Simply itching to talk about eczema

Eczema encompasses a number of conditions that have common characteristics. This first of two articles provides the foundation you need to give sound advice to patients

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THE term “eczema” embraces a number of itchy, inflammatory skin conditions. Atopic eczema accounts for as much as 80 per cent of all cases. The term “dermatitis” is sometimes used interchangeably with eczema but should be reserved for inflammatory conditions for which there is an external cause. (Some authors have also used the descriptor “atopic dermatitis”, leading to confusion.)

“Atopic” means there is demonstrable evidence of immunoglobulin E (IgE) sensitisation, either from the presence of antibodies in the blood or a positive skin prick test to common allergens. A child with atopic eczema is more likely to develop other atopic conditions such as asthma and allergic rhinitis.

Panel 1 (p712) describes some other forms of eczema pharmacists are likely to encounter but throughout the remainder of this article “eczema” will mean atopic eczema.

Atopic eczema

Data for the UK suggest that between 15 and 20 per cent of schoolchildren and up to 10 per cent of adults are affected by atopic eczema. Global incidence varies widely (eg, a study in 56 countries found incidence of less than 2 per cent in Iran compared with 16 per cent in Japan and Sweden in six- to seven-year-olds) but studies have shown that prevalence has generally increased over the past 30 years.

Symptoms and diagnosis

A key symptom of atopic eczema is the presence of itch — if there is no itch, it is unlikely to be eczema. However, although patients will typically present with a history of itching and scratching, the main clinical feature is the presence of papules and plaques. Small erythematous papules or papulovesicles are first to develop. These coalesce to form plaques that can weep serous fluid and then form scale or crust.

Guidelines for diagnosis have been developed and are summarised in Panel 2 (p712). Although the diagnostic criteria for eczema are relatively straightforward, some conditions (eg, psoriasis, tinea) can appear

REFLECT

1. What is gravitational eczema?
2. How is eczema severity assessed?
3. Is sunbathing good for eczema?

Before reading on, think about how this article may help you to do your job better.

KEY POINTS

- Eczema can have a profound impact on quality of life and self confidence, and pharmacists should be prepared to advise on treating and preventing flares.
- Atopic eczema is the most common type of eczema. Triggers in the home can include washing powders, soaps, woollen fabrics, dust mites, a hot environment and central heating.
- Scratching eczematous skin results in the release of cytokines, which perpetuate the itch and the “itch-scratch cycle”.
- Diagnosis of atopic eczema is based on symptoms and history. Some conditions appear similar and should be excluded.
**PANEL 1: OTHER TYPES OF ECZEMA SEEN IN PHARMACY**

<table>
<thead>
<tr>
<th>Gravitational eczema</th>
<th>Seborrhoeic eczema</th>
<th>Pompholyx eczema</th>
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<tr>
<td>Gravitational eczema (also known as stasis or varicose eczema) develops in patients who have varicose veins. The increased localised venous pressure results in fluid leaking into the surrounding tissue, giving the skin a rust-brown discolouration, and meshes of blue-purple thread veins can be seen. The skin also becomes shiny, red and flaky. Compression stockings often help to improve the condition. Topical steroids and emollients may also be used.</td>
<td>Seborrhoeic eczema often presents as cradle cap and can reappear in teenagers, usually boys. It occurs in areas rich in sebaceous glands, starting as dandruff and spreading to the forehead, eyebrows, eyelids and the sides of the nose. It can affect the chest, armpits and groin. The scale appears as yellowish crusts with white flakes of skin. The cause is unknown but it is associated with an overgrowth of Malassezia furfur. It can also affect the back, producing a papular rash, often misdiagnosed as acne, due to an overgrowth of the yeast in the hair follicles (malassezia folliculitis). Treatment is with an antifungal cream or shampoo or, if the condition is widespread, oral ketoconazole or itraconazole. Seborrhoeic eczema is a chronic problem.</td>
<td>Pompholyx or dishidrotic eczema often presents on the sides of the fingers and the soles of the feet. It appears as tiny flesh coloured blisters that are intensely itchy and often worse in hot weather. The blisters can occasionally weep and in such cases soaking in a mild antiseptic, such as dilute potassium permanganate, helps to dry the skin. Treatment normally requires potent steroids. Without treatment, the condition can last for about three weeks but tends to follow a relapsing-remitting pattern for several months. The cause is unknown, although some think there is a link with abnormal sweating.</td>
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**PANEL 2: DIAGNOSING ATOPIC ECZEMA**

