

# Contact Dermatitis In Atopic Patients

Jenny Murase, MD  
Palo Alto Foundation Medical Group  
Director of Patch Testing  
University of California, San Francisco  
Associate Clinical Professor

# Disclosures

## Consultant

- Grand Rounds
- ToxServices
- UpToDate

## Advisory Board

- Dermira
- UCB
- Ferndale

I am happy to provide copies of my slides but please do not photograph my slides.

[jemurase@gmail.com](mailto:jemurase@gmail.com)

# Objectives

1. **Clarify role of patch testing in the management of atopic dermatitis**
2. **Outline strategies for the management of severe eczematous dermatitis (the erythrodermic patient)**

# Factors that increase risk of ACD in atopic patients

1. **Dysfunctional skin barrier → Increased penetration of chemicals → Increased risk for sensitization**
2. **Exposure from chronic use of emollients and topical anti-inflammatory**
3. **Bacterial colonization activates inflammatory cells involved in contact sensitization**
4. **More prone to ICD which further increases dysfunction of skin barrier**

# Challenges in atopic patients

- 1. AD is a risk factor for  $\geq 3$  allergens but AD patient are prone to irritant reactions.**  
Allergy 2014; 69(1): 28. Contact Dermatitis 2009; 61(1): 22. Br J Dermatol 2013; 169(3): 611.
- 2. Personal rinse-off products cause irritant reactions esp if not diluted**
- 3. “Crescendo” pattern may not be observed**  
Contact Dermatitis 2013; 68(6) 348-56.
- 4. Influenced by variations in climate**
- 5. Concomitant systemic immunosuppressive therapy may result in false negatives**

# Allergens in atopic patients

1. **Metals**
2. **Fragrance**
3. **Preservatives**
4. **Plants (compositae)**
5. **Antiseptics (chlorhexidine)**
6. **Emollients (lanolin)**
7. **Topical meds (neomycin, corticosteroids)**
8. **Surfactants (cocamidopropyl betaine)**
9. **Rubber accelerators**

# When to patch test an atopic patient

1. **Worsens/fails to improve with topical therapy or rebounds on discontinuation**
2. **Atypical or changing distribution of dermatitis**
3. **Resistant hand dermatitis**
4. **Adult or adolescent onset**
5. **Severe or widespread dermatitis**

# Distribution for AD changes over a lifetime

1. **Infants: Face and extensors**
2. **Childhood: Neck and flexures**
3. **Adults: Hands, feet, eyelids, head, neck, elbow and knee flexures**



# Testing in children

## 1. Contact sensitization increased in severe AD

**“Half of schoolchildren with ‘ISAAC eczema’ are ill with ACD.”**

**JEADV 2011; 25(9): 1104.**

## 2. Pediatric baseline allergen series

**Pediatric Derm 2008; 25(1): 81-87.**

**Curr Allergy Asthma 2014; 14(6): 444.**

**Pediatr All Immunol 2015; 26(7): 598-606.**

## 3. Children over the age of 12 can be tested with same battery as adults

**J Allergy Clin Immunol 2015; 135(3): 712-720.**

# Kinds of patch tests

- TRUE tests approximately 30 allergens (3 patches). This detect 25% of allergens.
- NACDS (North American Contact Dermatitis Group Screening) is the gold standard in the US with 80 allergens (8 patches). This detects 80-90% of allergens.

# A Review of the Medical Necessity of Comprehensive Patch Testing

Tian Hao Zhu MD, Raagini Suresh BS,  
Erin Warshaw MD, Pamela Scheinman MD,  
Christen Mowad MD, Nina Botto MD,  
Bruce Brod MD, James S. Taylor MD,  
Amber Reck Atwater MD, Kalman Watsky  
MD, Peter C. Schalock MD, Brian C.  
Machler MD, Stephen Helms MD, Sharon E.  
Jacob MD, Jenny E. Murase MD

Dermatitis April 2, 2018

# Limited patch test = Limited value

## With a limited patch test (TRUE test)

- Only 1/3 of patients are full evaluated
- 50% of allergens causing occupational dermatitis are missed
- 66% of clinically relevant reactions are identified and 25% of allergens are identified (compared with NACDG series of 70 allergens)

