Patch Test Series May Miss Cosmetic Allergens

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HERSHEY, PA. — Patch testing with personal cosmetic products or topical prescriptions may identify allergens that are not found on common series in patients with suspected allergic contact dermatitis to cosmetics, Erin M. Warshaw, M.D., said at a meeting on contact dermatitis sponsored by Pennsylvania State University.

Most of the allergens that are found in cosmetic products function as fragrance, preservative, emulsifier, pigment, antioxidant, or surfactant, said Dr. Warshaw, codirector of the occupational and contact dermatitis clinic at the University of Minnesota, Minneapolis.

At least 6% of the positive reactions to patch tests were thought to be related to cosmetics in a study of 8,093 patients. More than 90% of the patients with reactions related to cosmetics were women and patients aged 20-49 years (J. Am. Acad. Dermatol. 1982;6:909-17). The most common cosmetic products that caused allergic contact dermatitis in that series of patients included skin care products, facial makeup, nail preparations, and fragranced products.

In a separate study of 203 patients with persistent or recurrent eyelid dermatitis, 151 (74%) of the cases were caused by cosmetics. Of the 167 patients with allergic contact dermatitis, 66 (40%) would have been missed by the 24-item thin-layer rapid use epicutaneous (TRUE) test (J. Am. Acad. Dermatol. 2002;47:755-65).

The Chemotechnique Diagnostics cosmetic series contains 48 allergens plus the standard series, but only 6 of these allergens are on the TRUE test. "It's important to patch test to an extended series as well as personal products," Dr. Warshaw advised.

Preservatives, "probably the most important category" of ingredients in cosmetics, include formaldehyde-releasing chemicals such as quaternium-15, triclosan, benzyl alcohol, Kathon CG, Euxyl K 400, and iodopropynyl butyl carbamate, Dr. Warshaw said. She reviewed some of these preservatives:

► **Quaternium-15.** In more than nine U.S. studies, quaternium-15 has been the most common cause of preservative allergy. The prevalence of allergic contact dermatitis to the preservative has increased in studies conducted by the North American Contact Dermatitis Group, from 2.3% in the 1970s to 9.6% in 1998. Most (58%-66%) of the positive reactions to quaternium-15 during patch testing have been reported to be relevant to a current or past episode of dermatitis.

When identifying sources of allergic contact dermatitis, preservatives are 'probably the most important category' of ingredients in cosmetics.

About half of the patients with an allergy to quaternium-15 will cross-react to other formaldehyde-releasing preservatives such as bronopol, imidazolidinyl urea, diazolidinyl urea, DMDM hydantoin, Grotan BK, ethylene urea melamine formaldehyde (in clothing), and toluene sulfonamide formaldehyde resin (in nail polish), said Dr. Warshaw, also of the department of dermatology at the university.

► **Triclosan.** This antimicrobial agent is found in deodorants, soaps, powders, and "odor eaters."

► **Benzyl alcohol (phenylcarbinol).** This preservative is a rare allergen that is not on the TRUE test. Patch testing to patients' personal products such as prescription creams and Aveeno lotion will help check for a reaction to this allergen, she said.

► **Kathon CG.** This allergen is on the TRUE test. It is a mix of methylchloroisothiazolinone and methylisothiazolinone.

Lanolin is another common allergen found in lipstick, lip balm, creams, and waxes, and is found on the TRUE test. Bee glue or wax (propolis), known as the dimethylallyl ester of caffeic acid, is an allergen in lipstick, ointments, and mascara. Propolis is a primary ingredient in Burt's Bees products.

The members-only portion of the American Contact Dermatitis Society Web site, www.contactderm.org, contains a database that includes an ingredient dictionary to help sort through the chemical names of allergens, information on the cross-reactivity potential of allergens, and a list of products that are free of specific allergens, she explained. ■