



Eczema

Practical management issues

BACKGROUND Eczema is a common, and at times challenging, condition to manage. It often involves an irritable child, concerned parents and numerous return visits. A variety of mainstream and alternative treatments can confuse both the clinician and patient.

OBJECTIVE This article aims to refresh readers by reviewing evidenced based treatment protocols, and exploring some of the new and evolving treatments in eczema.

DISCUSSION Managing eczema is a multifocal task involving a variety of medicinal and practical approaches. Education of parents and carers is critical. Having a clear plan that can be adapted to each patient's needs is helpful for all involved, with management focussing on control rather than cure. Simple emollients and preventive measures are used to reduce heat, dryness and pricking of the skin. Topical corticosteroids remain the gold standard in the treatment of the inflammation of eczema. However, combining topical steroids with the new calcineurin inhibitors, wet dressings and behavioural modification should increase the time interval between exacerbations.

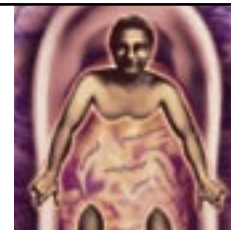
Atopic eczema is synonymous with atopic dermatitis. It is an itchy, inflammatory skin condition that is usually chronic or relapsing. It is primarily flexural in its distribution in children and adults, but in infants facial and truncal involvement predominate (*Figure 1*).

The atopic immune system is defined by its ability to form IgE antibodies in response to common environmental allergens. The inflammation in the skin is mediated by T-cells. The incidence of atopy has been increasing over the past few decades.

Eczema is the first of the atopic conditions to appear in childhood, often in the first 12 months of life. It is reported to affect 10–20% of children.¹ Eczema is associated with other atopic conditions including asthma and hayfever. Factors that contribute to the onset of atopic eczema include climate, allergies, infections, emotions, and other environmental influences such as the 'hygiene hypothesis'.² This postulates that early exposure to a variety of microbes is protective against eczema.² Studies suggest probiotics in pregnancy may be helpful.³

Primary skin management

The primary aim in the treatment of eczema is the control of local factors to optimise skin care and treatment. It is therefore useful for the patient and/or parent to understand that they are not being provided with curative treatment. The eczema is likely to come and go intermittently despite their best efforts, although eventual resolution is the norm. Over 75% of eczema settles in the first 5 years of life. The primary targets of treatment are heat, dryness and prickle. By controlling these three factors, itch, exacerbations and complications will be minimised.



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Figure 1 . Infantile eczema

Reducing dryness

Prevention and treatment of skin dryness is essential. Soap is drying and therefore should be avoided and replaced with a soap substitute and bath oil. Bland emollients and bath preparations have a lower likelihood of sensitisation which can occur with plant extracts such as tea tree oil, calendula, pawpaw and aloe vera. Perfumed and coloured agents, and bubble baths are best avoided.

Moisturising is most effective if done at least twice a day, in particular, immediately after bathing to lock in the moisture absorbed during the bath. Generally, the greasier the emollient, the more moisturising it is. A complication of overmoisturising with greasy emollients on the trunk and limbs can be a sterile folliculitis due to blocked pores, often mistaken for a flare of eczema. Preparations containing liquid and white soft paraffin, glycerol or sorbolene are appropriate.

Reducing heat factors

It is important to make sure that patients are not overdressed. A maximum of two layers of clothing is warm enough. Body temperature rises overnight, increasing itch and resulting in poor sleep. Children should sleep in their own bed with no heating on. A cotton sheet and a single cotton blanket are sufficient. Down and synthetic filled continental quilts are too hot and are dust mite reservoirs. A daily bath is indicated. This should be lukewarm (<29°C) and not before sleep times.

Reducing prickle

It is wise to avoid wearing prickly fabrics such as wool, and other irritants such as sandpits. Hair, when long around the neck, also adds to prickle.

Topical anti-inflammatories

Wet dressings

Wet dressings are safe and effective for stubborn eczema that is not responding to standard therapy.⁴ They are particularly helpful when there is lichenification and poor sleep (noted by blood on the sheets in the mornings). Moistened soft cloths (eg. chux) are placed around the limbs and held in place with dry, crepe bandages. These may be placed over the top of moisturisers alone, or topical steroids and moisturisers. They should be kept moist or changed after about 4–6 hours if used during the day to prevent their becoming too hot. Leaving them on overnight is usual with no side effects. A wet t-shirt and bandannas are used for the trunk, scalp and neck. The face should have cool compresses applied every hour for a period of 5 minutes when severe.

