

Case Report

Anaphylaxis to povidone in a child

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Povidone is an allergic agent present in numerous substances, food and medicines. The authors present the clinical case of a 9-yr-old male child admitted in the emergency room with anaphylaxis, in two occasions separated by a 6-month period. The first episode occurred 5 min after the first oral administration of Fluvermal® (flubendazole) and the second occurred 10 min after cutaneous application of Bétadine® (povidone iodine solution). Previous cutaneous application of this solution and ingestion of mebendazole occurred without apparent adverse reactions. The allergy study revealed eosinophilia, an elevated total IgE level and positive prick-by-prick test for both drugs. A cutaneous prick-by-prick test with povidone (the sole common constituent) was also positive. This is probably the first case described in the literature of anaphylaxis induced by povidone in a child.

Key words: anaphylaxis; children; povidone; atopy

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A 9-yr-old male child, with a personal history of atopic conjunctivitis and dermatitis, was admitted in the emergency room with anaphylaxis, in two separate occasions over a 6-month period.

The first episode, at the age of 8, occurred 5 min after the first oral administration of Fluvermal® (flubendazole; Janssen-Cilag, Queluz de Baixo, Portugal). Clinical manifestations included facial angioedema, urticaria, dysphagia, dyspnoea, cold extremities and peripheral cyanosis. At the time of admission he presented with hypotension [systolic/diastolic of 88/56 mmHg (< percentile 50/< percentile 50)] and tachycardia, evolving in few minutes to cardio-respiratory arrest and reactive coma. The second episode occurred 10 min after cutaneous application of Bétadine® (povidone iodine solution; Asta Médica, Lisboa, Portugal), resulting in urticaria, facial angioedema and inspiratory stridor. Previous application of this solution occurred apparently without adverse reaction.

On both occasions rapid recovery after implementation of adjusted therapy was observed.

Research for chemical substances present in both drugs disclosed an unique common constituent: povidone (a Fluvermal® excipient and an active principle of Bétadine®).

Allergy studies revealed eosinophilia and an elevated total IgE level (488 KIU/l). Although

controversial (1) a conjunctival challenge test with Fluvermal® was strongly positive (a small drop of the product was applied to the conjunctivae of one eye's patient, inducing 3 min later a large inflammatory local reaction – oedema, swelling and pruritus). Cutaneous prick-by-prick test was positive for both agents (Bétadine®: wheal diameter of 8 mm; Fluvermal®: 18 mm). The same cutaneous test was performed on a control group of 10 children, with negative results. A cutaneous prick-by-prick test was carried out with povidone with a positive result (20 mm). The authors intended to perform a conjunctival challenge test with povidone, with anticipated higher specificity, but this was refused by the parents' child, due to the previous adverse reaction with Fluvermal®.

The child's parents were informed of the potential gravity and urgency in the treatment of such reactions (an adrenalin pen for self-administration was supplied), as well as on the necessity of avoiding medicines containing povidone (there are 1302 pharmaceutical products containing povidone for sale in Portugal). The child was advised to use an identification bracelet alerting to the high risk of adverse reaction following povidone iodine application. This was particularly important as povidone is frequently used as an antiseptic in emergency situations.

This information was provided in the personal health bulletin.

Povidone is a polymer with a molecular weight ranging from 10,000 to 700,000 Da (2, 3), comparable to plasma proteins and is used as excipient (2, 3) in multiple pharmaceutical products. It can also be used as an additive in food products and as a dispersant and stabilizer in hairspray (2). Few reactions of anaphylactic shock (2, 4), urticaria and wheezing (5) have been reported with povidone. Povidone iodine also contains povidone and is widely used as an antiseptic, with rare descriptions of contact dermatitis (6).

In this case we have shown the povidone constituent to be responsible for the anaphylactic reaction. The sensitization is likely to have occurred by previous cutaneous application of Bétadine® (povidone iodine solution). This is probably the first case described in the literature of anaphylaxis induced by povidone in a child.

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