

bacteria. She was treated with Augmentin® (amoxicillin and clavulanic acid; GlaxoSmithKline, Research Triangle Park, NC, USA). The puncture healed without sequelae.

Epinephrine injection into digits can cause vasoconstriction and lead to irreversible tissue ischemia. Moreover, the force of a spring-activated needle, such as that in the EpiPen® device, apparently does not stop at bone. Potential complications include whitlow, impaired nail growth, osteomyelitis, ischemia or loss of the digit. The alpha-adrenergic blocking characteristics of phentolamine have proven effective in reversing the effects of epinephrine in such cases (4). Patients suffering an accidental injection of epinephrine into a digit should go immediately to the nearest emergency room for treatment.

Since autoinjector devices became available in 1980, there have been several case reports of accidental digital injection of epinephrine with an incidence estimated at one accidental injection per 50 000 devices (2). Therefore, patients or any other person who handle EpiPen® or EpiPen Jr.® should be carefully instructed in their use.

A thorough and probably repeated instruction, both written and oral, provided by knowledgeable physicians is mandatory (5).

Despite the fact that EpiPen® autoinjectors for emergency treatment of allergic anaphylaxis are essential, one must be aware that accidental injections are not rare and emergencies caused by improper application can occur. To avoid these severe complications, professionals as well as patients should be properly and carefully instructed in the use of this disposable drug delivery system. Clearly, a new approach for educating and maintaining such skills is required (6).

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A case of anaphylaxis to naproxen

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Key words: anaphylaxis; aspirin; cyclooxygenase-1 inhibitor; drug allergy; naproxen; non steroidal anti-inflammatory.

Cyclooxygenase-1 inhibitors' (Cox-1) cross-reactivity is well reported among persons in whom Cox inhibitors cause exacerbations of asthma, urticaria, and angioedema (1). When an otherwise healthy individual suffers anaphylaxis from one non-steroidal anti-inflammatory drug (NSAID), the risk of reacting to another NSAID is not clear and is difficult to study. Because of safety issues, challenges with the suspected NSAID have rarely been performed (1). Our review of the literature found

only one report of rofecoxib tolerance among three patients with previous history of NSAID-induced anaphylaxis (2).

We present a case of anaphylaxis to naproxen in a 55-year-old Caucasian male triathlete who subsequently tolerated rofecoxib, aspirin and ibuprofen. The patient experienced anaphylaxis 1 h after ingesting 500 mg of naproxen. His symptoms included angioedema, hypotension and shortness of breath. He was immediately treated with 0.3 mg epinephrine. Another epinephrine 0.3 mg autoinjector was administered in the emergency department with solumedrol, loratadine, pepcid and diphenhydramine. He was released after observation and was told to avoid non-steroidal medications and aspirin.

He had no medical problems and aspirin was his only daily medication. Drug allergy history was positive for a rash with penicillin and sulfa in childhood. As a triathlete, he felt he required a non-steroidal anti-inflammatory medication. He was unconvinced that the recent episode was due to the naproxen.

One month later, in the allergy treatment room of our tertiary medical center, a challenge with liquid naproxen was performed. Baseline vital signs were blood pressure (BP) 147/78, heart rate (HR) 43, O₂ saturation of 99% and baseline spirometry revealed a forced expiratory volume in 1 s (FEV1) of 96% predicted. Sixty-five minutes after ingestion of the final dose of naproxen (cumulative 550 mg) he became flushed and reported the onset of mild chest tightness with deep inspiration, along with a feeling of swelling at the base of his tongue. His bp was elevated at 173/80, pulse 43, O₂ saturation of 96% and FEV1 of 90%. He was treated with EpiPen® (DEY, LP Napa, CA, USA) 0.3 mg intramuscularly and was admitted overnight for observation.

The patient desired a challenge with another NSAID. He was successfully challenged with a 25-mg dose of the Cox-2 inhibitor rofecoxib. He subsequently underwent challenges with aspirin (162 mg with 4 h of observation) and

The risk of reacting to another NSAID is not clear.

ibuprofen (800 mg with 4 h of observation) to which he had no reaction.

