Patch Testing

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No Disclosures
Objectives:

- State reasons for performing atopy patch testing
- Perform patch testing to contact allergens
- Perform patch testing to foods
Patch Testing Background

- Aeroallergen patch testing in AD - 1937 by Rostenberg, et al
- First Controlled Clinical Trial of allergen patch testing in AD patients and control group - 1982 by Mitchell, et al
- Ring introduced term “atopy patch test” in 1989
- Food allergen patch testing in 1996 by Isolauri, et al

Kerschenlor, et al, 2004
European Task Force on Atopic Dermatitis (ETFAD)

- Developed protocol 1999:
  - Allergen concentration
  - Vehicle
  - Time intervals
  - Preparation of test site

Kerschenlor, et al, 2004
ETFAD

- Most widely used protocol
- Well documented testing procedure
- Sensitivity, specificity and reproducibility data
- Increasingly used as standard diagnostic tool in clinical settings
Allergen Patch Testing

T.R.U.E. TEST®*

*Thin-layer Rapid Use Epicutaneous Test
Contact Dermatitis

- Contact type reactions increase with age
- Patch testing should be tailored based on history and exposure
- Positive results should be based on relevance
- “The more you look, the more you will find!” (Simonsen, et al 2011)
Patch testing with T.R.U.E.® TEST

- Persistent and recalcitrant dermatitis
- Suspected contact dermatitis
- Dorsal or patchy hand dermatitis
- Leg and foot dermatitis
- Facial dermatitis (excluding seborrhea)
- Dermatitis with unusual distribution
T.R.U.E.® TEST Panel Allergens

Panel 1.1
- Nickel Sulfate
- Wool Alcohols
- Neomycin Sulfate
- Potassium Dichromate
- Caine Mix
- Fragrance Mix
- Colophony
- Paraben Mix
- Negative Control
- Balsam of Peru
- Ethylenediamine Dihydrochloride
- Cobalt Dichloride

Panel 2.1
- p-tert-Butylphenol Formaldehyde Resin
- Epoxy Resin
- Carba Mix
- Black Rubber Mix
- Cl+ Me- Isothiazolinone (MCI/MI)
- Quaternium-15
- Mercaptobenzothiazole
- p-Phenylenediamine
- Formaldehyde
- Mercapto Mix
- Thimerosal
- Thiuram Mix

Panel 3.1
- Diazolidinyl urea
- Imidazolidinyl urea
- Budesonide
- Tixocortol-21-pivalate
- Quinoline mix
Most Common Contact Allergens

- Nickel
- Cobalt
- Thimerosal
- Fragrance
- Lanolin
What is Food Patch Testing?

- Used to identify delayed-type reactions (T-cell mediated hypersensitivity Type IV)
- Can be performed in children as young as 2 years
- Differs from IgE specific allergen blood or skin prick tests that evaluate immediate (IgE-mediated) reactions
Who Receives Food Patch Testing?

- May be useful for eosinophilic esophagitis or atopic dermatitis
- Not every one will need patch testing or have positive patch tests.
Disadvantages

- Cumbersome test
- Parents: 2 appointments in 3 days
- Kids: do not like feeling of tape/food on back
- No showers while patches on
- No sports while patches on
How is patch testing performed?

- Requires two separate visits over 3 days
- Initial visit: food patch test panel placed on the back
- Selection of foods determined by allergist
How is Patch Testing Performed?

- Foods placed in shallow aluminum disks
- Taped to back
- Foods with known reaction NOT tested
- Patch tests removed by family in 48 hours
- Patient returns 72 hours (3 days)
- No baths or showers while tests are in place
Placement of Patch Tests

- No topical steroids at site of APT
- No oral steroids/systemic immuno-suppressants for 1 month
- No need to discontinue:
  - Swallowed/inhaled corticosteroids
  - Antihistamines

Slide Courtesy of John Lee MD
Setting up Test Panel

- Place patches in trays
- Take sample from baby food jar lid
- Use syringe or coffee stirrer
- Place into patch well
Setting up Test Panel

- Take sample dry food
- Add water (via syringe) 1 part to 1 part
- Stir until paste-like consistency
- Place mixed foods into patch wells
Setting up Test Panel

- Cover only bottom of wells
- Remove excess food from rim
- Leave control blank
Applying Patch testing

- Explain procedure to patient/parent
- Cleanse back with alcohol and dry
- Holding patch applicator taut, place on skin
- Avoid wrinkles and smooth over edges with finger
- With permanent marker, place number next to each patch well on skin
- Apply medical tape or Tegaderm® to secure loose patches
Removing Patch Testing

- Reinforce importance of keeping back dry for 48 hours
- Instruct parent/patient to remove patches in 48 hours
- Wash off back with soap and water
- Do not remove permanent marker dots
- Remind parent/patient of follow-up appointment in 72 hours
Reading Patch Tests

- Read patch test at 72 hours
- Grade results on scale of 1-3 using photos
- Inform provider of results
- Inform patient that provider will call them with results
- **Grade 0**: No reaction

- **Grade 1**: Single or few scattered papules with minimal induration

- **Grade 2**: Solid red area with moderate induration or several papules

- **Grade 3**: Solid red area with significant induration or multiple papules

Slide Courtesy of Jon Spergel MD
What are the Possible Adverse Effects?

- Well tolerated by most patients
- Tape may cause some redness
- Tape redness disappears in one to two days
- REMOVE PATCH for intolerable burning, itching, or severe discomfort
- REMOVE PATCH for any suspected generalized reactions
Practical Considerations

- Keep dry ingredients in containers
- Mix 1 to 1 to make a paste
- Label with expiration dates
- Use baby food with no other additives
- Use drier portion of baby food from lid
- Discard opened baby food within 24 hours
Food Atopy Patch Testing

- Provides positive results
- Presumed to reflect delayed symptoms, but not consistent among AD children
- May or may not be clinically relevant
- Standardization of test materials needed
- Standardization of process and results interpretation needed
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