New Approaches to Eczema

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QOL in eczema

- Looks
- **ITCH** → Sleep
- School results
  - Miserable
  - Isolated
  - Depressed

- CHILD
- +
- WHOLE FAMILY
Eczema in children

1. Atopic dermatitis
2. Constitutional eczema
3. Contact dermatitis
4. Seborrhoeic eczema
AD is not a simple allergic reaction of the skin

Allergy is mainly a consequence of AD

... A LOT OF NEW FINDINGS!
Atopic dermatitis – the 4 player model

= a complex and dynamic interplay of 4 (or more) causal factors.

1. Skin barrier defects (role of FLG - others)
2. Allergy – abnormal immune responses
3. Auto-immunity (? – controversial)
4. Microbial colonization of the skin

→ Q: primary or secondary?
The skin barrier: 4 epidermal elements

- Chemical barrier (AMPs)
- Immunological barrier
- Microbiome barrier
- Physical barrier
4 Types of Skin Barrier Defects in AD

- **Mechanical (FLG, others)**
  - dry skin
  - increased bacterial skin infections
  - increased risk for food allergy – asthma

- **Immunological / Chemical / Microbiome**
  - increased bacterial infections
    (→ infectious eczema)
  - no dry skin
Singapore studies on FLG

FLG null-mutations are associated with:

1. early onset disease
2. increased disease severity
3. increased bacterial flares

REFERENCES:

Loss-of-function variants in the filaggrin gene are a significant risk factor for peanut allergy.

Brown SJ, et al.
Sensitization to food

- Prenatally
- Through breast milk
- Eating – drinking
- **Transcutaneous (eczema)**
- Inhaling - smelling
Allergy (food – inhalants) in AD

- Transcutaneous
- Consequence of AD
- Consequence can become a trigger
Food allergy in eczema

- Young children (< 3 years-old)
- In moderate to severe eczema
- Limited number of foods involved
- Different routes of sensitization
- Transcutaneous route = typical for AD

- **Foods:**
  - egg > cow’s milk > soy > wheat > peanut
Food allergy in Singapore (in 2015)

- Infants: EGG
- Preschoolers: PEANUT
- Older children: SEAFOOD
Maintaining factors of childhood eczema (Singapore)

infancy                preschool                  school                   puberty

food

HDM

Staph
OLDER CHILDREN with AD
House dust mite allergy becomes important
Less food allergy
Yes, HDM can induce AD

1. Patch testing
2. Bronchial provocation
3. Specific T-cell lines
4. Effect of HDM avoidance on AD
Severe AD in older children

- HDM

+ 

- Staphylococcus aureus

(PROTEASES)
HYPOTHETIC MODEL OF AD

PHASE 1: Non-allergic inflammation (commensals)
- ichthyosis – pruritus
- auto-immunity ?
- Other (viruses) ?

PHASE 2: Allergic inflammation
- food (➔ through urticaria)
- inhalants

PHASE 3: Infectious inflammation
- Staph colonization
- Viral colonization
HYPOTHETIC MODEL OF AD

PHASE 1: Non-allergic inflammation (commensals)
- ichthyosis – pruritus
- auto-immunity ?
- Other (viruses) ?

moisturizing

PHASE 2: Allergic inflammation
- food (through urticaria)
- inhalants

allergen avoidance

PHASE 3: Infectious inflammation
- antiseptics > antibiotics
- viral colonization
Management of atopic dermatitis

= A PACKAGE (involving life style)
Management of AD
- 4 principles –

1. Holistic
2. Package
3. Life style
4. Safe
Treating eczema (or allergies)  
... is more than prescribing drugs

- Education
- Life style
Cornerstones of treatment of AD

1. Moisturizers
2. Topical corticosteroids
3. Antiseptics
Moisturizers...

- A lot of moisturizers on the market
- Some were not the subject of clinical studies
- Some compared to placebo (or baseline)
- **No comparative studies**
- Doctors → confused!

... go for scientific evidence!
Moisturizers = cornerstone of treatment

→ Better knowledge of skin barrier defects

→ Better moisturizers
“Doctor, what is the best moisturizer for my child?”

“Ask your child!”

Affordable
Pleasant
Not irritable
To avoid...

- antibiotics
- oral medicines (antihistamines, immunosuppressant)
- extensive diets
- complex treatments
Immunotherapy in Eczema
Sublingual immunotherapy in mite-sensitized children with **atopic dermatitis**: a randomized, double-blind, placebo-controlled study.

Pajno et al. JACI 2007, 120, 164-70.
Sublingual immunotherapy in mite-sensitized children with atopic dermatitis: a randomized, double-blind, placebo-controlled study.

Pajno et al. JACI 2007, 120, 164-70.
Immediate Future of AD treatment

- **Corticosteroid-free treatment**

  ↓

- Causal treatment (preventive treatment)

- **Role of:**
  1. Immunotherapy
  2. Skin barrier restoration treatments
  3. **Others** *(bacterial products, antiseptics, calcineurin inhibitors, etc...)*
General conclusion

1. AD is complex, involving many players

3. Allergy: “a consequence becoming a trigger”

4. Treatment: *various new approaches*

5. Future: *corticosteroid-free treatment*  
   → causal treatment