# Atopic Eczema in Children



## Atopic eczema (atopic dermatitis)

- Chronic inflammatory itchy skin condition
- Usually develops in early childhood (2-6mo)
- 80% will grow out of it in early childhood otherwise follows a remitting & relapsing course
- Has genetic & environmental components
- Leads to the breakdown of the skin barrier
- The skin is susceptible to trigger factors, including irritants, infections, allergens, and food intolerances which can exacerbate the condition
- It can have a significant impact on quality of life

## Diagnosis

*Eczematous eruptions:*

- Inflamed papules and plaques
- May be dry, often assoc with pruritus and serous discharge
- Type of eczema is a clinical diagnosis (histological features similar)

*Atopic eczema:*

- Itchy dry skin condition with 3+ from:
    - Visible/History of flexural dermatitis involving skin creases (or face/neck/extensor areas if <18mo, nappy area spared)
    - Dry skin in last 12 months
    - Personal/First-degree relative childhood history of other atopic conditions
- If >4ys old, then onset of signs/symptoms was under age of 2yr
- In Asian/Afro-Caribbean groups, may affect extensor > flexures, and more likely to be discoid or follicular

## Triggers / Risk Factors

- Irritants
    - Wool, soap, sweat, detergents, sand, chlorine, many chemicals, heat
    - Latex, perfumes, metals, preservatives
    - Food intolerance (Non-IgE) - perioral irritation (salicylates, colourings &/or preservatives) ± nappy rash.
- Allergens
    - Airborne: House dust mite (nocturnal itch+, progressively periorbital-forehead-facial-neck-flexures-whole body), animal dander, pollen, etc.
    - Food allergens (1-2y): eggs, nuts, cow's milk, soya, fish, wheat, etc.
- Infection – see later
- Climate
    - Extremes of temperature & low humidity, changes in weather
- Environmental factors
    - Hard water, pollution, smoking
- Genetics
    - 25% have a filaggrin mutation
- Higher socioeconomic group
- Stresses
    - if run down, viral infection, immunization

## Assessment

### *Holistically*

**Table 4.4** Holistic assessment

| Skin/physical severity | | Impact on quality of life and psychosocial wellbeing | |
|---|---|---|---|
| Clear | Normal skin, no evidence of active atopic eczema | None | No impact on quality of life |
| Mild | Areas of dry skin, infrequent itching (with or without small areas of redness) | Mild | Little impact on everyday activities, sleep and psychosocial wellbeing |
| Moderate | Areas of dry skin, frequent itching, redness (with or without excoriation and localised skin thickening) | Moderate | Moderate impact on everyday activities and psychosocial wellbeing, frequently disturbed sleep |
| Severe | Widespread areas of dry skin, incessant itching, redness (with or without excoriation, extensive skin thickening, bleeding, oozing, cracking and alteration of pigmentation) | Severe | Severe limitation of everyday activities and psychosocial functioning, nightly loss of sleep |

### *Scoring systems*

- E.g. SCORAD, based on:
  - Age
    - Below or above 20 months
  - % Spread over front/back of:
    - Face, Upper Limbs, Trunk, Lower Limbs
  - Intensity:
    - Erythema, oedema, oozing, excoriation lichenification, xerosis
  - Subjective signs:
    - Pruritus & insomnia

## Management

- ECEMA review:
  - E: existing diagnosis correct?
  - C: co-existent disease process?
  - E: environmental factors accounted for?
  - M: medication adequate?
  - A: allergy and/or intolerance involved?
- Stepped approach of increasing therapy to avoid precipitant & reduce inflammation.

### *Emollients*

- Use unperfumed & liberally >3 times a day (unless very humid - automoisturisation)
- A number to choose from so depends somewhat on preference
- Suggest: **Dermeze** or **Eucerin** or **QV Intensive** AND **QV Bath Oil** or **Oilatum** in bath
- Moisturise in direction of hair follicle
- Avoid **sorbolene** because of propylene glycol
- Avoid zinc with castor oil – contains peanut oil (potential for sensitization)

### *Topical steroids*

- Use 2wk cycles: max 10d on steroids then 4d steroid free, then repeat if needed.
- Ointments better but messier than creams
- Flexures: Hydrozole bd-qid may be useful

| Potency | Generic | Frequency | Brand |
|---|---|---|---|
| Mild (for face, ears, closed flexures) | Hydrocortisone acetate 0.5%<br>Hydrocortisone acetate 1% | bd-qid<br>bd-qid | DermAid<br>Sigmacort |
| Moderately potent | Betamethasone valerate 0.02%<br>Triamcinolone acetonide 0.02% | bd<br>bd | Celestone<br>Aristocort |
| Potent | Betamethasone dipropionate 0.05%<br>Methylprednisolone aceponate 0.1%<br>Mometasone furoate 0.1% | bd<br>od<br>od | Eleuphrat or Diprosone<br>Advantan<br>Elocon |

