Managing Atopic Dermatitis

Karol G. Timmons, RN, MS, CPNP
Boston Children’s Hospital
AAAAAI 2013
No Disclosures
Learning Objectives

Describe and demonstrate treatments for atopic dermatitis including:

- Skin care
- Application of dressings
- Bleach baths
- Patient education tips
Atopic Dermatitis 
Features and Pathophysicsology

- Dryness
  - Barrier function impaired
  - Skin’s ability to lose water increased
  - Skin’s ability to bind water decreased
- Itching - major feature: Intense scratching brings out the rash
- Inflammation
- Infection - skin often becomes secondarily infected
The Skin is Composed of Three Layers:

- Epidermis
- Dermis
- Subcutaneous tissue

The top layer of the epidermis — the stratum corneum — keeps water in and irritants out.
Normal epidermis: a protective barrier

- The stratum corneum: a protein-lipid matrix with filaggrin, ceramide, and sphingosine
- Barrier against water loss and allergen/microbe entry
Goals of Treatment

- Keep skin hydrated
- Decrease inflammation
- Control itching
- Keep skin intact to prevent infection
- Eliminate Triggers
Infants

- Face
- Extensor surfaces
- Diaper-sparing

Picture – http://www.uptodate.com/patients
Older children/adults

- Flexural surfaces
- Periorbital
- Neck
Elements of Care

- Identify triggers through history and allergy testing
- Topical Care
- Skin Care Plan
- Education of patient and family
Bathing

- Bath EVERY DAY
  - Washes off adherent allergens and bacteria
  - Soak 15-20 minutes
  - Submerge/cover/wrap areas of skin not exposed to water with wet cloth
  - Gentle skin cleansers only where needed
Dilute Bleach Baths

- Decreases clinical severity of secondary infections
- Add 1/4 to 1/2 cup of household bleach to a bath tub full of water
- Intranasal mupirocin ointment for 5 days
- Disadvantages:
  - Drying
  - Burning

Immediately After Bath

- GENTLY pat skin
- Apply topical steroid first
- Apply moisturizers
- Apply wraps if needed
Moisturizers/Emollients

- Key part of the bathing routine
- Examples: Hydrolatum® Vanicream®, Aquaphor®, Eucerin®, CeraVe®, Cetaphil®
- Seek one pound jars!
Moisturizing

- Reapply frequently
- Establish routine
Barrier Creams

Ceramides- same balance of lipids as skin

- Non-steroidal
- Moisturizing and barrier repair effects
- Anti-pruritic actions
- Requires prescription- Atopiclair® MimyX® Eletone®
- Not always covered by insurance
- Non prescription types- CeraVe® TriCeram®
- Relatively expensive
Treatment of Inflammation

- Primary goal of therapy
- If skipped failure WILL occur
- Topical steroids
- Extremely safe when used correctly
- Important to give skin a break

*Use topical steroids to “put out the fire”*
Topical Corticosteroids

• **First-line** treatment for flares
• Potency classification
  - Class I – most potent
  - Class VII – least potent
• Potencies differ and can be confusing
• Vehicles differ and may affect acceptance, potency (oils, cream, ointments) and absorption as well as side effects
• Ointments are best for chronic dry skin
### Amount of Topical Steroids to Prescribe in Grams

<table>
<thead>
<tr>
<th>Location</th>
<th>Adult</th>
<th>Older Child</th>
<th>Younger Child</th>
<th>Infant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face and neck</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Arm and hand</td>
<td>60</td>
<td>40</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Leg and foot</td>
<td>110</td>
<td>60</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Entire body</td>
<td>580</td>
<td>350</td>
<td>190</td>
<td>120</td>
</tr>
</tbody>
</table>

Cost per ounce (30 gm)

- **Emollients**
  - Vaseline - $0.38
  - Hydrolatum - $0.56
  - Cetaphil cream - $0.83
  - Vanicream - $0.84
  - Aquaphor - $1.06

- **Barrier Creams**
  - CeraVe cream - $1.00
  - Mimyx - $31
  - Atopiclair - $36
  - Eletone - $27

