

Urticaria caused by Type IV sensitization to isothiazolinones

M. GEBHARDT, A. LOOKS AND U. C. HIPLER

Department of Dermatology, University Hospital, D – 07740 Jena, Germany

Key words: urticaria; preservatives; contact allergy; isothiazolinones; paints; airborne contact urticaria. © Munksgaard, 1997.

Case Report

An otherwise healthy 31-year-old woman presented with generalized urticaria 2×. The 1st mild to moderate episode occurred when she was working in a freshly painted office, the 2nd when she was painting her apartment with a water-based wall paint. The 2nd time, she experienced a severe urticarial flare which required hospitalization. 4 weeks after complete healing of the lesions, she was patch tested with the DKG standard series, showing the following reaction after 2 days application:

	D2	D3
(5-chloro)-2-methyl-4-isothiazolin-3-one (CMI) 0.01% aq.	+	+

A prick test with the undiluted wall paint and CMI 0.01% aq. was negative. *Dermatophagoides pteronyssinus* gave a positive prick test supported by a class 1 CAP-RAST. Other prick tests with aeroallergens and latex remained negative. Total IgE was 53.1 IU/ml.

To obtain more information about the reaction, we performed a cellular antigen stimulation test (CAST®: Bühlmann Laboratories AG, Allschwil, Switzerland) using the patch test preparation of CMI (1)(Table 1). There was no allergen-specific sulfido leucotriene release (sLT₄) at all, i.e., no evidence of Type I sensitization.

Discussion

Isothiazolinones are now widely used as preservatives in water-based wall paints worldwide (2). Bohlin et al. (3)

found Kathon® CG to be positive in 3 and benzisothiazolinone in 2 out of 202 painters. (5-chloro)-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (Kathon® CG, Euxyl® K 100) are widely used in cosmetics, skin care products, moist toilet paper, industrial cutting oils, water-based paints, etc. Isothiazolinones, moderate to strong sensitizers, have become common contact allergens along with their increasing use in the 70s and 80s (4–6).

Despite the strange combination of Type IV sensitization to preservatives and airborne and/or contact urticaria, we do not doubt the relevance of the reaction. Using patch tests for the detection of non-eczematous reactions is still controversial, though relevant patch test reactions have been reported in lichenoid, pustular, bullous, acneiform and purpuric non-eczematous skin reactions to metal salts, drugs, dyes, etc. (4, 7).

References

1. De Weck A L, Stadler B M, Urwyler A et al. Cellular antigen stimulation test (CAST) – a new dimension in allergy diagnostics. *ACI News* 1993; 5: 9–14.
2. Nielsen H. Occupational exposure to isothiazolinones. A study based on a product register. *Contact Dermatitis* 1994; 31: 18–21.
3. Bohlin S, Edling C, Fischer T et al. Skin disease and contact sensitivity in house painters using water-based paints, glues and putties. *Contact Dermatitis* 1995; 32: 39–45.
4. Rietschel R L, Fowler J F F. *Fisher's contact dermatitis*, 4th edition. Baltimore – Philadelphia – Hong Kong: Williams & Wilkins, 1995: 92–113, 268–270, 562–565.
5. Hausen B M, Brinkmann J, Dohn W. *Lexikon der Kontaktallergene*. Landsberg: Ecomed, 1996: K1, 1–5.
6. Andersen K E, Burrows D, White I R. Allergens from the standard series. In: Rycroft R J G, Menné T, Frosch P J (eds): *Textbook of contact dermatitis*, 2nd edition. Berlin – Heidelberg – New York: Springer, 1995: 442–444.
7. Gebhardt M, Lustig A, Bocker T, Wollina U. Acute generalized exanthematous pustulosis (AGEP) – manifestation of drug allergy to propicilline. *Contact Dermatitis* 1995; 33: 204–205.

Table 1. CAST® with (5-chloro)-2-methyl-4-isothiazolin-3-one

Stimulus	sLT ₄ (pg/ml)
negative control	0
positive control	1650
C5a	0
CMI 0.001% aq.	0
CMI 0.01% aq.	0
C5a+CMI 0.01% aq.	0

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.