Eczema is the most common recurring condition seen in dermatology practices. Many agents are available for the treatment of eczema, but factors ranging from poor adherence to genetics complicate management and prevention. Patients with eczema may become frustrated trying multiple approaches and not achieving desired relief. Recent research has highlighted new directions in eczema management, from the importance of barrier protection in atopic dermatitis to the importance of simple avoidance of key allergens in contact dermatitis.

At the 2010 Fall Clinical Dermatology Conference, experts presented data from recent research and shared insights on prevention and cost-effective, simple interventions for eczema.

Contact Dermatitis: Avoidance is Key
For some forms of eczema, avoidance of key elements is often the only reliable means of management. According to David E. Cohen, M.D., common allergens are still responsible for most cases of contact dermatitis, even when eruptions occur in unusual settings and exposure patterns. He discussed a 2009 article evaluating 959 patients diagnosed with contact dermatitis of the hands. The most frequent relevant allergens were quaternium-15 (16.5 percent), formaldehyde (13 percent), and nickel sulfate (12.2 percent). For eyelid dermatitis, the most common contact allergens are gold, sodium thiosulfate, fragrance mix, balsam of Peru (25 percent), and neomycin (20 percent). Contact dermatitis may affect women disproportionately, due to the amount of fragrance chemicals in cosmetic products, such as make-ups. Approximately 2,500 fragrance chemicals are used routinely in cosmetic products, Dr. Cohen observed, about 100 of which are known sensitizers. He added that 10-25 percent of patch test patients are sensitive to fragrance chemicals, translating to 1.7 to four percent of the general population.

There are three routes of exposure to fragrances, according to Dr. Cohen. These include dermal exposure and permeation, oral ingestion, and inhalation. While it is important and intuitive to avoid exposure to certain chemicals in cosmetic products, it’s also important to monitor foods ingested, Dr. Cohen said. These include products contacted with fragrances.

Take-Home Tips. Common allergens are still responsible for most cases of contact dermatitis, even when eruptions occur in unusual settings and exposure patterns. Contact dermatitis may affect women disproportionately, due to the amount of fragrance chemicals in cosmetic products. There are three routes of exposure to fragrances: dermal exposure and permeation, oral ingestion, and inhalation. Avoidance is the best form of therapy, while suppression of reactions is advisable only in cases where avoidance is not possible. There are multiple causes of defective epidermal barriers in atopic dermatitis: filaggrin mutations, abnormal lipid metabolism (ceramides), increased protease activity (e.g. SCCE), and serine protease inhibitor defects. Soaking and hydration can benefit AD. Once-a-day corticosteroids may be as effective as twice-a-day. More potent corticosteroids can be more appropriate early in the management course to bring flares under control. Keep regimens simple and schedule frequent follow-ups.
that contain citrus fruits; flavoring agents such as those found in bakery goods, candy, and chewing gum; spices, such as cinnamon, cloves, vanilla, curry, and ginger; spicy condiments; pickles; wine, beer, and gin; chocolate; certain cough medicines; ice cream; cola; and tomatoes.

Inhalation is also a common but sometimes overlooked method of exposure to fragrances. Dr. Cohen highlighted a 2009 study in which 22 patients with contact allergy to isoeugenol (ISO) or hydroxyisohexyl-3-carboxaldehyde (HICC) were exposed for 60 minutes to 1000 µg/m³ of these compounds in an exposure chamber at rest, and to 1000 µg/m³ geraniol as control. There were no significant changes in lung function, however, Dr. Cohen said, there was a tendency towards an increased bronchial hyperresponsiveness after exposure to any of the compounds. In addition, four patients reported symptoms compatible with a delayed-type hypersensitivity reaction, and two of them demonstrated a flare-up after ISO exposure. The authors concluded that inhalation of high concentrations of fragrance contact allergens apparently posed a risk for individual patients to develop manifest hematogenic contact dermatitis.

