Going Skin Deep With Atopic Dermatitis

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Atopic dermatitis (AD) is very common with a tendency for itching and inflammation of the skin. It almost always begins early in life (usually in the first few years) and tends to be a continuing problem throughout life. There is no permanent cure for most patients. There are a variety of presentations with the eczema, but a few basic properties of atopic skin predominate (Table 1).

AD is often found in patients with a background of asthma, allergies, and hay fever (a collection of conditions termed the atopic diathesis). Patients will often exhibit various combinations of these closely related atopic tendencies. From 70% to 80% of patients will have a family history of atopic disease.[1] It is believed that the inheritance pattern is polygenic, with atopy being an interaction of genetic and environmental factors.[2] The prevalence in children is estimated to be 10% to 15%, and it is generally agreed upon that the incidence of atopic disease is growing in industrialized countries.[3]

While there is a higher incidence of allergies to environmental factors and foods in patients with AD, most do not have clinically relevant allergies impacting on their atopic dermatitis. The likelihood of allergies having an impact on atopic dermatitis is increased in the younger age group. From 10% to 40% of children and infants seem to have clinically relevant food allergies, but this is an uncommon correlation in adulthood.[4] Therefore, careful histo-

Carl's rashes

Carl, a one-year-old, is brought to your office. He has had very itchy rashes since birth. At times, Carl is up through the night with intense itching. He is experiencing severe episodes of dermatitis, and there have been instances of crusted, infected lesions and cellulitis requiring antibiotics (Figures 1 and 2).

His parents tell you that he has been on several topical steroid medications and antihistamines, with only temporary relief. As well, they are becoming increasingly nervous with the long-term usage of topical steroids, as their pharmacist has warned them that topical steroids can thin the skin and cause systemic side-effects. Further history reveals asthma that requires treatment with aerosolized medications. Carl's brother has hay fever and food allergies. His mother also has a history of asthma.

You make the diagnosis of atopic dermatitis (AD). The parents are well-read, and have specific questions for you:

1. **Is AD curable?**
2. **Should we get allergy tests done?**
3. **How often should we bathe Carl?**
4. **Should we use soap?**
5. **Are steroids dangerous? Are there alternatives?**

ry-taking is essential for suspected triggers in each case, and collaboration with an allergy consultant can be very valuable in selected cases. However, despite the uniformly high expectation in patients and parents that allergies are at the root of atopic dermatitis, it proves to be true in a minority of cases.

Infections seem to play a particularly important role in some cases. *Staphylococcus aureus* colonizes the skin of over 90% of patients with AD, as compared to 5% of the general population.[5] The particular ability of *Staphylococcus aureus* to trigger exacerbations of atopic dermatitis may reflect the particular ability of this organism to produce superantigens, which can activate large populations of T-cells to greatly boost inflammatory cytokines and inflammatory cells.[6] Fungal and viral infections can also secondarily infect areas of eczema to cause flares in dermatitis.

Table 1
Basic properties of atopic skin predominate

1. The skin is usually dry. The barrier to moisture retention is decreased so there is prominent flaking; some patients even show icthyosis-like scaling.
2. There is irritation with sweating and temperature change, often giving outbreaks in flexures.
3. There is a decreased ability of the skin to fend off bacterial, viral, and fungal invaders leading to recurrent impetiginized areas and secondary infections.
4. The main symptom that impacts on the patient's well-being is the intense itch that sometimes seems out of proportion to the observed eczema.

How is it managed?

The most important aspect of management in AD is the provision of good information. Case scenarios like Carl's are very common. The overall concepts involved with atopy have to be explained and discussed in detail. Decisions for treatment can be made only when the long-term management and expected outcomes have been understood. The care of a patient with AD involves a great deal of commitment— on the part of the patient, family, and the health-care team—and the relationship must be based on cooperation. Therefore, the first visit in the medical office is, by necessity, a rather lengthy affair and time must be allowed for questions and answers. The types of questions asked by Carl's parents are a small sample of common queries that must be addressed in each patient's case.