- **Topical Medications**
  - Triamcinolone 0.1% - $2.12
  - Hydrocortisone 2.5% - $14.99
  - Mometasone 0.1%
    - Brand -- $57
    - Generic -- $30
  - Pimecrolimus 1% -- $141
  - Tacrolimus 0.03% -- $153

Online drug store prices 2012
Myths About Topical Steroids

- **Steroids will stunt my child’s growth**
  Low to mid potency steroids will not cause clinically significant adrenal suppression

- **Steroids will cause thin skin**
  Use steroids on rough skin until smooth
  Do not use for more than 14 days per month
  Use appropriate potency and strength for area

- **Steroids will cause white spots on my child’s skin**
  White spots (hypopigmentation) are from repeated scratching
Controlling the Itch

- Cool cloths/ice packs for targeted areas
- Antihistamines:
  - Adequate doses with long half life
  - Sedative effects for evenings
- Common combination:
  - Cetirizine, loratidine, fexofenadine during day
  - Hydroxyzine or diphenhydramine evening
Wet Wrap Therapy

- Re-hydrates and calms skin
- Can be combined with topical steroids
- Recovery of epidermal barrier function
- Reduced redness and skin inflammation
- Diminished itching
- Provides continuous moisturization
- Provides protective barrier
- Improved sleep
Wet Wraps

- Take wet pajamas right out of washer (damp)
- After bath apply creams, etc.
- Put on wet PJ’s covered by dry PJ’s
- Hands/Feet: Wet Tube socks or gloves; cover with dry Tube socks or gloves
- May put dry PJ’s/socks in dryer
Zinc Oxide Wraps

- Recovery of epidermal barrier function
- Antimicrobial
- Anti-inflammatory
- Provides protective barrier
Zinc Oxide Wraps

- Zinc Oxide Wraps stay on overnight

- Cover areas with co-flex, mitts, socks, tights, non-latex ace bandage, tubifast
Zinc Oxide Wraps
DISADVANTAGES

- Time consuming
- Requires patience and supervision
- Moderate to high expenses for supplies
- Complaints of feeling “Gooey!”
Infections and AD

1. Culture skin
2. Topical antibiotics
3. Short term (7-10 d.) oral antibiotics, antivirals, antifungals
4. Nasal mupirocin
5. Bleach baths

Systemic antibiotic choices

Favorites

- Cephalexin (effective, tastes good)
- Dicloxacillin if tablets ok
- Clindamycin or Bactrim for resistant bacteria

- 7-10 days of antibiotics often sufficient
- Avoid indiscriminate or prolonged use of antibiotics
Boston Children’s Hospital Atopic Dermatitis Center

- Multidisciplinary outpatient program for children with refractory AD
- Half day session per week
- Treatment team:
  - Nurse Practitioner
  - Psychologist
  - Psychology Intern
  - Nutritionist
  - Attending MD

www.childrenshospital.org/atopic
Review of AD Center

- 80% of patients had improvement in EASI score
- Baseline adherence issues predicted improved EASI score
- EASI score improvement correlated with:
  - Decreased parental concern with treatment side effects
  - Decreased itching
  - Better patient sleep
- Cycle of improvement

Chou, LeBovidge, Timmons, Elverson, Morrill, Schneider, Allergy and Asthma Proceedings 2011
AD Triggers

**Infections**
- URI/OM
- Bacterial, Fungal, Viral, Skin infections

**Allergens**
- Foods
- Environmental Contact (nickel)

**Other**
- Heat, dryness
- Anxiety
- Vaccinations

**Itch-Scratch Cycle & AD Flare**
Consider testing to foods

- The child has persistent AD in spite of optimized management and topical therapy

- The child has a reliable history of an immediate reaction after ingestion of a specific food

- The younger the child and the more severe the AD, the greater likelihood that child has Food Allergy

Guillet G & MH, Arch Dermatol 1992
Suspect Food Allergy

- Infants with severe unrelenting face and body involvement
- May benefit from restriction based on allergy testing results
- Refer to allergist
Probably Not Food Allergy
The Impact of Itch