*Topical Calcineurin Inhibitors*

- Immunomodulators
- Used if eczema not controlled by or unable to use topical steroids
- **Tacrolimus**
    - $70 to $90 for face for a few months
    - Good for facial or eyelid dermatitis
    - 0.01% ointment use bd
- **Pimecrolimus** (Elidel)
    - More expensive
    - Not as effective
    - Theoretical risk of skin cancer and lymphoma
    - No blood levels required
    - Safe for a few years on and off (a few weeks at a time)
    - Generally not used in under 2 yr olds or under dressings

*Wet Dressings*

- Advantages:
    - Cools skin, keeps hydrated, prevents scratching, improves penetration of ointments
- At home: two hour application:
    - After two hours dries out and benefit lost
    - Many won't tolerate overnight
    - Try after dinner for an hour
- In hospital:
    - Leave on continuously, change tds, rewet if dry out
- Instructions:
    - Cotton PJ's one size too small
    - Damp with warm water
    - Steroid then emollient
    - PJ's on, with dry pair over top or tubifast or gauze or dressing gown (wash daily!)
    - In babies use soft cotton bonds suits with long legs (with feet cut off)

*Adjuncts: Antihistamines*

- Not routinely prescribed
- Usually not licenced for under 2yrs
- Trial non-sedating antihistamine for 1mo if severe pruritus, e.g. cetirizine, loratidine
- Short course of sedating antihistamine in age>6mo if sleep disturbance
- Use phenothiazines and titrate to effect, e.g. **Phenergan**, **Vallergan**, **Vallergan forte**

*Phototherapy & Systemic Therapy*

- Consider for severe symptoms when
  - Other management options fail
  - Significant impact on quality of life
- Needs specialist paediatric dermatological supervision

*Phototherapy*

- Consider for age > 9yrs
- Ultraviolet light (UVA or UVB) under controlled conditions.
- PUVA = **Psoralen**, a photoactive drug, with UVA
- Mechanism incompletely understood
  - ?Immunosuppression
- Adverse effects reported include
  - Erythema, burning, blistering, dryness, freckling
- Skin cancer risk negligible with 1 course of phototherapy

*Systemic therapy*

- Try elimination diet before considering systemics
- Some evidence for the effectiveness of:
  - **Cyclosporin**: start at 3 – 5 mg/kg/day and wean quickly
  - **Systemic corticosteroids**: betameclasone, methylprednisone & prednisolone used
  - **Azathioprine**: start at 1mg/kg/day
  - **Interferon gamma**
  - **IV Ig** monthly for 3 months
- Other: **methotrexate**, **mycophenolate mofetil** or **tacrolimus** in children

## Secondary Skin Infections

*Staphylococcus aureus*

- Superficial infection – most common
- Pustules, purulent exudation, erythema
- Occasionally toxic shock/scalded skin syndromes
- If eczema improves after course of antibiotics, consider giving for 3 months
- Antibiotics: **cephalexin**, **flucloxacillin** or **Bactrim**
- For Staph colonisation:
  - Regular QV Flare up bath oil (young infants) or bleach baths
  - Daily prophylactic **Bactrim**
  - Nasal ?**Bactroban** for carriage by patient/family

*Streptococcus pyogenes*

- Deeper infection
- Glazed erythema in flexures
- Less common
- ABx similar to S. Aureus

*Herpes simplex*

- Eczema herpeticum
- Punched out haemorrhagic appearance, scalloped edge, persistent
- Swab and send for PCR
- **Acyclovir**

*Varicella zoster*
*Molluscum contagiosum*

- Typically get surrounding eczema
- Spread via warm water e.g. 34°C (typically swimming lessons)
- Stop swimming
- Shower standing up i.e. no pool forms around buttocks
- Avoid rough towelling
- Best treatment is to express hard core from centre after EMLA (only if over 6yrs)
- **Imiquimod** 5% – 3x / week, or mixed with aq cream daily

*Verrucae vulgaris (viral warts)*

## Role of food allergy

- If eczema severe:
    - Do skin prick testing early
    - If breastfeeding Mum needs to avoid allergens as well
- Unclear if true increase in allergy or if just increased recognition
- Commonest culprits: dairy, seafood, nuts esp. peanuts
- Can do yearly skin prick test to see if reducing reaction (better than RAST)
- Beware false positives – go with clinical
- Size of reaction not correlated with risk of anaphylaxis

## When to refer to dermatologist

- Severe eczema not controlled with strong topical steroids
- Requires non-steroid topical treatment e.g. **tacrolimus**
- Long term repeated infections
- Admission for wet dressings required
- Systemic immunosuppressives required