic antibiotic.

Anyone who is uncertain if a past reaction was truly caused by an allergy should speak with their health care provider before further exposure to the antibiotic.

Continued next page

Rashes

Several different rashes can appear while people are taking a penicillin medication:

- **Hives:** These are raised, intensely itchy spots that come and go over hours or occur with other allergic symptoms such as wheezing or swelling of the skin or throat. Hives suggest a true allergy.
- **Rashes:** Rashes typically start after several days of treatment. They are flat, blotchy, not itchy, and spread over days but do not change by the hour. They are unlikely to be the result of a dangerous allergy.

When talking to a health care provider it may be difficult to distinguish between different types of rashes that occurred in the past. It is always helpful to bring along a photograph of a rash.

Allergic reactions

Allergic reactions occur when the immune system recognizes a drug as something “foreign.” Several different symptoms may indicate an allergy to penicillin. These include hives, swelling of the tissue under the skin (often around the face), throat tightness, wheezing, coughing, and difficulty breathing. Understanding the history of these types of reactions in a patient is important because they could develop a more severe reaction if the person were to take the antibiotic again. Mild to moderate allergic reactions to penicillins occur in roughly 1 to 5 percent of people.

Anaphylaxis

Anaphylaxis is a sudden, potentially life-threatening allergic reaction. Symptoms consist of those of an allergic reaction, and may also include very low blood pressure, difficulty breathing, abdominal pain, swelling of the throat or tongue, and/or diarrhea or vomiting. Fortunately, anaphylaxis is rare.

PENICILLIN ALLERGY TESTING

The most reliable way to determine if a person is truly allergic to penicillin is allergy skin testing. Approximately ninety percent of people who think they have an allergy to penicillin will test negative, either because they lost the allergy over time, or because they were never allergic in the first place. Determining if someone can safely take penicillin is critical. Often a person with unclear allergy status is given a different antibiotic that may have more severe side effects or may be more expensive, while penicillin, a relatively safe and inexpensive antibiotic, would have been an appropriate alternative.

Penicillin skin testing does NOT provide any information about certain types of reactions. This includes severe reactions such as extensive blistering and peeling of the skin (Stevens-Johnson syndrome or toxic epidermal necrolysis); a widespread sunburn-like reaction that later peels (erythroderma); or a rash accompanied with fever and joint pain/swelling (serum sickness). People with these types of reactions should never again be given the medication that caused the reaction, and skin testing is not helpful to diagnose these conditions. This applies to all situations since a second exposure could cause a severe progressive reaction.

Skin testing should be done by an allergist, and usually takes about one hour to complete. The skin is pricked, and then injected with weak solutions of the various preparations of penicillin and observed for a reaction. This may cause discomfort due to itching, or mild bruising at the injection sites, but it is typically not very painful. A positive skin test results in an itchy, red bump that lasts about half an hour and then resolves. A positive test indicates that the person is truly allergic, and those who test positive should continue to avoid penicillins.

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If a patient completes the skin testing without a positive reaction, an oral challenge to either penicillin or amoxicillin is usually given to confirm that the patient can safely take the medication. The oral dose may be needed because medical tests, including skin testing, are rarely 100 percent accurate. About three percent or less of people who have a negative skin test will still experience an allergic reaction to an oral dose. However, these reactions are generally very mild.

The oral challenge may be in 1 or 2 doses, with the total of these doses being equal to what one would normally take when under treatment. There will usually be a total observation time of 1 to 1 ½ hours. If a person has a negative skin test and has no reaction to an oral dose of the antibiotic, they can safely be classified as non-allergic and no future precautions are necessary.

References:

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Solensky, R. *Up to Date: Allergy to penicillin and related antibiotics (Beyond the Basics)*. <http://www.uptodate.com/contents/allergy-to-penicillin-and-related-antibiotics-beyond-the-basics> Last accessed March 2015.

From the ACAAI 2015 Drug Allergy and Anaphylaxis Committee



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