Workshops with nurse educators are held at children's hospitals on a frequent basis for families to learn how to apply wet dressings, and the appropriate amounts of cream and moisturiser to apply (see *Patient education* this issue).

Topical steroids

Moisturisers and soap substitutes can help prevent flares and soothe irritated skin, but they do not control the underlying inflammatory process. Topical steroids are therefore necessary for treatment of the inflammation. They are the standard of care to which other treatments are compared. Long term intermittent use of topical corticosteroids has been shown to be helpful and safe in randomised controlled studies.³

There are no absolute rules or trials dictating optimum regimens for the use of topical steroids, so suggestions about topical steroids are from the authors' experiences. The literature has shown that there is no benefit in using topical steroids more than 1–2 times per day (as in product information).

Formulations

Ointments are preferable to creams as they are better absorbed and have moisturising properties. They also tend to sting less on broken skin than creams. Unfortunately, ointments are less well tolerated as they are sticky and difficult to rub in. Sometimes

blocked pores or folliculitis develop in skin folds and on the trunk. Lotions are useful for the scalp but these can be drying.

Steroid strength

The strength of cortisone required differs according to the area of the body upon which it is to be used. There are two strengths used principally:

- weak steroids, eg. 1% hydrocortisone, used twice per day on delicate areas such as the face and nappy area. This is because the skin of the face is thinner than the trunk, resulting in greater absorption. Efficacy can be achieved with a weak steroid, but there is potential in thinner skin for more side effects
- potent steroids, eg. mometasone 0.1% once per day or methylprednisolone aceponate twice per day are appropriate for the body and limbs. Patients should be instructed to use this until clear, and then intermittently for a few days before ceasing use. Treatment should recommence at the first sign of flare.

Intermediate potency steroids are not favoured as they often need to be used for longer periods to achieve clearance, therefore possibly resulting in a greater cumulative dose. Possible substitution of newer nonsteroid preparations may help for maintenance (see below).

Length of use

It is not necessary to give patients a time limit on how long they can use topical steroids. They are safe if used appropriately for site, potency and amount. Steroid phobia has the capacity to cause unnecessary anxiety resulting in reduced use not allowing sufficient time for clearance to occur. This is recognised as a cause for late presentation of severe eczema.

Amount of steroids

In prescribing steroids, the amount used should be proportional to the surface area affected, with enough supplied to last until the patient's next appointment. Prescription for multiple tubes is indicated in older children with flares. If children less than 2 years of age are using large amounts, an opinion regarding allergy, infection, and specialist treatments should be considered.

Complications

Inappropriate overuse of corticosteroids does occur, although this is much less common than undertreatment. The most common adverse effect is perioral dermatitis, an acneiform reaction resulting from the use of potent (fluorinated) topical steroids

on the face. Similarly, atrophy, the most feared complication, is rarely seen unless a potent steroid is used continuously for many months on a sensitive site such as the face. Atrophy is visible as a dip in the surface of the skin through which the veins are readily visible. It often recovers upon cessation of the steroids. Striae may be seen, particularly in growing adolescents, on the upper arms, thighs and breasts. Strong steroids should be used in a limited way on these sites. Newer steroid free anti-inflammatories should be considered in such situations.

Steroid use around the eyes has a potential problem in affecting the lens and causing cataracts. Steroid use in children may also have a systemic effect. This may not be evident early on, although studies of bone density are being conducted in these age groups.

Topical steroid free creams

Calcineurin inhibitors are a new class of topical immunomodulator. Tacrolimus (Protopic™) is available overseas for the treatment of eczema.⁵ In Australia, only one calcineurin inhibitor has been licensed to treat eczema that has not responded to topical steroids: pimecrolimus (Elidel™). It requires an authority or private prescription and costs about three times that of mometasone and betamethasone (*Table 1*). More studies are needed to determine their relative potency compared to topical steroids. From the authors' experiences, it is felt to be equivalent to an intermediate strength steroid, eg. betamethasone valerate 0.02%. Calcineurin inhibitors do not cause atrophy of the skin, making them attractive for use on the face where hydrocortisone is not strong enough and the risk of steroid side effects is greatest.

Due to their cost, they are not generally used on the body, and are best used on the face and skin folds or other limited areas elsewhere. Side effects of these agents include local stinging and redness. This tends to diminish with continued use. Long term risks are unknown, although there is a theoretical risk of promotion of skin cancer with the stronger potency forms. Use should be on commencement of the first sign of a flare in mild to moderate eczema, especially on the face. It is also used as a maintenance treatment in reducing use of strong steroids in areas such as skin folds and nappy areas.

