

Short Communication

Isoflurane: an uncommon cause of occupational airborne contact dermatitis

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Isoflurane and other halogenated anaesthetic compounds can cause various undesirable effects, such as arterial hypertension, respiratory depression, cardiac arrhythmia, sialorrhoea and, more rarely, convulsions (1). Skin reactions are extremely uncommon (2–4).

Case Report

A 50-year-old non-atopic man, who had been working as an anaesthetist for 25 years, developed an itchy erythematous squamous dermatitis on the face and V of the chest. The lesions, similar to parapsoriasis en plaques, relapsed several times and were often associated with irritation of the upper airways. The appearance of dermatitis coincided with the work in operating rooms, where isoflurane (1-chloro-2,2,2 trifluoroethyl difluoromethyl ether), a halogenated anaesthetic, was used. This is a colourless liquid gas which has an ethereal and slightly pungent smell. The anaesthetic is mixed with nitrogen peroxide and oxygen before being supplied by a specific vaporizer. The surgical instruments and operating rooms were sterilized with sodium hypochlorite (Tiutol®).

Patch tests with the GIRDCA standard series, gum series (Firma, Firenze), povidone-iodine (10% pet.), chlorhexidine digluconate (0.5% aq.), sodium hypochlorite (3% aq.), and open application test with isoflurane, were negative. Repeated open application test (ROAT) with isoflurane elicited a nummular erythematous patch after 5 applications, while ROAT with nitrogen peroxide was negative. The test was performed on the inner aspect of the forearm, applying 1 ml of isoflurane with a cotton pad 2× a day. ROAT in 10 volunteer control subjects was negative.

Subsequently, the dermatitis relapsed twice, 2–3 h after resuming work in an operating room and after an anaesthesia with isoflurane carried out on a child who had to undergo magnetic resonance.

Discussion

Mucocutaneous side-effects from halogenated anaesthetic gases seem to be extremely rare. Halothane has been considered responsible for occupational facial acneiform eruption in 2 physicians (2), and for urticaria/angioedema syndrome in a patient who underwent general anaesthesia (3). A generalized erythematous rash, associated with bronchospasm and tachycardia, appeared within a few minutes of starting isoflurane (4). Interruption of the anaesthetic agent and antihistamine/corticosteroid treatment quickly cleared the reaction, which did not reappear after halothane.

Contact dermatitis from isoflurane has never been reported and this compound is not included among airborne allergens (5). In spite of the negativity of the open application test, the skin manifestation observed in our patient is probably immunological. The slow remission of lesions when the patient stopped working and their rapid relapse after resuming occupational activities seem consistent with an allergic mechanism.

Reference

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