The diagnosis of atopic eczema is based on clinical symptoms and patient history. The patient must have had an itchy skin condition in the past 12 months plus at least three of the following:

- Onset below the age of two years (not applicable in child under four years of age)
- History of flexural involvement
- Visible flexural dermatitis
- Personal history of other atopic diseases (or history in first-degree relative if child is under four years of age)

These diagnostic criteria have been shown to have a sensitivity of 85 per cent (ie, 85 per cent of children diagnosed as not having eczema by a dermatologist as having atopic eczema can also be diagnosed using these criteria). The specificity of the diagnosis has been found to be 96 per cent. In other words, 96 per cent of children diagnosed as not having eczema by a dermatologist would not have eczema using these criteria. The higher the specificity, the less likely an incorrect diagnosis.

Similar and should be excluded. Psoriasis tends to affect the extensor surfaces and the scale and lesions are well demarcated in contrast to eczematous lesions, which are usually more diffuse.

Tinea infections are a possibility in patients with lesions on their hands, feet and groin but they are often unilateral whereas eczema tends to be bilateral.

Scabies can be difficult to diagnose and, on the hands and wrists, can appear similar to eczema. Consider scabies if the patient complains that itching is worse at night. Itch or rash in areas such as the armpits, groin and ankles also point to scabies and, in males, penile papules are highly diagnostic.

Systems that can be used to assess eczema severity, include SASSAD (six area, six sign atopic dermatitis score) and SCORAD (scoring atopic dermatitis), but these are usually only used in trials or secondary care. There is no specific symptom-based assessment tool for use in primary care. However, in its guidance on eczema in children, the National Institute for Health and Clinical Excellence has suggested that healthcare professionals take a holistic approach, assessing symptoms and impact on quality of life (see Panel 3).

**The immune response giving rise to inflammation in atopic eczema is still not fully understood**

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The itch and rash associated with eczema can be debilitating and can have a profound impact on the sufferer and carers. It can lead to sleep disturbance and loss of self-esteem.

**Causes**

Eczema is likely to be caused by a complex of several factors. The presence of eczema across generations suggests a genetic cause. As much as two-thirds of patients have a family history of atopic conditions. But it is suggested that the primary cause of eczema is a disturbance in the barrier function of the skin and this drives the inflammatory response. Support comes from the discovery that loss of function in the gene for filaggrin (FLG), a protein involved in the development of the stratum corneum, contributes to the development of atopic eczema. Studies in Europeans with eczema show that up to 60 per cent have mutations in the FLG encoding gene.

The presence of Staphylococcus aureus on skin of patients with eczema has led to the suggestion that this organism is a causative agent. The extent of colonisation correlates with disease severity.

The hygiene hypothesis suggests that reduced exposure to bacterial antigens through greater cleanliness increases the likelihood of developing eczema.
Asteatotic eczema

Asteatotic eczema tends to occur in the lower legs (although it can affect the arms too). It presents, ple over age of 60 and is common in the winter, being associated with dry skin. When on the shins and lower legs, it presents like crazy-paving. The cause is unknown but the eczema is probably related to humidity and use of soaps and showers.

Treatment involves the use of greasier emollients and potent topical steroids. In trying to break the itch-scratch cycle (see main text) with emollients and potent topical steroids.

Lichen simplex

Lichen simplex is a patch of eczema that has become thickened and darkens due to repeated scratching. It is also called neuro-dermatitis, probably because patients scratch more when anxious or stressed. Any area of the body can be affected but typical sites include the back of the neck, calves and ankles. Treatment is directed at trying to break the itch-scratch cycle (see main text) with emollients and potent topical steroids.