Other therapies

Behavioural treatments

Psychological aspects and the temperament of the child and their family may be a significant factor in

a child's progress. There may be a role for cognitive behavioural therapy (CBT) and massage. Cognitive behavioural therapy works on the principle that a large proportion of the rash caused by eczema is due to habitual scratching.⁸ Behaviour modification can benefit motivated patients who recognise that much of their scratching is not directly associated with itch. Adult patients are taught to clench their fists for 30 seconds instead of moving their hands toward the skin. If there is itch, pinching the offending area until the sensation disappears should be employed instead of scratching or rubbing.

The use of CBT and hypnotherapy in children and adolescents is dependent on the child's motivation, their family and counsellor.

Antihistamines

Antihistamines are relatively poor anti-itch agents. They may be useful in cases of proven allergy or other associated conditions such as rhinitis or urticaria. Sedating agents such as promethazine can assist with sleep.³ They are generally not used in children aged less than 2 years due to the theoretical risk of sudden infant death syndrome. Nonsedating agents can be given daily.

The role of sodium cromoglycate and montelukast is unclear and these are not routinely used.^{2,3}

Alternative treatments

There is little evidence for alternative treatments. Chinese herbal medicine has mixed results, although efficacy may be due to plant steroids contained in the preparations. There is a risk of hepatic toxicity. There is no evidence to support the use of homeopathy, fish oil, evening primrose oil or dietary supplements.³

Education – parents and school

Education of parents and carers is critical (see *Patient education* this issue). Printed information on eczema and written instructions on how and where to apply creams is useful. Videos, and information booklets available from many children's hospitals may assist parents with techniques such as wet dressings. The internet is also another potential source of information. Suggest to parents that they help apply cool compresses rather than nag to stop scratching.

A letter to the child's school can be helpful in requesting seating away from heaters, and help with applying moisturisers or cool compresses when itchy. Swimming lessons are important, and while the chlorine may be irritating, applying a moisturiser before swimming and a cool rinse after swimming

Table 1. PBS restrictions for pimecrolimus

Authority required

Cream 10 mg per g (1%)

1 x 15 g with 1 repeat

No applications for increased maximum quantities and/or repeats will be authorised

Only one authority application per 6 months, per patient, will be authorised

Authority is restricted to

1. Treatment of facial or eyelid atopic dermatitis in patients aged between 3 months and 18 years in whom topical corticosteroids are contraindicated because of:

- perioral or periorbital dermatitis
- rosacea
- epidermal or dermal atrophy
- allergy to topical corticosteroids
- cataracts
- glaucoma or
- raised intraocular pressure

2. Short term (up to 3 weeks) intermittent treatment of atopic dermatitis of the face or eyelids in patients aged between 3 months and 18 years who fail to achieve satisfactory disease control with intermittent topical corticosteroid therapy, and where more than 3 months have passed since the initial diagnosis of atopic dermatitis

with re-application of moisturiser will help prevent exacerbation of the eczema. School visits and the use of liaison educators can be of great help in managing and improving the patient's self esteem.

Complications of eczema

Infection

Bacterial colonisation of eczematous skin is increased and secondary infection of eczema with bacteria (staphylococcus and streptococcus) and viruses, especially herpes simplex virus, is very common. Often there is no visible purulent exudate, although weeping and crusting may be prominent in bacterial infection. Herpes simplex virus produces clear, distinct vesicles, often grouped and spreading.

Bacterial infection, confirmed clinically and/or microbiologically (*Figure 2*) should be treated with oral antibiotics such as flucloxacillin or cephalexin for 7–10 days. Patients should be strongly encouraged and supported in completing the course. The aesthetic nature of the infection is often a positive influence on compliance. Topical antibiotics such as fusidic acid should be avoided due to the high incidence of bacterial resistance.⁶ Topical steroids or anti-inflammatories should be continued after the infection is treated. Scabs should be soaked in the bath and gently wiped off before application of a moisturiser. This is repeated until clean. Topical anti-inflammatories can then resumed.