Modified radioallergosorbent test (RAST) testing was performed with the patient's serum to naproxen and no specific IgE was identified (Quest Diagnostics, Teterboro, NJ, USA). He was also skin-prick tested to 1/100, 1/10 and full-strength liquid naproxen (125 mg/5 ml), without wheal and flare reaction.

This case demonstrated reproducible anaphylaxis to naproxen without cross reactivity to rofecoxib, aspirin or ibuprofen. Without this patient's insistence and his professional and athletic performance requirements we would not have challenged him with naproxen, but would have challenged him with the later three drugs to provide his alternative NSAIDs.

Anaphylaxis to naproxen is not rare. A recent study by van Puijenbroek (3), reported naproxen as the second leading cause of NSAID-induced anaphylaxis between 1985 and 2000 in the Netherlands. The mechanism of the reaction to naproxen is not well defined. A case report by Cistero (4), in 1983, reported a positive intradermal skin test in a naproxen specific anaphylaxis case. This same report also demonstrated a positive basophil release assay to naproxen. To date, there have been rare reports of cross-reactions to NSAIDs in normal individuals who have anaphylaxis (1).

Although we used liquid naproxen for challenge, we feel his reaction on challenge was consistent with his prior reaction and is specific for naproxen. We have been unable to demonstrate naproxen-specific IgE either by RAST or skin testing but this does not rule out the probability that an IgE-mediated reaction occurred.

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Urticaria due to mepivacaine with tolerance to lidocaine and bupivacaine

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Key words: amide group; cross-reactivity; drug allergy; local anesthetics; mepivacaine; type I hypersensitivity.

Local anesthetics included in the amide group (LAAG) are drugs widely used in dentistry, deliveries and minor surgery.

Although adverse reactions to them are frequently reported, allergic reactions

are uncommon and little is known about cross-reactivity among these drugs.

A 35-year-old woman presented pruritus and hives on her face, neck and legs, 15 min after mepivacaine administration during a nevus extirpation 1 year ago. She was treated with an oral antihistamine and urticaria was completely resolved in 1 h. Povidone iodine

(Betadine®; Viatrix Pharm, Burdeos, France), after being well tolerated, was used as a local antiseptic. She was administered no further LAAG. She denied having any allergic symptoms to latex exposure.

Prick and intradermal tests with undiluted mepivacaine 1% were negative. Single-blind placebo-controlled subcutaneous challenge test (SBPCST) with mepivacaine was carried out. Fifteen minutes after the administration of 0.3 ml (0.1 ml was previously well tolerated), she developed a local wheal of 23 × 10 mm. A new intradermal test performed with mepivacaine, turned positive (12 × 15 mm) (histamine 10 × 13 mm). Latex-prick test (ALK-Abello, Madrid, Spain) was negative.

In order to evaluate cross-reactivity among different LAAG, prick and intradermal tests were carried out with undiluted lidocaine 1%, bupivacaine 0.5%, and ropivacaine 1%. Intradermal test with ropivacaine resulted positive (12 × 6 mm). SBPCST with lidocaine and bupivacaine, up to doses of 2 ml, were negative. All LA used were free of excipients (sulfites or parabens).

LAAG can produce allergic reactions although these are rare (1). Formerly, cross-reactivity among them was considered non-existent (1). In recent reports, type IV hypersensitivity reactions have been described, showing a high degree of cross-reactivity between lidocaine and mepivacaine but not bupivacaine (2). There are only a few reports to establish the grade of cross-reactivity in immediate hypersensitivity reactions among LAAG. Some authors have reported cross-reactivity among lidocaine, bupivacaine, ropivacaine and mepivacaine in one patient (3); others found cross-reaction among lidocaine, bupivacaine and mepivacaine in another patient (4); and others among prilocaine, bupivacaine, and articaine in one patient (5). Our patient reacted to mepivacaine, had a positive skin test to ropivacaine and tolerated lidocaine and bupivacaine. We suggest that an accurate allergologic study should be performed in order to know which LAAG could be used in these patients.

We want to point out the negative results obtained in the first skin tests

A case of urticaria due to mepivacaine with tolerance to lidocaine and bupivacaine.