- Most common problem reported by parents in a chart review study of patients in the AD Center at Boston Children’s Hospital (LeBovidge et al., 2007)
- Sleep disturbance reported in over 60% of children with AD and their parents and siblings (Chamlin et al., 2005)
Infant Eczema/Sleep Problems/Mental Health

Sleep disturbance in infants due to itching may be a factor in development of future mental health issues

- **Clinical Implications**
  - Treat AD aggressively to improve sleep
  - Monitor for sleep disturbance
  - Refer to psychologist or sleep specialist if needed

Sleep Interventions

- Relaxing, **consistent** bedtime routine
- Cool temperature
- Wet wraps/Sleep-suits/modified pajamas so hands/feet covered

Treat inflammation

Improve barrier

Sleep better

Less itch

Less scratch
Sam

- 6 years old
- Severe Atopic Dermatitis
- Very itchy causing severe scratching
- Poor sleeping
- Irritability
- Picking behavior
- Chronic staph infections
- Severe environmental allergies
- Food allergies
Sam and His Parents

- Compliant BUT......
- Cut corners
- Sympathy Factors
- Reluctance to push
- Uncooperative
- No skin care routine
Simplify regimen
Skin Care Plan

- Patient family education is very important
- Care plan should include:
  - Skin cleansing
  - Skin barrier
  - Control of itching and infection
  - Appropriate use of topical anti-inflammatory agents
  - Elimination of sleep disruption
*DAILY SKIN CARE ROUTINE*

- **BATH** 10-20 minutes: □ Daily □ Every other day
  - **Cleanser:** ________________
- **MOISTURIZER:** ________________ twice daily and more often as needed
- **Antihistamine:** ________________

**GREEN ZONE** (Skin with very mild redness/irritation)

- Continue Daily Skin Care Routine

**YELLOW ZONE** (Skin starting to FLARE with mild to moderate redness/itching)

- Continue Daily Skin Care Routine
  - **Apply topical steroid:** ________________ twice daily to FACE for maximum ___ days
  - **Apply topical steroid:** ________________ twice daily to BODY for maximum ___ days

**RED ZONE** (Skin with SEVERE redness/itching/oozing)

- Continue Daily Skin Care Routine with any changes made in Yellow Zone
  - **Apply topical steroid:** ________________ twice daily to FACE for maximum ___ days
  - **Apply topical steroid:** ________________ twice daily to BODY for maximum ___ days
  - Call (617) 355-6117 or Doctor on call (617) 355-6369 if there is no improvement in 3-5 days
Evaluation of Eczema Action Plans

- Parents of children with AD given an individualized EAP
- Survey at baseline and follow up done 3 to 12 months after EAP
- 35 children enrolled
- Parental rating of eczema as “severe” decreased from 51% to 3% (p<0.001)

Follow up Survey on EAP Effectiveness

Assess Barriers to Adherence

Understanding of skincare
- Concerns about any parts of the routine?
- Worry about medications?
- What parts of the routine are hardest?
- What parts do you skip the most?
- Problem-solve to reduce stress
Sam’s Progress

- Consistent schedule for skin care and sleep
- Daily bath
- Frequent moisturizers
- Skin Care Plan
- Simplify regimen
- Reward system
- Importance of follow-up
Take Home Points

- Moisturize
- Decrease Inflammation
- Control Infection
- Control itch/scratch cycle
- Allergen Avoidance
- Assess adherence barriers and problem solve
- Increase child control and involvement!
Education

• Key to successful outcomes

• Nurses as AD educators

• AD Resources
  • National Eczema Assoc
    www.nationaleczema.org
  • www.undermyskin.com
  • AAFA
  • FAAN/FAI
  • eczemacarecenter.org

* Staab D, et al. BMJ 2006;332:933-938
Acknowledgements

- Lynda C Schneider MD
- Jennifer LeBovidge PhD
- Wendy Elverson MS, RD, LDN
- Staff of Boston Children’s Hospital Atopic Dermatitis Center