

# Perspectives in Atopic Dermatitis-Optimizing Outcomes: Introduction

Atopic dermatitis (AD) has a substantial impact on both patients and their families. This issue of *Seminars in Cutaneous Medicine and Surgery* highlights newly recognized aspects of AD pathogenesis as well as the evolution in therapy that offers opportunities for improved outcomes. The faculty members convened for this supplement provide up-to-date evidence that supports some long-held concepts; they also review other recently published data that challenge clinicians to reconsider long-standing ideas about the pathogenesis and treatment of AD. The major topics concerning AD that are addressed in this supplement include epidemiology, pathogenesis, microbial colonization and infection, comorbidities, disease in adults, prevention and treatment strategies, and improving the patient-clinician/parent-clinician partnership in AD management.

## Epidemiology and Pathogenesis

The prevalence of AD has been increasing worldwide over the past several decades, with a current reported prevalence of 10% to 20% among children in industrialized countries.<sup>1</sup> As the authors discuss in the article by Eichenfield et al,<sup>2</sup> relatively new data from the United States show a prevalence of AD of 8.7% to 18%, with interesting prevalence differences from state to state—higher rates are found in Idaho, Nevada, Utah, and the East coastal states.<sup>1</sup>

In the past, discussions of AD pathogenesis focused on immune dysregulation. Now, however, recent research ad-

vances have led to an understanding that sets of mutations in skin cell genes are associated with skin barrier defects in AD. Data discussed by Eichenfield et al<sup>2</sup> demonstrate that mutations in these genes—especially in the *filaggrin* gene—are strongly predictive of AD as well as immunoglobulin E sensitization and allergy. These findings have challenged us to consider sensitization and allergy not as primary causes of AD, but as secondary consequences of skin barrier dysfunction. This newer information about pathogenesis is changing approaches to the care of patients with AD.

## Colonization and Infection in AD

It has long been known that *Staphylococcus aureus* is an important organism in AD, being associated with high rates of colonization and infection and being responsible for impetiginized dermatitis, pustules, and, occasionally, more significant skin, bone, or systemic infections in patients with AD. The paper by Eichenfield et al<sup>2</sup> discusses perspectives on the bacterial and viral complications in AD, as well as some of the intriguing data on how normal skin flora—such as *Staphylococcus epidermidis*—contributes to innate immune reactions. This raises the question whether changes in usual commensal microbes on the skin in patients with AD may affect the cutaneous innate immune system, as well as how *S. aureus* colonization develops and influences the course of AD over time.

As Paller et al<sup>3</sup> note, studies have shown that twice-weekly bathing with sodium hypochlorite solution (“bleach baths”) can markedly improve AD by decreasing microbial colonization and reducing the risk for infection. Increasingly, clinical experience also supports the benefit of bleach baths.

## Comorbidities in AD

Simpson and colleagues<sup>4</sup> highlight the very important emerging information on comorbidities in AD. Although it has long been recognized that AD is associated with the development of asthma, allergic rhinitis, and food allergy, evidence regarding behavioral, emotional, and psychological comorbidities has been increasingly reported. Particularly interesting are the data

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demonstrating that children with AD may have increased rates of attention-deficit/hyperactivity disorder (ADHD). Autism also may be associated with AD. It is unknown whether AD is a causal factor in ADHD or other psychological effects, but the data appear to be very strong that there is a significant association. This emerging evidence should strengthen clinicians' conviction to optimize treatment of AD, minimizing its impact on pruritus, skin inflammation, and sleep disturbance, all of which may be contributing to these secondary disabilities.

## Adult AD

Although AD in adults is not uncommon, a paucity of studies has been devoted to this topic, particularly adult-onset AD. Adult-onset AD is discussed in the paper contributed by Ellis and colleagues,<sup>5</sup> who address the clinical presentation of AD beginning in adulthood, as well as some of the immunologic differences that are found in these patients. The paper also highlights infectious comorbidities in adult AD and the significant psychiatric and psychological effects of AD in this population. Depression, suicidal ideation, a substantial impact on quality of life, choice of occupation, and psychosexual issues are all reported with adult AD.