Discoid eczema

Discoid eczema presents as coin-shaped scaly lesions anywhere on the body but particularly the lower legs or arms. The patches are extremely itchy and the skin appears red and can become very inflamed. Discoid eczema is relatively rare (two cases per 1,000 people). It is more common in middle-aged men. The cause is unknown and treatment often requires potent steroids. Although patches will clear, they often reappear or new lesions can develop. Discoid eczema can take months or even years to clear completely.

Mechanisms

The term “eczema” originates from the Greek word ekzein, which means to boil out, and this is an apt description for the typical acute attack. In the early stages, redness develops due to capillary vessel dilation. Exudation of fluid and inflammatory cells from capillaries in the dermis leads to swelling. At a microscopic level, acute eczema shows disturbances within the epidermis as exudation extends from the dermis, separating keratinocytes (spongiosis) and leading to papule formation.

Within the dermis there is a build-up of inflammatory T lymphocyte cells, as well as mast cells, macrophages and Langerhans cells.

The immune response giving rise to inflammation in atopic eczema is still not fully understood. Patients have an increased amount of total IgE and specific IgE antibodies to particular allergens. T lymphocytes are known to be involved — in animal models the rash does not appear in the absence of T cells. Although there are various types (eg, cytotoxic, memory, killer), the T cells relevant to the immune response in eczema are T helper cells (Th cells), of which there are two: Th1 and Th2. In eczema, there is a predominance of Th2 cells during the stages of acute flare. The main function of Langerhans cells is to capture allergens and irritants and present them to T cells. In response, Th2 cells release various cytokines (eg, IL-5, IL-4, IL-6) that result in inflammation and itch.

IL-31 in particular is associated with itch. In animal models over-expression of IL-31 leads to severe itching and dermatitis.

As the skin becomes intensely itchy, patients scratch, resulting in visible excoriations. When the skin is damaged, keratinocytes release cytokines that result in the movement of inflammatory immune cells, such as cosinophils, into the skin. Th2 cells release more cytokines. Therefore, scratching produces further itching, resulting in an itch-scratch cycle.

PANEL 3 HOLISTIC ASSESSMENT OF ECZEMA

<table>
<thead>
<tr>
<th>Severity</th>
<th>Symptoms</th>
<th>Impact on quality of life</th>
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<tbody>
<tr>
<td>Clear</td>
<td>Normal looking skin. No evidence of rash.</td>
<td>None</td>
</tr>
<tr>
<td>Mild</td>
<td>Dry skin with or without areas of redness. Infrequent scratching</td>
<td>Mild impact on everyday activities or sleep</td>
</tr>
<tr>
<td>Moderate</td>
<td>Areas of dry skin and redness with or without excoriation and localised skin thickening. Frequent itching.</td>
<td>Moderate impact on everyday activities. Frequent sleep disturbance. Moderate effect on psychosocial functioning.</td>
</tr>
<tr>
<td>Severe</td>
<td>Widespread dry skin and redness with or without excoriation. Bleeding, oozing, cracking and alteration of skin pigmentation. Frequent or incessant itching.</td>
<td>Severe limitation of everyday activities and often nightly sleep disturbance. Major impact on psychosocial functioning.</td>
</tr>
</tbody>
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After the initial acute flare, which can last up to 48 hours, there is an increase in the presence of Th1 cells. T cells activate keratinocyte apoptosis.

**Progression**

Eczema is usually relapsing and remitting and, in some cases, can be life-long. The condition often starts within the first six months of life. At least 60 per cent of eczema patients will have developed the condition by the age of one year and most children with eczema will have developed symptoms by the age of four.

