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Two cases of anaphylaxis to macrogol 6000 after ingestion of drug tablets

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Macrogols (polyethylene glycols) are used in food, food packaging, cosmetics and medicines as plasticizers, solvents, lubricants, softening agents, antistatics and detergents, among others. In medicines, they are mainly used in tablets, ointments, suppositories, ophthalmic solutions, lavage solutions and injection solutions. Anaphylactic reactions to macrogols have been reported after injection of a corticosteroid solution (1), use of electrolyte lavage solutions (2) and sucking on a throat lozenge (3). We report two cases of anaphylaxis to macrogol 6000 after ingestion of tablet form drugs.

Case 1: A 36-year-old man ingested one tablet (1 million IU) of phenoxymethylpenicillin (V-Pen mega; Orion Pharma, Espoo, Finland) to treat his tonsillitis. He developed a generalized urticaria, tachycardia and dizziness within a few minutes. He was treated with intravenous methylprednisolone. He had no history of atopy. However, he had experienced two short episodes of urticaria several years earlier: one after ingestion of a fluoride tablet (Fludent; AlphaPharma, Fort Lee, NJ, USA), another after sucking a throat lozenge (Bafucin mint; Pfizer, New York, NY, USA).

Skin prick tests and intracutaneous tests to penicillin were negative 1 month after

the anaphylactic reaction (phenoxymethylpenicillin, Allergopen PPL and Allergopen MDM). In contrast, a prick test to macrogol 6000 (an ingredient of V-Pen, Fludent and Bafucin) was positive within 15 min (7 mm while the histamine control gave a 5 mm reaction) and developed to a 5-cm swelling and redness of the tested arm. Prick tests to Fludent and Bafucin were positive (both 5 mm). Twenty persons not suspected to be allergic to macrogols were prick tested to macrogol 6000 with no positive reactions. ***In vitro* studies did not confirm specific IgE to macrogol 6000 in the patient's serum, as the non-atopic control serum also demonstrated a similar IgE binding in immunospot (4)** studies, and the result was interpreted as non-specific. A drug challenge with 1 million IU of phenoxymethylpenicillin solution not containing macrogols (V-Pen mixture) was negative. **We did not perform intracutaneous tests or a challenge with macrogols for safety reasons.**

Case 2: A 24-year-old woman developed angioedema of the throat, dizziness, urticaria and hypotonia immediately after ingestion of a fluoride tablet (Fludent). She was treated with epinephrine, methylprednisolone and antihistamines. Six months later, prick tests to Fludent were positive (16 mm while a histamine control gave a 5 mm reaction at the 15 min reading). Twenty-four hours later the size of the test reaction swelling and redness was 20 cm. Macrogol 6000 gave a positive prick test reaction of 8 mm. The patient had a history of contact urticaria after use of an emollient cream containing cetomacrogol (Aqualan L; Orion Pharma). Prick tests to that cream were positive.

The treatment of patients allergic to macrogols is rather challenging. Many drugs including those for treatment of allergic reactions such as antihistamine tablets contain macrogols. Our present knowledge on anaphylactic reactions to macrogols is based on very few case reports. To our knowledge, **anaphylactic reactions to macrogol 6000 have not been previously**

published from drugs. Previous case report studies on cross-allergies between macrogols suggest that there are differences between macrogols of different sizes in prick test reactions (3). A larger study on cross-allergies between different macrogols would be needed in order to find more suitable drugs for patients allergic to macrogols.

In addition, the concentration of macrogols in food should be investigated and it should be reported as an ingredient. Neither of our patients have experienced allergic reactions to food although they have been allergic to macrogol 6000 for at least 5 years. We believe that severe allergic reactions to macrogols are more frequent than has so far been reported.

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