The need for involvement of an allergist, respirologist, or at times pediatric colleague in each case should be assessed from the beginning. Clear, balanced information can save families much time and frustration that commonly results from a disorganized search for "allergies' or environmental influences. There is also no shortage of Internet-marketed and unproven alternative therapies that prey on anxious and fearful families. Good patient information sheets, Internet references, and aids (such as teaching videos) can go a long way to enable patients to begin to make good choices, and establish a good working relationship with the medical team.

Some of the key elements to be considered in the skin care management strategy are:

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- the alleviation of dry skin,
- control of secondary infections,
- irritancy reduction,
- itch control; and
- anti-inflammatory therapies.

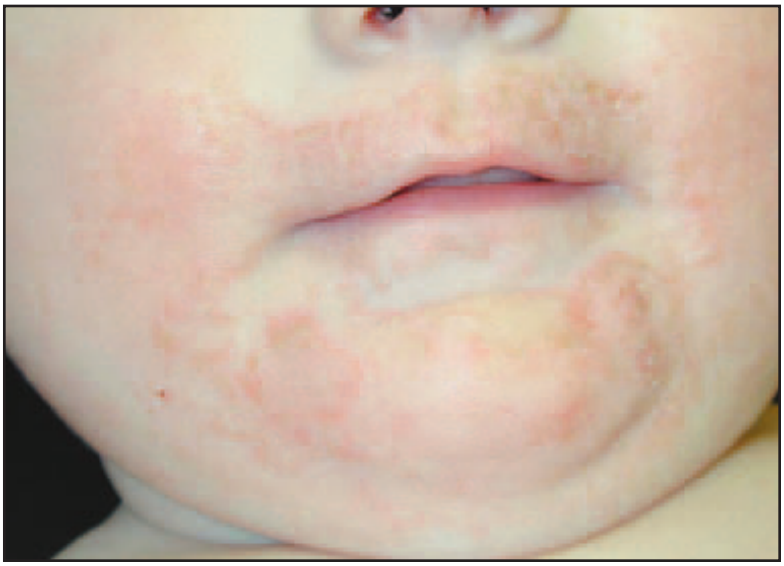

Figure 1. The patient's facial crusting and redness is prominent.

How important is it to moisturize?

The basic step in the management of most patients is consistent and adequate moisturization. The question of bathing frequency is one of the most contentious issues in dermatitis care. Bathing can, on one hand, cause drying. On the other hand, it can hydrate the skin. After bathing, water evaporates from the skin, leaving behind fissured and irritated skin, which is commonly experienced by most people, even those without AD. They experience post-bathing drying, especially in the winter. However, bathing also hydrates the skin. The trick is to trap the water in the stratum corneum before it can evaporate. Patients must be taught to apply a moisturizer broadly to the skin after patting it dry. This should happen within a few minutes of getting out of the water. You can suggest a three-minute rule to your patient, mandating the widespread application of moisturizer within three minutes of getting out of the water. The choice of moisturizer depends on a variety of factors, such as cost, tolerability, and individual patient preference. Basic moisturizers, such as Eucerin®, Vaseline® or Glaxal Base® can work well, and each patient usually discovers a favourite by trial and error.

