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Is 500 ppm a better concentration than 200 ppm for diagnosing contact allergy to methylisothiazolinone?

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Two commercial products are available for performing patch tests for sensitivity to methylisothiazolinone (MI): one diluted to 200 ppm MI (Laboratory Chemotechnique, Velinge, Sweden) and the other to 500 ppm (Laboratory Stallergene, Antony, France). The sensitivity and specificity of these tests are unknown, and it is difficult to know which one to use.

Case Report

Patients referred to our hospital for contact dermatitis were patch tested with the European baseline and with the two MI patch tests (200 and 500 ppm MI). The relevance of each patch test reaction was studied.

Over a period of 2 years, among 477 patients tested with the two MI patch tests, 10 (7 women; 3 men) were positive to MI (Table 1). Two patients had a history of atopy (with positive prick test reactions to aeroallergens), and none of them had previous positive occupational sensitization to MI. According to Lachapelle's scoring system (1), the test reactions for all 10 patients were proven to be relevant, as all patients healed when they stopped using any products containing MI.

Discussion

MI is an emergent allergen contained in cosmetics and household goods (2). A previous study showed that patch

Table 1. Results of patch testing with methylisothiazolinone

	MI 500 ppm	MI 200 ppm	MCI/MI	Test with personal product containing MI	Initial clinical features
Patient 1	+	—	—	+	Hand eczema
Patient 2	+	+	—	ND	Face eczema
Patient 3	+	+	—	ND	Hand eczema
Patient 4	+	+	—	ND	Hand eczema
Patient 5	+	—	—	+	Hand eczema
Patient 6	+	+	+	ND	Hand eczema
Patient 7	+	+	—	ND	Hand eczema
Patient 8	+	—	—	+	Hand eczema
Patient 9	+	—	—	+	Generalized eczema
Patient 10	+	—	—	+	Leg eczema
Total	10	5	1	5	

+, positive; —, negative; ND, not done.

MCI/MI: methylisothiazolinone/methylisothiazolinone at 100 ppm.

MI 500 ppm: patch tests with MI at 500 ppm (0.05% water).

MI 200 ppm: patch tests with MI at 200 ppm (0.02% water).

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testing with MCI/MI at 100 ppm (the European baseline series) is insufficient for detecting sensitization to MI (3). In the present study, 200 ppm was also insufficient. A total of 10 patients were positive to MI overall, but only 5 were detected at the lower concentration (200 ppm), whereas all 10 were detected at the higher concentration

(500 ppm). That is, 5 cases were missed by the patch tests with 200 ppm MI, whereas none were missed with 500 ppm MI. In addition, the low rate of positive reactions to both patch tests (10/447 at 500 ppm and 5/477 at 200 ppm), as well as the numerous negative results, indicate that neither of these patch tests is an irritant. A

previous study proposed using a patch test at 2000 ppm (4), but it is unknown whether that would cause irritation.

The patch test at 500 ppm MI is twice as sensitive as that at 200 ppm, and neither concentration leads to irritation. Hence, we recommend using 500 ppm MI in patch tests for this compound.

References

- 1 Lachapelle J M. A proposed relevance scoring system for positive allergic patch test reactions: practical implications and limitations. *Contact Dermatitis* 1997; **36**: 39–43.
- 2 Schnuch A, Lessmann H, Geier J, Uter W. Contact allergy to preservatives. Analysis of IVDK data 1996–2009. *Br J Dermatol* 2011; **164**: 1316–1325.
- 3 García-Gavín J, Vansina S, Kerre S, Naert A, Goossens A. Methylisothiazolinone, an emerging allergen in cosmetics? *Contact Dermatitis* 2010; **63**: 96–101.
- 4 Lundov M D, Krongaard T, Menné T L, Johansen J D. Methylisothiazolinone contact allergy: a review. *Br J Dermatol* 2011; **165**: 1178–1182.