Considerations for treatment of adults with severe AD that does not respond to topical therapy can include phototherapy and systemic immunosuppressive agents, but we look forward to more-specific, biologic-based strategies in the future.

## AD Prevention and Treatment Strategies

The article by Simpson et al<sup>4</sup> highlights strategies for AD prevention. We await future publication of the results of the work of investigators who are studying early-intervention skin care targeting abnormal skin barrier function to determine whether this can minimize the development or improve the course of AD.

To optimize AD outcomes, a broad knowledge of skin management strategies and regimens is required, including bathing, nonprescription topical agents, and prescription topical and systemic agents. The article by Paller et al<sup>3</sup> discusses strategies for optimizing available therapeutic options for successful treatment of AD.

Bathing and appropriate use of emollients and moisturizers, including targeted barrier-repair products, can be useful as part of the mainstay of therapy for AD. Anti-inflammatory medications, including topical corticosteroids and topical calcineurin inhibitors (TCIs), can be crucial in AD care. New information on the relative safety of the TCIs has emerged, including long-term registry data and multiple epidemiologic studies.

Many individuals affected with AD may have persistent or frequently flaring eczema. The concept of rotational therapy, or intermittent treatment to minimize flares of the disease, has been very helpful in management. Rotational therapy may involve the use of topical corticosteroids, with switching to a TCI, or relatively long-term intermittent application of corticosteroids or TCIs.

A subset of patients with AD is insufficiently controlled even with excellent topical therapy. The approach to severe refractory AD can include hospitalization to remove the patient from the environment and ensure adherence with therapy, or phototherapy, or systemic immunosuppressive therapy.

## The Patient/Parent-Clinician Partnership

The art of achieving high-quality, optimally effective AD care involves working with patients and/or their family to understand their disease and to feel comfortable with interventions for control of their disease. Commonly, treatment failure or response that is poorer than expected is secondary to poor adherence. Optimal management of AD involves not only choosing the right therapeutic agents but also effectively explaining regimens of care to patients and their families, encouraging appropriate use of medications, dealing with patient concerns or fears about their products, and having appropriate follow-up to assess their therapeutic efficacy.

The article by Mancini et al<sup>6</sup> discusses the patient-clinician/parent-clinician partnership in AD management. Unfortunately, there is tremendous evidence showing poor adherence to care of patients with AD. There has been an evolution in AD management, recognizing that appropriate therapeutic education can make a huge impact on the course of a disease. This article also includes a helpful personal-care-plan information page and form; the care plan may be copied by clinicians and distributed to parents and patients free of charge. (This page also will be posted on the Website, [www.globalacademycme.com/sdef](http://www.globalacademycme.com/sdef) using an interactive design to permit computer generation of the personalized care plan.)

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## References

1. Shaw T, Currie GP, Koudelka CW, et al: Eczema prevalence in the United States: Data from the 2003 National Survey of Children's Health. *J Invest Dermatol* 131:67-73, 2011
2. Eichenfield LF, Ellis CN, Mancini AJ, et al: Atopic dermatitis: Epidemiology and pathogenesis update. *Semin Cutan Med Surg* 31:S3-S5, 2012 (suppl 3)
3. Paller AS, Simpson EL, Eichenfield LF, et al: Treatment strategies for atopic dermatitis: Optimizing the available therapeutic options. *Semin Cutan Med Surg* 31:S10-S17, 2012 (suppl 3)
4. Simpson EL, Eichenfield LF, Ellis CN, et al: Current issues in atopic comorbidities and preventing the atopic march. *Semin Cutan Med Surg* 31:S6-S9, 2012 (suppl 3)
5. Ellis CN, Mancini AJ, Paller AS, et al: Understanding and managing atopic dermatitis in adult patients. *Semin Cutan Med Surg* 31:S18-S22, 2012 (suppl 3)
6. Mancini AJ, Paller AS, Simpson EL, et al: Improving the patient-clinician and parent-clinician partnership in atopic dermatitis management. *Semin Cutan Med Surg* 31:S23-S28, 2012 (suppl 3)