Eczema in children: an allergist’s perspective

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The prevalence of asthma, hay fever, and eczema 25 years apart.

Common Allergic Childhood Diseases

Barnetson RSC, Rogers M. BMJ. 2002, 324; 1376-1379.
What is Eczema

• Greek derivation
  – *Ek* – “out”
  – *Zema* – “boil”

• Swelling
• Heat
• Erythema
• Itch/Pain
  “*The Itch that Rashes*”
Normal Skin Structure

**Epidermis:**
- Stratum corneum
- Stratum lucidum
- Stratum granulosum
- Stratum spinosum
- Stratum basale

**Dermis:**
- Papillary
- Reticular

**Subcutaneous fatty tissue:**
- Sweat gland
- Vein
- Artery
- Capillary
- Nerve
- Sweat duct
Dry skin – Loss of waterproofing

Filaggrin gene defect
Eczema Cycle

First signs and symptoms
- itch
- redness
- small bumps

Severity of Symptoms

Clear skin

Flare
- Tingling sensation or slight itch
- Tiny bumps
- Bit of redness
- Whiteness or dry patch

Time
Physical, Social & Psychological

Significantly affects Quality of Life


Effect on exam performance
How do we know it's eczema?

- LISTEN – History
- LOOK - exam
- Response to treatment
- Tests: bacterial, fungal, biopsy, allergy tests
Acute vs Chronic

**Acute**
- Blisters
- Redness
- Swelling
- Pain/itch

**Chronic**
- Scaling
- Lichenification
- Cracks
- Itch
- Hypopigmented
Classification

- Constitutional
- Irritant
- Contact
- Allergic
Types of eczema

- Atopic eczema
- Seborrhoeic eczema
- Nummular eczema
- Lichen simplex chronicus
- Hand eczema
- Contact dermatitis
- Stasis dermatitis
- Dyshidrotic eczema (Pompholyx)
Exogenous/ contact

- Irritant
  - Harsh, damaging chemicals eg soap
- Contact dermatitis
  - Misdirected skin immune reaction to a harmless substance eg metal, dyes
Atopic Eczema

- Atopy
  - *Greek* – “placelessness”
- Used in modern sense 1923
  - To describe a tendency to have hypersensitive reactions to harmless substances: asthma and hayfever
- Atopic eczema = Atopic dermatitis
- Raised IgE in 80% AD
Diagnosis (NICE 2007)

- Itchy skin condition PLUS 3 or more of –
  1. Dermatitis
     - Flexural surfaces if > 18 months
     - Extensor surfaces if < 18 months
  2. History of dermatitis
  3. Dry skin in last 12 months
  4. Asthma or allergic rhinitis (or atopic disease in 1st degree relative < 4 years of age)
  5. Onset of signs and symptoms before 2 years of age, if older than 4 years
Common Sites of Eczema Outbreaks
Assessment

- History
- Severity
- Quality of life
- Affect on parents and carers
History

- Onset, pattern and severity
- Response to treatments
- Possible trigger factors
- Impact on child and carers
- Dietary history
- Growth and development
- Hx of atopic disease (personal and family)
14 major food allergens

- Crustaceans
- Eggs
- Fish
- Peanuts
- Soya
- Milk
- Tree Nuts
- Celery
- Mustard
- Sesame
- Sulphites
- Lupin
- Molluscs
- Gluten
Globally important sources of allergens

- House dust mites
- Grass, tree and weed pollen
- Pets
- Cockroaches
- Moulds
Diagnosis

1) Clinical History
2) Skin prick testing
3) Circulating sIgE antibodies
4) Atopy Patch Test
5) DBPCFC: gold standard
Diet (NICE guidelines)

- 6-8 wk trial hydrolysed/AA for severe/mod uncontrolled disease < 6 months bottle fed
- Refer children on dairy free diet > 8 weeks for dietary advice
Diagnostic algorithm for the identification of food allergy in atopic eczema

1. Moderate to severe eczema
2. Gain control of eczema with TCS, emollients, antibiotics
3. Elimination of suspected allergens 4-6 weeks
4. OFC using incremental doses day 1 until whole portion given. Observe for 24 hours
5. Give 1 portion food daily x 3 days
Stepped care Rx for Eczema

**CLEAR**
- Emollients only

**MILD**
- Emollients
- Mild potency TCS or emollients alone

**MODERATE**
- Emollients
- Moderate potency TCS (restrict 7-14 days for axilla and groin)
- Tacrolimus
- Bandages

**SEVERE**
- Emollients
- Potent TCS (restrict 7-14 days for axilla and groin)
- Tacrolimus
- Bandages
- Physiotherapy
- Systemic therapy
Emollients

• Choice of unperfumed emollient for moisturising, washing and bathing
• Apply often and liberally
• Single or combinations
• Used with other treatments
• Need 250-500g weekly
• Review at least annually
***EMOLLIENTS***
How do I apply it?