Presentation varies with age. In infants the skin shows signs of widespread dryness (xerosis) and the cheeks, chin and forehead are normally the first sites affected. (The nappy area is often eczema free, probably due to the moisture retaining effect of nappies.) In toddlers and young schoolchildren, eczema tends to become localised to the insides of the elbows (antecubital fossae) and backs of the knees as well as the wrists and ankles. These sites will show signs of redness and can become lichenified due to frequent scratching.

In adolescence the eczema can spread to the eyelids (see next article for treatment), earlobes, scalp and neck. Teenagers can also develop pompholyx eczema (see Panel 1).

Some evidence suggests that 60 to 70 per cent of children will experience remission by the age of 15 years although relapses can occur later in life. Eczema that persists into adulthood will often continue to affect the insides of the elbows, the eyelids and hands. Adults with eczema tend to have skin that is drier and more lichenified than that seen in children.

**Management**

Management of eczema includes preventing as well as treating flares, and pharmacists can give advice on both. Reducing exposure to allergens and irritants might help to reduce flares.

Typical domestic irritants include:

- **Avoid soaps and bubble bath** — they have a drying effect.
- **Bathe in warm rather than hot water.**
- **Avoid woollen and synthetic fabrics**, which can irritate eczema-prone skin. Dress in cotton clothes and use cotton bed sheets.
- **Vacuum regularly, damp dust and air rooms (reducing humidity)** to help keep dust mite levels down. For the same reason, bedding and duvets should be hot washed (60°C) at least every two months.
- **Avoid pillows and duvets** that contain feathers because these may be a source of allergens.
- **Maintain a cool environment in the home** — too warm a temperature will result in sweating, leading to itching because sweat can be an irritant, but too cold an environment can also worsen eczema.
- **Use a humidifier** because central heating can result in a dry environment.
- **Avoid fans and heaters** because these will stir up dust and pollen, which might act as irritants.

Certain foods are thought to be a trigger in about 30 per cent of children with eczema but only about 10 per cent of children will have food as the only trigger. Noting whether or not particular foods seem to worsen eczema, especially if the child is under three years of age and is already using emollients and topical steroids, may help to indicate if certain foods are acting as a trigger.

A recent qualitative study explored the views of carers of children with eczema. A key theme from this study was that parents were cautious about using not only topical steroids but also emollients, and were keen to explore diet and allergies. These views were not shared by GPs and the authors commented that it was not surprising that adherence is low, given the mismatch in agendas.

It has also been suggested that family stress related to the care of a child with moderate to severe eczema is worse than caring for a child with type 1 diabetes. Pharmacists should be prepared to provide support for parents.

Panel 5 contains some frequently asked questions and answers.

**Can children with eczema still have pets?** It is not advisable to prevent children with eczema from having vaccinations for diphtheria, tetanus, whooping cough and measles, mumps and rubella. Parents can be reassured that there is no evidence that such vaccinations lead to a flare up of eczema. It is safe to continue to use topical steroids when having a child vaccinated. For patients using topical calcineurin inhibitors (pimecrolimus and tacrolimus) some clinicians recommend that vaccinations are given during a treatment-free period to avoid a risk of vaccination failure. The summary of product characteristics for Elidel says that the potential systemic interaction with vaccination is unlikely but recommends vaccinations are given during treatment-free intervals in patients with extensive eczema. The Protopic SPC says that the decision to administer a vaccine during treatment with tacrolimus remains a clinical one but it is interesting to note that NHS Choices suggests that vaccinations should not be given within 14 or 28 days of application of the ointment.

**Can children with eczema still have pets?** Although animal dander or fur can be an eczema trigger, according to the National Institute for Health and Clinical Excellence 2007 guidance clinical experience has found that many people report tolerance of their own pet and it is exposure to other animals that often poses more of a problem. However, tolerance may be lost (eg, when teenagers move away from home). In cases of extreme allergy removal of the pet may be recommended. Another option is limiting contact. However, there is a single abstract report of children choosing their pet as one of their three most favourite items and the psychological distress of pet removal may not be justified. If a pet is rehomed, it should be remembered that allergens can remain in carpets for some time so regular vacuuming is necessary.

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**References**

Available online.