# Role of Advanced Series Testing

- **NACDG screen: 70-80 allergens**
- **21-34% of ACD diagnoses would be missed without supplemental allergens to NACDG**
- **Cite 8 studies that demonstrate comprehensive patch testing carriers a much higher probability of yielding a diagnosis**

# Extended Series Testing

- **Corticosteroid (13)**
- Cosmetic (30)
- Dental (30)
- **External Agents/Emulsifier (27)**
- **Fragrance (41)**
- Hairdressing (27)
- Metal (30)
- Oil and Cooling (35)
- Photopatch (20)
- Rubber Additives (25)
- Shoe (23)
- Sunscreen (20)
- Textile (33)
- Bakery (20)

# Repeat Open Application Testing

- Brown GE, Botto N, Butler DC, Murase JE. Clinical Utilization of Repeated Open Application Test Among American Contact Dermatitis Society Members. Dermatitis 2015 Sep-Oct; 26(5): 224-9.

- Procedure

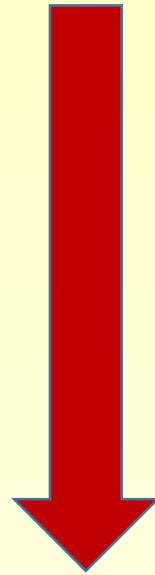
- 1. Identify two spots on the left forearm and two spots on the right forearm.
  - 2. Select four products to test.
  - 3. Place a small (1/2 pea-sized) amount of each product once a day for 30 days.
  - 4. If any redness develops, the test is positive for that product.
  - 5. Record the results
- 
- Leave on product: Apply after the shower (example: Creams, lotions)
  - Rinse off: Apply 15 minutes before shower (example: Shampoos, soaps)

# ABC's and 123's of topical corticosteroids

## POTENCY

- 7) Hydrocortisone
- 6) Desonide
- 5) Alclometasone
- 4) Triamcinolone
- 3) Fluocinonide 0.05%
- 2) Desoximetasone
- 1) Clobetasol

Weakest



Strongest

## STERIOD ALLERGY CLASS

- A) Hydrocortisone
- B) Desonide  
Triamcinolone  
Fluocinonide
- C) Desoximetasone
- D) Clobetasol  
Alclometasone



# Initial counseling

## Differential diagnosis

- Atopic dermatitis
- Allergic contact dermatitis
- Flare due to secondary bacterial infection
- Drug eruption

## Diagnostic options

- Biopsy
- Patch Testing

## Therapeutic options

**There is a difference between “putting out the fire” and “keeping the fire away.”**

## **Short term relief**

**SOAK AND SMEAR**

**(with super potent corticosteroid)**

**PREDISONE**

“You only need a little bit of a diamond to get better.”

## **Long term relief**

**NARROWBAND UVB**

**MYCOPHENOLATE**

**MOFETIL**

**DUPIUMAB**

**CYCLOSPORINE**

**METHOTREXATE**

**AZATHIOPRINE**

# Effects of immunomodulatory agents on patch testing

1. **Methotrexate (<0.25 mg/kg/wk)**
2. **Prednisone <10 mg/d**
3. **Anti-TNF (infliximab, adalimumab) or IL-17 (ustekinumab)**
4. **Avoid topical steroids on the back for at least 1 week**

**Dermatitis 2012; 23(6): 301-3. (expert opinion)**

# Sezary Management and Diagnosis can be challenging

## Diagnostic workup

- Multiple biopsies
- CBC/Sezary panel
- Extremely symptomatic
- Recalcitrant to potent sytemic medications

# Management

- Soak and smear with vanicream and clobetasol and tacrolimus/desonide to face
- Biopsy: Subacute spongiotic dermatitis with eosinophils
- Bacterial culture and cephalixin
- Intramuscular kenalog 60 mg 1-2 times a year
- Regenerate CAMP (Contact Allergen Management Program)
- Systemic therapy

# Review

**A Pragmatic Approach to Patch Testing Atopic Dermatitis Patients: Clinical Recommendations Based on Expert Consensus Opinion. J Chen, S Jacob, S Nedorost et. al. Dermatitis 27(4) 2016.**

# Conclusion

- 1. Clarify role of patch testing in the management of atopic dermatitis: recalcitrant disease, hand involvement, adult onset, extensive disease**
- 2. Do not assume patient is atopic**
- 3. Have a low threshold to biopsy recalcitrant disease**
- 4. Have two plans for clearance: short and long term**