



## PIC QUESTION OF THE WEEK: 12/3/07

Q: What alternative local anesthetic can be used in a patient with a history of allergy to “Novocain”?

A: Adverse effects due to injected local anesthetics occur in approximately 2.5% to 10% of dental patients; however, hypersensitivity reactions, especially those mediated by IgE, are considered rare. Delayed hypersensitivity reactions (type IV) to topically applied local anesthetics typically present as contact dermatitis. Adverse effects attributed to injected local anesthetics often result from other constituents of the preparations such as epinephrine, paraben preservatives, anti-oxidant sulfite salts, and latex. Although patients describe these reactions as *allergic*, few involve an actual immune response. A variety of cardiovascular and central nervous system effects can occur from inadvertent intravascular injection or excessive dosage of local anesthetics. These include irritability, tremors, seizures, arrhythmias, altered myocardial contractility, etc. Psychosomatic reactions (e.g. hyperventilation, sweating, difficulty in breathing, increased heart rate, etc.) often develop due to the anxiety experienced by some patients prior to the dental procedure. Local anesthetics can be divided into two groups based on their chemical structure. The aromatic ring and tertiary amine of each is linked by an ester or amide grouping, thus the designation *ester* or *amide* local anesthetic (See Table). Most authors suggest that the potential for cross reactivity is greatest among the ester anesthetics. Patients with a “Novocain” allergy can usually be safely re-challenged with drugs like lidocaine, bupivacaine, etc. Many authors believe there is minimal risk in using an alternative amide in patients with a history of allergy to a representative from this group; however, rare cases of cross reactivity have been reported. Care should be taken in determining the exact type of anesthetic used as many patients identify all drugs from this category as “Novocain”. Patient management is dependent on several factors, one of the most important being a complete history and description of the reaction. In cases where the reaction is considered significant or the history is poorly documented, the safest course may be referral to an allergist. Appropriate skin testing and subcutaneous challenge doses may be required for those patients at highest risk.

### Types of Local Anesthetics\*

Group I: Benzoic Acid Esters	Group II: Amides
Chloroprocaine (Nesacaine)	Bupivacaine (Marcaine)
Procaine (Novocain)	Lidocaine (Xylocaine)
Tetracaine (Pontocaine)	Mepivacaine (Carbocaine)
	Ropivacaine (Naropin)

\* this is not a complete list of available benzoic acid and amide local anesthetics

### References:

- Deshazo R, Phillips J, Yates A. Approach to patients with suspected hypersensitivity to local anesthetics. Am J Med Sci 2007;334:190-6.
- Solensky, R. Drug hypersensitivity. Med Clin North Am 2006;90:223-60.

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