Herpes simplex infection in eczema, known as eczema herpeticum, is characterised initially by vesicles, then shallow ulcers, often within an area of eczema (*Figure 3*). The patient may be febrile and unwell. Both bacterial and viral infections may be the cause of failure to respond to standard treatment. Molluscum contagiosum is more common in children with eczema and is more likely to become widespread. Typically, umbilicated molluscum lesions may be surrounded by itchy eczema, which clears when the lesions resolve.²

Topical steroids should be discontinued in the cases of eczema herpeticum and molluscum contagiosum. Distant sites unaffected by the infection may continue to be treated. Viral infection with herpes simplex requires oral aciclovir for 7–10 days if the child has fever, is unwell, and has extensive lesions (especially if the face is affected). Intravenous aciclovir may be required if the patient is unable to take oral treatment and is febrile, unwell, or if there is eye involvement.



Figure 2 . Infection of eczema

An ophthalmology opinion should always be sought for facial eczema herpeticum close to the orbit, although it is not often seen as a problem in the cornea.

Growth delay

Growth delay can occur in severe, untreated eczema and was first noted before the development of corticosteroid treatment. Inappropriate overuse of corticosteroids may also result in reduced growth. Catch up usually occurs in both instances once the cause is addressed.

Treating difficult cases

Referral should be considered for any patient who has an atypical presentation of eczema, associated failure to thrive, or eczema that has not responded to appropriate standard treatment with moisturisers, topical steroids, and antibiotics (if indicated) for a period of months. It is important to rule out immune deficiency, other metabolic diseases, and coeliac disease.

Hospital admission

Hospital admission is sometimes necessary to settle eczema, or to help educate parents and allow them to rest. Patients often clear rapidly with the same treatment that is being used at home. This may indicate poor compliance, or lack of understanding of aggravating factors in the home such as stress, allergens or social issues.



Figure 3 . Herpes simplex infection in eczema

Oral steroids

Oral steroids are very rarely indicated, due to a greater risk of side effects, and because rapid rebound flares may occur. They may be helpful to improve a patient's eczema quickly during difficult periods (eg. a teenager about to sit exams). Other alternatives for situations such as crisis or respite include systemic immune suppression.

Specialist treatments

In a specialist setting, ultraviolet light, usually UVB and rarely PUVA, may be helpful in older children or adults with extensive eczema.³ Cyclosporin and other immunosuppressive agents are indicated in severe cases in a hospital setting, and when many admissions have occurred.⁷

Conclusion

There are many treatment modalities available to assist in the control of eczema. The combination of traditional topically based therapies, with newer behavioural and preventive measures, allows the general practitioner an opportunity to work with the patient and/or parents in successfully controlling eczema. It is important to recognise the long term implications of this disease if chronic, and to address management issues overall.

It must be emphasised that the use of topical corticosteroids has been shown to be safe over extended periods of time. We are excited by the newer options of anti-inflammatories and the possibility of

others in the future. Wet dressings and behavioural modification, and using only simple emollients and preventive measures, should be added to the overall treatment plan in cases of atopic eczema.

Summary of important points

- All patients should have a moisturiser and soap substitute for regular use, with appropriate strength cortisone for flares.
- If failure to respond to the above, check compliance and consider infection or specific allergies.
- Other therapies such as wet dressings, calcineurin inhibitors and behaviour modification may be helpful in severe cases.

References

1. Robertson C, Dalton M, Peat JK, et al. Asthma and other atopic diseases in Australian children. Australian arm of the International Study of Asthma and Allergy in Childhood. *Med J Aust* 1998;168:434–8.
2. Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rook's textbook of dermatology*. 7th ed. London: Blackwell Science 2004, Ch 17.
3. Hanifin JM, Cooper KD, Vo VC, et al. Guidelines of care for atopic dermatitis. *J Am Acad Dermatol* 2004;50:391–404.
4. McGowan R, Tucker P, Joseph D, et al. Short term growth and bone turnover in children undergoing occlusive steroid ('wet-wrap') dressings for treatment of atopic eczema. *J Dermatolog Treat* 2003;14:148–52.
5. Abramovits W, Goldstein AM, Stevenson LC. Changing paradigms in dermatology: topical immunomodulators within a permutational paradigm for the treatment of atopic and eczematous dermatitis. *Clin Dermatol* 2003;21:383–91.
6. Sule O, Shankar S, Willcocks L, Day J, Brown N, Burrows NP. Intermittent or prolonged use of fusidic acid is associated with carriage of fusidic acid-resistant *Staphylococcus aureus* in patients with eczema. *Br J Dermatol* 2004;151(Suppl 68):6.
7. Granlund H, Erkkö P, Reitamo S. Long term follow up of eczema patients treated with cyclosporine. *Acta Derm Venereol* 1998;78:40–3.
8. Noren P. Habit reversal: a turning point in the treatment of atopic dermatitis. *Clin Exp Dermatol* 1995;20:2–5.