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Allergens of New and Emerging Significance

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Abstract and Introduction

Abstract

Over 65,000 substances can cause contact dermatitis. Over 3,000 can cause allergic contact dermatitis. New chemicals are introduced into the marketplace continually. Over time, some of these chemicals emerge as allergens. Some of these new and emerging allergens are highlighted.

Many supplemental allergens are available from companies outside the United States. For example, Dormer Laboratories (www.dormer.com) and Omniderm Pharma Canada Inc. (www.hermal.com) distribute supplemental allergen tests and allergen series. These allergens include expanded series for routine testing as well as specialized series to be used when the history suggests, such as nail trays, dental series, plastics and glues or plant series, cosmetic series, or shoe series. These allergens series may not be appropriate for routine testing but can be very useful in certain situations. These supplemental allergens come in prefilled multi-use syringes and are poured into Finn Chambers. They are then taped to the back, kept dry, and left in place for 48 hours. At that point an initial reading is performed. The patients are asked to keep the back dry and return for a second reading 3 days to 1 week after the initial application of patches. Although the TRUE test is a reasonable starting point, supplemental allergens can provide a more thorough and complete evaluation.

Fragrances are the most common cosmetic ingredient to cause allergic contact dermatitis (Marks, Elsner, & DeLeo, 2002a). They are ubiquitous and find their way into many products. There is a growing presence of fragranced products in the consumer market. The typical clinical picture for fragrance allergy is a dermatitis on the hands, face, legs, and/or axilla. Balsam of Peru has historically been a screening allergen for detecting fragrance allergy. However, Balsam of Peru detects only 50% of fragrance allergies (Adams & Maibach 1985). The fragrance mix is a screening allergen used to detect those with fragrance allergy. It is a better tool for detecting fragrance allergy than Balsam of Peru. The fragrance mix contains eight allergens each at 1% concentration. The constituents of the fragrance mix include oak moss absolute, cinnamic aldehyde, cinnamic alcohol, alpha amyl cinnamic alcohol, geraniol, hydroxycitronellal, isoeugenol, and eugenol. Since the introduction of the fragrance mix, the ability to detect fragrance allergy has increased significantly. The fragrance mix detects 70% to 80% of fragrance allergy (Larsen, 1985). The addition of a few other components such as ylang ylang, sandalwood oil, and narcissus oil further increases the ability to detect fragrance allergy (Larsen et al., 1996).

Screening **allergens for botanicals** are limited in their ability to detect allergy. Fragrance mix reactions were positive in 33% of patients who had a botanical allergy, composite mix was positive in 30% of patients with botanical allergy, Balsam of Peru in 20%, and sesquiterpene lactone in 6.7% (Simpson, Law, & Storrs, 2004). Allergic contact dermatitis to some of these chemicals has been reported. The botanicals may represent an emerging set of allergens. As screening for these chemicals is not easily accomplished, awareness of these potential allergens must remain high and patients should be queried about the use of such products and patch testing should be conducted when appropriate.

Bacitracin

The North American Contact Dermatitis Group reported an incidence of 7.9% from 2001-2002 for bacitracin allergy (Pratt et al., 2004)

Corticosteroids

The most common screening allergens are tixocortol-21-pivalate which screens for Class A, and budesonide which screens for Class B allergy. If positive reactions are found to these screening allergens, patch testing to an expanded corticosteroid series should be considered. Patch testing with corticosteroids should be performed carefully as delayed reactions may be seen because of the anti-inflammatory properties of these compounds. Therefore, a second delayed patch test reading is necessary to fully evaluate for allergic contact dermatitis to corticosteroids.

Patient Education

Once allergens are identified, patient education is critical in managing the patient and resolution of the dermatitis. Patient education can help identify possible sources of exposure in the patient's environment. Instruction on label reading can help in the avoidance of future exposures. Patients should be given the names of the allergens identified on patch testing, any synonyms for the allergens, as well as common uses for the allergens.