In dealing with contact dermatitis in general, Dr. Cohen advised that avoidance is the best form of therapy, while suppression of reactions is advisable only in cases where avoidance is not possible. In light of various routes of exposure to fragrances, Dr. Cohen reminded of the importance of considering the many potential sources and routes of exposure when advising patients on avoidance. Additionally, he added that allergen identification should be commensurate with history and potential exposure to sources.

Filaggrin and The Barrier
Barrier function is a relevant issue in eczema management and prevention, presenters noted. According to Lawrence F. Eichenfield, MD, there are multiple causes of defective epidermal barriers in atopic dermatitis. These include filaggrin mutations, abnormal lipid metabolism (ceramides), increased protease activity (e.g. SCCE), and serine protease inhibitor defects, he said. In particular, filaggrin has received attention recently for its role in epidermal barrier function.

Loss-of-function mutations in the filaggrin gene have been associated with ichthyosis vulgaris (IV), noted Dr. Eichenfield. In Europeans, one in 10 individuals have mild IV. Although rare, total absence of filaggrin can lead to severe IV. Dr. Eichenfield also indicated that IV can be a risk factor for atopic dermatitis and asthma secondary to atopic dermatitis. Some studies have also linked filaggrin to allergy and persistent dermatitis. In addition, reduction in filaggrin has been associated with AD in a recent study.

The effects of filaggrin mutation vary, but Dr. Eichenfield noted that decreases in natural moisturizing factor and increases in permeability and pH are common. Increases in pH, in particular, impact cell cohesion, permeability, and inflammation, he observed. Dr. Eichenfield indicated that some issues arising with phenotype/genotype of filaggrin are that subsets of atopic patients have different risks. Furthermore, there may be differences in the degree to which early intervention may mediate allergy development and the course of AD.

There are several other points of interest regarding the association of filaggrin and atopic dermatitis discussed at the conference. According to Moise L. Levy, MD, decreased expression of filaggrin was seen with increased IL-4 and IL-13 and was also associated with increased severity and persistence of atopic dermatitis into adulthood. These findings, Dr. Levy noted, indicate that the development of targeted therapies to restore filaggrin may be beneficial for patients with atopic dermatitis.

Pearls for AD Management and Treatment
In light of the recent advancements in eczema management and prevention, presenters noted the importance of considering the many potential sources and routes of exposure when advising patients on avoidance. Additionally, they added that allergen identification should be commensurate with history and potential exposure to sources.

Tips for Adherance in AD
- Keep therapeutic duration short.
- Keep the regimens simple.
- Advise maintenance care as needed.
- Consider more frequent office visits, which may promote adherence.
research, Dr. Eichenfield identified several tips for both the prevention and management of atopic dermatitis.

**Bathing and Emollients.** Bathing and hydration habits can affect one’s eczema, Dr. Eichenfield noted. Soaking without emollients can dry the skin, he observed, while adding emollients to the skin during or after soaking improves the hydrating effect and may result in a net hydration. However, there appears to be no significant difference in benefit for immediate versus delayed application of emollients.13

Basic skincare, including the use of gentle, soap-free, fragrance-free cleansers for bathing, is recommended at every stage of AD management (Acute flare, Maintenance, Recurring Flare). After bathing, the patient should pat the skin dry and apply fragrance-free emollients (creams and ointments preferred) to “lock-in” moisture and optimize hydration. Increasingly, barrier repair therapy is similarly indicated throughout the disease process. There are six prescription barrier repair therapies on the market. Following is information on these products, as well as some OTC options.

