Allergic contact dermatitis in health care workers to diazolidinyl urea present in antimicrobial hand gel

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To the Editor: A 44-year-old female nurse with a 4-year history of hand dermatitis was referred to an occupational dermatology clinic in Melbourne. In 2009, her hand dermatitis had worsened when she started working in a neonatal intensive care unit, where she used antimicrobial hand gel more frequently. Her hands improved when she spent time away from work but worsened again within 2 days of returning.

Patch testing was conducted using our baseline patch test series as well as rubber accelerators (used in manufacturing rubber gloves), antiseptics and the patient's own samples (eg, gloves, moisturiser, etc). She developed positive reactions to formaldehyde and the formaldehyde releasers quaternium 15, imidazolidinyl urea and diazolidinyl urea, as well as the hand gel she had been using — Microshield Antimicrobial Hand Gel (Johnson and Johnson Medical, Sydney, NSW) — a gel containing 30%–60% water, and diazolidinyl urea as a preservative. (Diazolidinyl urea is not listed on the safety data sheet for this product as it is in a concentration of < 1%.) A negative result for a radioallergosorbent test indicated it was unlikely the patient was allergic to latex.

She was advised to use a waterless, alcohol-based hand cleaner without preservatives and was given advice about general skin care, especially use of moisturising cream.[1] She complied with this advice, and her condition subsequently improved.

Diazolidinyl urea is a preservative commonly used in cosmetic products. Once absorbed into the skin, it releases small amounts of formaldehyde. Individuals may become sensitised to diazolidinyl urea, formaldehyde, or both. This can occur at any stage, even if the individual has been exposed to the product for years. At our occupational dermatology clinic we have patch tested 2688 patients and diagnosed 1461 of these with allergic contact dermatitis (ACD) over the past 16 years. Nine health care workers have been diagnosed with ACD to diazolidinyl urea contained in products they used at work. Thirty other patients have had ACD caused by this preservative from other sources, usually their skin care products. Many workers will simply accept their hand dermatitis as part of the job, or begin treatment without patch testing. It is only with patch testing that an accurate diagnosis can be made.

Waterless hand cleaners are an important part of hand hygiene in health care settings,[2] and they minimise irritation caused by washing hands with soap and water and drying with paper towels.[3] Alcohol-based liquid hand-disinfectant solutions are more efficacious than gels.[4] Our report provides another reason to use these products as, generally, alcohol-based liquids do not contain preservatives such as diazolidinyl urea.

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