Atopic Dermatitis in Children

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Disclosures

My spouse and I have the following relevant financial relationship with a commercial interest to disclose:

Consultant for EllaOla/Purity Brands
Consultant for National Eczema Association
Consultant for Lucid Dermatology
Overview

• Overview of atopic dermatitis in children

• Natural history and pathogenesis of atopic dermatitis

• Discuss treatment options for children with atopic dermatitis
Eczema

Atopic Dermatitis
Nummular Dermatitis
“Sensitive Skin”
Atopic Eczema

Winter Itch
Dermatitis
Flexural Dermatitis
Contact Dermatitis
What Is Atopic Dermatitis?

• Common, chronic inflammatory skin disease that can start at ANY time

• Itchy, scaly, red, rash that can appear anywhere

• Worse with dry air, forced heat, and stress

• Often there is a family history
Atopic Dermatitis

• About 10% of the population have atopic dermatitis OVERALL
  – 20-25% of Children
  – 10% of all adults (probably more)

• Different presentation in infants, children, and adults

• Chronic relapsing course
Natural History of Atopic Dermatitis

- Atopic dermatitis starts around 3-6 months of age for most children

- Most will develop atopic dermatitis by age 5

- 10-30% of children with atopic dermatitis continue to have it as adults (therefore most resolve)
The Allergic March

Eczema

Food Allergy

Rhinitis

Asthma

Typical Age of Onset

Birth
3 months
1 year
2 years
3 years
7 years
15 years

(Diagram courtesy of LEAP Study, Evelina Children’s Hospital, London)
Infantile Atopic Dermatitis

• Most common age of onset

• “Born with it”

• Beginning of the Atopic March
  – Followed by food allergies, asthma, rhinitis
Atopic Dermatitis

Infants affected on face, elbows, and knees

Childhood Atopic Dermatitis

- Children 2-12 years old

- Moves to skin fold areas (wrist, neck, arm pits (antecubital fossa), knee pits (popliteal fossa), ankles, feet)

- Less red and weepy than infantile atopic dermatitis
Childhood type

Flexural folds of ext (antecubital, popliteal fossa) neck, ankles
Treatment Options

- Gentle Skin Care Recommendations
- Topical Steroids
- Light Therapy
- Systemic medications
- Biologics
Dry Skin – A Hallmark of Atopic Dermatitis

• Worse in the winter

• Worse with low humidity and high forced heat

• Harsh soaps, detergents, fabrics (wool) → broken skin barrier → increased water loss
Goal of gentle skin care is to put up another layer and repair the mortar
Basics of Gentle Skin Care

• Bathe with gentle soaps (non-fragranced, hypoallergenic)
• Use lukewarm water in the shower/bath
• Moisturize within 2-3 minutes THICK emollients (petrolatum based)
• Use a humidifier in the wintertime
Topical Steroids

Eczema
<table>
<thead>
<tr>
<th>Class</th>
<th>Potency</th>
<th>Examples (Not exclusive)</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Superpotent</td>
<td>Clobetasole Propionate, Halobetasole Propionate</td>
<td>Avoid in children, face, folds, near genitals.</td>
</tr>
<tr>
<td>2</td>
<td>Potent</td>
<td>Betamethasone dipropionate, Halcinonide, Flucinonide</td>
<td>Avoid in children, face, folds, near genitals.</td>
</tr>
<tr>
<td>3</td>
<td>Upper Mid Strength</td>
<td>Betamethasone Valerate</td>
<td>Use cautiously in children. Avoid on face, folds, near genitals.</td>
</tr>
<tr>
<td>4</td>
<td>Mid Strength</td>
<td>Mometasone, Beclomethasone, Fluocinolone 0.25%, Triamcinolone acetonide, Methyl Prednisolone acetonate</td>
<td>They may be used in children for a short duration. Not to be used on face and body folds.</td>
</tr>
<tr>
<td>5</td>
<td>Lower Mid Strength</td>
<td>Hydrocortisone butyrate, Fluticasone propionate</td>
<td>Can be used in all ages and on the face and folds for a short duration</td>
</tr>
<tr>
<td>6</td>
<td>Mild</td>
<td>Desonide, Flucinolone 0.1%</td>
<td>Can be used in all ages and on the face and folds for a short duration</td>
</tr>
<tr>
<td>7</td>
<td>Least Potent</td>
<td>Hydrocortisone 1%</td>
<td>This can be used in all, the only one that may be bought over the counter.</td>
</tr>
</tbody>
</table>
Side Effect of TOPICAL Steroids

• Moderate use will not lead to substantial systemic absorption

• Skin thinning – looks more “vein-y” or translucent

• Stretch marks may appear

• Chronic steroid use on the face → acne

• Increased risk of glaucoma and cataracts if extensively used in and around the eyes
Non-Steroidal Options – Calcineurin Inhibitors

= Medium Potency Steroid

Tacrolimus Ointment 0.1%
30g
Rx Only
Perrigo

= Low Potency Steroid

ELIDEL
(pancresolimus)/cream 1%
30g
Rx only
Valeant
Non-Steroidal Options – Small Molecules

= Low Potency Steroid
Phototherapy

- 2\textsuperscript{nd} line treatment
- 2-3x/week for 1-3 minutes each treatment
- Takes about 4-6 weeks to work
- After 12 weeks, 50% or more improvement

Oral Medications –
Immunosuppressives

• Methotrexate - @12 weeks → 42% improvement
  – Works slowly
  – "Safe" to use longer term

• Cyclosporine - @6 weeks → 55% improvement
  – Works quickly
  – Use < 12 months ideally

• Azathioprine - @12 weeks → 37% improvement
  – Works slowly
  – "Safe" to use longer term

• Prednisone - Almost always see improvement but rebound flare
  – Works quickly
  – NOT safe for long term use

Dupilumab

- IL4/IL13 inhibitor (key pathway in atopic dermatitis)
- Self administered injection every 2-4 weeks
- Does NOT suppress the immune system
- No lab monitoring, few major side effects, well tolerated
- FDA approved to 6 years old!
Dupilumab Results – 16 Weeks

- Children 6-11 years old: 70% of children had 75% or greater improvement

- Children 12-18 years old: 75% achieved 75% or greater improvement

- SE: Allergic conjunctivitis (itchy eye), injection site reaction
Conclusion

• Atopic dermatitis is common in children

• Moisturizing + gentle skin care is the cornerstone to all treatment regimens

• MANY choices when it comes to treatment for atopic dermatitis

• MANY MORE choices are coming down the pipeline