

Airborne exposure to methylchloroisothiazolinone and methylisothiazolinone from a toilet cleaner

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Airborne contact dermatitis caused by emission of isothiazolinones [methylchloroisothiazolinone (MCI), methylisothiazolinone (MI) and benzisothiazolinone] from paint or industrial products has become more prevalent in recent years (1–4). Furthermore, the overall prevalence of MI contact allergy is increasing at an alarming pace (5, 6).

Case Report

A 32-year-old man was referred to us because of severe widespread dermatitis caused by heavy exposure to the isothiazolinones MCI/MI and MI while working at a glue factory. On patch testing, he reacted to both MCI/MI (+) and MI (++), but not to other allergens.

In addition to the widespread chronic dermatitis, while being treated he developed a 5-cm eczematous reaction on the left inner thigh extending up to the buttock. For a couple of months the patient had had a new toilet cleaner in his toilet (Fig. 1) that released a cleaning agent as well as fragrances after each flush. The ingredient label of the toilet cleaner showed that it contained both MCI and MI. We had the product analysed for the concentrations of both isothiazolinones, and found that it contained 11 ppm MCI and 10 ppm MI. The patient did not have any unusual toilet habits and had not been sick. After removal of the toilet cleaner, the eczema on the thigh improved.

Discussion

Isothiazolinones evaporate and are deposited on the skin, where they may cause eczematous reactions.



Fig. 1. The toilet cleaner containing methylchloroisothiazolinone and methylisothiazolinone.

Furthermore, they can be inhaled and cause systemic allergic reactions with rashes in the popliteal and antecubital fossae and flare-up reactions. Inhalation of isothiazolinones may also cause asthmatic reactions (1, 2, 4). The previously described cases were all heavily exposed to isothiazolinone emissions, for example by painting their own houses or working in a newly painted office. In the present case, the patient was already sensitized from his work, and has a severe systemic reaction which has lasted for several years. The patient had previously reacted to airborne MCI/MI and MI exposure, but this had occurred during work and with the isothiazolinones at much higher concentrations. In this case, exposure from a toilet cleaner containing 55 ml of liquid for 10–15 min a day was enough to elicit an allergic reaction in the patient.

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This shows that patients who have been exposed to and sensitized with high concentrations of isothiazolinones may later react with exposure to very low concentrations. This can have substantial effects on their lives, as the use of MI in particular is increasing in consumer products, and these products are used in domestic, industrial and public settings. Exposure resulting from the high concentrations of isothiazolinones seen in some industrial setting and the overall exposure from cosmetic, household and industrial products appear to be the primary reasons for the alarming increase in MI contact allergy

seen in different European countries (5, 6). This case report, with others, shows the necessity for urgent intervention from the authorities on the safety assessment of isothiazolinones.

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