

Drug Allergies: Can Lidocaine Cause Allergic Reactions?

When we think of drug allergies in general, the drug that comes to mind most often is penicillin and its derivatives, such as amoxicillin. This is due in part to the fact that penicillin and related antibiotics are so widely prescribed, though allergy to penicillin ranges from 1-3% among adults.

There are other classes of drugs used by dentists and oral surgeons prior to dental procedures or surgery that may cause allergic reactions, and these are anesthetics or pain reducing drugs referred to as “caines”. Lidocaine (brand name Xylocaine) is the most widely used “caine” in dental offices and is also commonly used in emergency rooms prior to suturing up skin cuts or deeper lacerations. These anesthetics are divided into two groups based on their chemical structure and are listed below in Table 1. Group I are called esters and include such drugs as benzocaine. Group II are called amides and includes drugs such as lidocaine and mepivacaine. Patients are generally allergic to all drugs in the same class. So, for example, a patient allergic to lidocaine will also be allergic to mepivacaine. Lidocaine can be purchased from different manufacturers, and can be purchased as pure lidocaine (with preservatives), or with the addition of epinephrine, a vasoconstricting drug used here to prevent bleeding, prevent absorption of the lidocaine in the bloodstream, and concentrate the lidocaine in the tissue for better pain reduction. The difference is that dentists and oral surgeons tend to purchase lidocaine with epinephrine, while emergency rooms usually stock lidocaine without epinephrine.

Are these differences important? Like all drug allergic reactions, reactions to lidocaine can be mild with immediate local tissue swelling, itching, trouble swallowing, or severe with generalized hives, trouble breathing, and changes in heart rate and blood pressure. The exact brand of lidocaine injected by the dentist into the tissue is important to know, since it may not be the lidocaine causing the reaction, but the epinephrine or preservatives that are also present in the preparation. Identifying the cause of a lidocaine reaction in an emergency room should not be a problem, since the lidocaine used will generally not include epinephrine. In all lidocaine reactions, patients should be referred to an allergist for evaluation, and a sample of the lidocaine preparation purchased and used by the dentist or emergency room should be taken to the allergist for study and testing. One important note here is that the dentist needs to supply the allergist with a “caine” that he/she uses which does not contain epinephrine, because mixtures containing epinephrine cannot be tested. As mentioned before, an alternative drug without epinephrine from Group I is fine, such as tetracaine, since lidocaine and mepivacaine are closely related drugs from Group II, and an allergy to lidocaine most likely means the patient has an allergy to mepivacaine.

Following a history and physical examination, an allergist will make dilutions of the lidocaine and test the patient by both prick (skin puncture) and intradermal (skin injection) methods. If the testing is all negative, then a full strength intradermal injection will be given. If no local reaction occurs, then the patient is not allergic and may use lidocaine again, prior or during a dental procedure or surgery. In addition, if the patient

gave any history that he/she had symptoms any number of hours after leaving the dentist's office or emergency room, and then the patient will need to return in 24 hours to the allergist for evaluation. This is to rule out any delayed drug reaction. Thus, the testing used to rule out a "caine" allergy is safe and reliable, and can help your dentist determine the best course of action needed for your dental care.