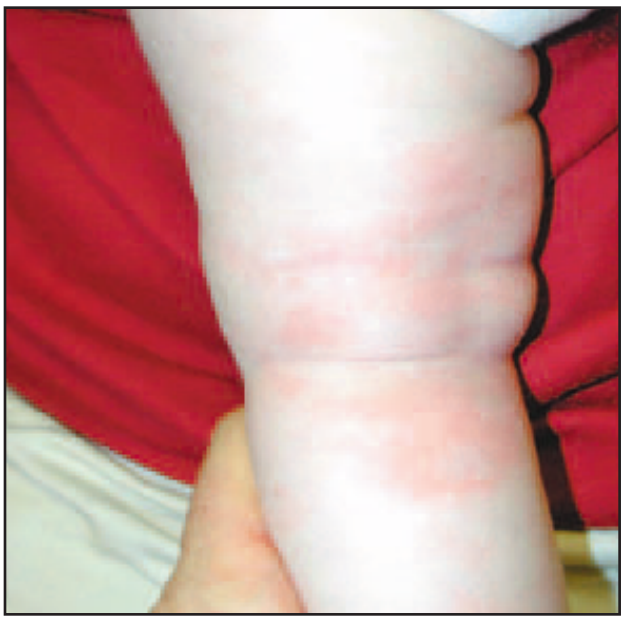

Figure 2. The patient's skin is very dry and scaly in areas, as seen here at the back of his left knee.

With the above post-bath moisturizer use, daily baths are recommended. This advice always needs careful explanation, as this advice goes against the prevailing common wisdom. The water should be warm enough for comfort, but not excessively hot, and bath time should be limited to a few minutes. Contrary to popular presumption, the use of soap is beneficial as well. A mild, unscented soap (such as Dove®, Petrophyllic®, or one of the mild liquid cleansers, such as Cetaphil® or Spectrogel®) lower bacterial skin colonization while limiting skin irritation.

What are secondary infections?

Good, hygienic skin care with bathing and mild soap goes a long way in reducing secondary infections. Vigilance on the part of the attending physician will pick up bacterial fungal and viral infections. Topical antibiotics (*eg.,* mupirocin, fusidic acid), and oral agents (*eg.,* cloxacillin and erythromycin) can avert aggressive flares.

What are the irritants?

Each case must be evaluated for particular irritants experienced with work, hobbies, and household exposure. Excessive hand-washing, wool sweaters, chlorine, and other elements must be evaluated individually and eliminated if necessary. This procedure involves the physician directly aiding the patient in such areas as career counselling, and worksite evaluation.

What are the symptoms?

Itch is the predominant symptom in the majority of cases. Oral antihistamines can be effective for relief. Some patients benefit from topical tar preparations. Stress is a natural consequence of being itchy, and discomfort, frustration, and anger are not unusual in chronic eczema patients. Anxiolytics and psychological management can be very useful in reducing discomfort.

What medications help?

Topical steroids are the mainstay of dermatitis management. They have a long history of safe and effective use. Part of the management strategy is to clearly teach the patient the differences of the various steroids and their side-effects. Appreciation of the relative strengths of the different classes of corticosteroids can help patients accept and manage their dermatitis. This appreciation often involves the dermatologist educating the healthcare partners involved in patient care so patients are not dissuaded from valuable therapies. Carefully and skillfully used, corticosteroids are extremely safe and useful. Dermatologists very often see needless suffering in patients who put up with severe eczema that could be readily controlled with moderate amounts of properly applied steroids.

The advent of non-steroidal preparations, such as tacrolimus[7] and pimecrolimus[8] are now allowing further reduction of corticosteroid-use in many AD patients. These new agents are proving a valuable addition to the management of eczema, especially in areas like the face and folds, which have the increased risk of steroid atrophy.

Prednisone is useful in patients with widespread disease not controlled adequately with topical measures. It is inexpensive and very effective, but the side-effect profile and cumulative risks must be calculated into the decision-making with each case. New agents, such as the investigational oral pimecrolimus, offer hope of alternatives to systemic steroids. CME

Take-home message

The most important aspect of management in atopic dermatitis is the provision of good information.

- There are a variety of agents available for the management of atopic dermatitis.
- The most important tool is the provision of balanced information to the patient and family.
- Only by practising good consistent skin care and the judicious use of medications, irritant avoidance, and development of a positive attitude, can this chronic condition be satisfactorily controlled.

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Net Readings

1. Pediatric Atopic Dermatitis: *http://pedeczema.com*
2. Skincarephysicians.com: *www.skincarephysicians.com*

www.stacommunications.com

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