<table>
<thead>
<tr>
<th>Rx Barrier Repair Creams</th>
<th>Marketer</th>
<th>Sizes Available</th>
<th>Cost*</th>
<th>Savings Program?</th>
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<tbody>
<tr>
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<td>Graceway</td>
<td>100gm Tube</td>
<td>$121.45</td>
<td>Pay no more than $25 atopiclairus.com/coupon.php</td>
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<td><strong>Eletone Cream</strong></td>
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</table>

**OTC Options**

- CeraVe is a non-prescription product line specially designed to restore barrier function using MVE or multi-vesicular emulsion technology to deliver ceramides to the skin. For more on this product, see Dr. Downie’s article on p. 45. 16oz. Cream: $14.99
- Cetaphil Restoraderm Skin Restoring Moisturizer contains a combination of filaggrin breakdown product and ceramides. 10oz. Lotion: $15.99
- The Trixera Line from Avene features a bath product along with moisturizing Cream of Balm. For more information, see Dr. Downie’s article, p. 45
- The Stelatopia line, featuring Sunflower oleodistillate, from Mustela, is intended for use on atopic skin. 6.7oz. Moisturizing cream: $18.49.
- Aveeno Eczema Care features colloidal oatmeal in a range of OTC products. 7.3oz. Cream: $11.49
- The Toleriane line from LaRoche-Posay is designed for “intolerant” skin. 1.35oz. Non-oily emulsion: $26.95.

* Cost is as advertised at DrugStore.com.
Topical Corticosteroids. Dr. Eichenfield pointed out that stronger steroids might be more appropriate when beginning therapy to provide an early response and allowing the patient to taper to a less potent corticosteroid as AD improves. He recommended a step-wise model for as-needed corticosteroid use as the disease improves. Potent topical corticosteroids can also be used for what he called “short bursts,” with steroid-free holidays of emollient use until relapse.

There is no standard approach to therapy, with many prescribers mixing and matching agents and recommending frequent therapeutic changes. There is also wide variation in the number of daily applications of medicines that prescribers recommend. Dr. Eichenfield noted a 2007 study in particular showing that once-a-day application of topical corticosteroids—from generally moderate, potent, or very potent preparations—can be effective for atopic dermatitis, obviating the need for multiple applications per day.14

Food Allergy Controversy. Addressing recent conjecture about the association between food allergies and atopic dermatitis, Dr. Eichenfield noted that patients with AD are a much higher risk group for the development of food allergies. Moderate to severe AD patients likely have a 25 to 35 percent higher rate of having at least one true food allergy than individuals who do not have AD. However, Dr. Eichenfield pointed out that challenges in food allergy testing make it difficult to determine specific sensitivities. Specifically, the high number of false positive tests for various food allergies in the general population may raise questions about the accuracy of data acquired for AD patients. The influence of food allergies on the severity of AD is not known.

Dr. Eichenfield recommended that children less than five years of age with moderate to severe AD be considered for food allergy evaluation for milk, egg, peanut, wheat, and soy, if either the child has persistent AD in spite of optimized management and topical therapy or the child has a reliable history of an immediate reaction after ingestion of a specific food.

Improving Adherance

When it comes to improving patient adherence to therapy, Dr. Eichenfield offered several suggestions, such as defining simple interventions and attending to the psychological and educational needs of patients. In addition, Dr. Eichenfield offered more practical tips to: keep therapeutic duration short, the regimens simple, and advise maintenance care as needed. More frequent office visits may promote adherence as well, he said. But the most effective way to manage eczema is to increase awareness and promote education among patients and families, according to Dr. Eichenfield. He noted that the influence of eczema centers can be particularly strong and positive for patients and families. These centers for education offer extended in-clinic education and advanced written materials, as well as group visits and eczema schools.

Examples of Topical Corticosteroids with Specific Age Allowances Below 2 Years

3 Months or older: Desonate Gel (desonide), 0.05%; Intendis • Derma-Smoother/FS Topical Oil (fluocinolone acetonide), 0.01%; Hill Dermaceutics • Locoid Lipocream/Lotion (hydrocortisone butyrate), 0.1%; Triax Pharmaceuticals, LLC • Verdeso (desonide) Foam, 0.05%; Stiefel

1 Year or older: Aclovate Cream or Ointment (alclometasone dipropionate), 0.05%; GlaxoSmithKline • Cutivate Lotion or Cream (fluticasone propionate), 0.05%; PharmaDerm