- Gently smooth your emollient:
  - In the direction of hair growth
  - Like you would stroke a cat

- Avoid rubbing (this can make your skin even more itchy)

- Use the right amount of emollient for each part of your body (use the diagram opposite as a guide)

- Check you have used enough emollient:
  - If it completely disappears you have not applied enough
  - If your skin looks shiny, you’ve got it just right (but don’t worry it normally absorbs in about 10 minutes so you won’t be shiny all day!)
  - If it’s still visible you may not have smoothed it in enough or you may have used too much

Face, neck and ears
- 1 teaspoon

Trunk
- 3 teaspoons

Both arms
- 2 teaspoons

Both hands
- half a teaspoon

Both legs
- 4 teaspoons
## Emollients

<table>
<thead>
<tr>
<th>Light</th>
<th>Medium</th>
<th>Greasy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqueous Cream</td>
<td>Cetraben</td>
<td>50:50</td>
</tr>
<tr>
<td>E 45</td>
<td>Hydromol</td>
<td>Epaderm</td>
</tr>
<tr>
<td>Hydrous ointment</td>
<td>Doublebase</td>
<td>Diprobase</td>
</tr>
<tr>
<td>Oilatum cream</td>
<td>Diprobase</td>
<td>ointment</td>
</tr>
<tr>
<td>Eucerin</td>
<td></td>
<td></td>
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</tbody>
</table>
Topical corticosteroids

• Only to active eczema
• Do not use potent TCS on face or <12 months without specialist supervision
• Limit potent corticosteroids for as short time as possible and less than 14 days
• Apply once or twice daily
• Exclude secondary infection
• Consider 2/7 treatment for frequent flares
• Label containers with potency
Topical Immunomodulators/ Calcineurin inhibitors

- **Advantages**
  - No risk of skin thinning
  - No restriction on length of treatment period
  - Effective at maintaining control as well as treating flares

- **Disadvantages**
  - Does not work as well as steroids on thick, lichenified skin
  - Long-term interaction with sun exposure unknown
Topical Immunomodulators/ Calcineurin inhibitors

• For eczema not controlled with appropriate TCS
  – Tacrolimus for moderate/severe >2 years
  – Pimecrolimus moderate/severe eczema on face/neck 2-16 years
  – Facial eczema needing long term mild corticosteroids

• Apply only to active eczema

• Specialist supervision
Bandages and dressings

- Localised
  - Emollients for chronic lichenified eczema
  - Emollients and TCS for flares of chronic lichenified eczema (7-14 days)
- Whole body occlusive dressings
- Not as first line treatment
- Do not use on infected eczema
Wet bandages

- 2\textsuperscript{nd} line
- ** NOT in INFECTION
- Local occlusive dressing
  - For lichenified areas, with emollients
- Whole body occlusive
  - With steroids for 7 – 14 days
  - Can use with emollients until eczema under control
Phototherapy and Systemic treatments

• Consider when:
  • Other management options have failed
  • Significant impact on QoL

• Need paediatric dermatology specialist supervision
  • Methotrexate
  • Cyclosporin
  • Azathioprine
Antihistamines

- Not used routinely
- Offer 1 month trial of non-sedating antihistamine to:
  - May continue if helpful but review 3 monthly
- 7-14 day trial sedating antihistamine in those >6 months during acute flares and sleep disturbance
Treating Flares

- Recognition

- Stepped care plan for exacerbations

- Treat at first signs and continue for 2/7 after symptoms subside
## Bacterial infections

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Use for</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic antibiotics active against <em>S. aureus</em> and streptococcus</td>
<td>Widespread bacterial infections</td>
<td>1–2 weeks</td>
</tr>
<tr>
<td>Topical antibiotics, including those combined with topical corticosteroids</td>
<td>Localised clinical infection</td>
<td>Maximum of 2 weeks</td>
</tr>
<tr>
<td>Flucloxacillin</td>
<td>First-line treatment of <em>S. aureus</em> and streptococcal infections</td>
<td>As indicated</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>First-line treatment of <em>S. aureus</em> and streptococcal infections in the case of allergy to flucloxacillin or flucloxacillin resistance</td>
<td>As indicated</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>First-line treatment of <em>S. aureus</em> and streptococcal infections in the case of allergy to flucloxacillin or flucloxacillin resistance and intolerance to erythromycin</td>
<td>As indicated</td>
</tr>
<tr>
<td>Antiseptics such as triclosan or chlorhexidine</td>
<td>Adjunct therapy for decreasing bacterial load in cases of recurrent infected atopic eczema</td>
<td>Avoid long-term use</td>
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Infected Eczema
Herpes infections

- Areas of rapidly worsening, painful eczema
- Possible fever, lethargy or distress
- Clustered blisters consistent early-stage cold sores
- Punched-out erosions (1-3mm) uniform which may coalesce
Herpes infections

- Consider if fails to respond to antibiotics and TCS
- Treat with systemic aciclovir and same day dermatological advice
- Around eyes – need ophthalmic opinion same day
- Treat suspected bacterial infection
Eczema Herpeticum
Eczema Herpeticum
Take home messages

- Holistic approach
- Education
  - Treatment - How much and how often
  - When and how to step treatment up or down
  - How to treat infected eczema
## Research

<table>
<thead>
<tr>
<th>EAT Study</th>
<th>LEAP study</th>
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<tbody>
<tr>
<td>• Enquiring About Tolerance</td>
<td>• Learning Early About Peanut Allergy</td>
</tr>
<tr>
<td>• 1306 families</td>
<td>• 640 children</td>
</tr>
<tr>
<td>• Is early introduction an effective approach to prevent food allergy in young children?</td>
<td>• Does eating peanuts during infancy make the immune system tolerant or sensitive to peanuts consumed later on?</td>
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</table>
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