Updates in Allergic Contact Dermatitis
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The Methylisothiazolinone Epidemic

Methylchloroisothiazolinone/Methylisothiazolinone
(MCI/MI, Kathon CG)
Preservative found in:
- Baby wipes, hair care products, skin care products, cosmetics, moist toilet paper, varnishes, cutting oils, lubricants
- Airborne: glue, paint
- Household products/detergents, “green” agents

Methylisothiazolinone (MI)
- Use of MI alone introduced
  - 2000: industrial products
  - 2005: consumer products

Regulatory limits on MCI/MI and MI

<table>
<thead>
<tr>
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<th>Leave-on products</th>
<th>Rinse-off products</th>
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<tbody>
<tr>
<td>MI</td>
<td>100 ppm</td>
<td>100 ppm</td>
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<tr>
<td>MCI/MI</td>
<td>7.5 ppm</td>
<td>15 ppm</td>
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25-50x increase

The Isothiazolinone Epidemic

NACDG data 2013-14
- MCI/MI PT positivity doubled 2013-14 in comparison to 2001-2012 (NACDG, RR = 2.08)
- For the first time included MI (2000 ppm)
  - MI (10.8%, 3rd most common) vs MCI/MI (6.4%)
  - MI = #1 in allergen positivity/clinical relevance (significance-prevalence index # (SPIN))

MCI/MI misses 33-60% of allergy to MI

Patch Testing with MI vs MCI/MI

Sensitivity
- MCI/MI 53%
- MI 90%

Take Home Points

- MI is now the most common cause of preservative allergy in North America and third most common cause of ACD overall
- Essential to test MI alone (2000ppm, 0.2% aq)
- If only True test performed, which contains MCI/MI but not MI, consider more extensive patch testing for any pts with high suspicion for ACD or with dermatitis that fails to improve

Allergen of the Year 2018 is...

Propylene Glycol: Allergen of the Year 2018

- Preservative, solvent, humectant, emulsion stabilizer, enhances skin penetration of medicaments, intermediate in the production of polyester resins
- Prevalence: 2.2% (30% aq), 2.8% (100% aq)
- Sites
  - Face (25.9%)
  - Generalized distribution (23.7%)
Propylene Glycol: Foods
- Packaged foods (prepared meals, prepackaged coffee/cream, drink mixes, desserts, snacks, seafood/meat breading/marinades/glazes, canned beans, dried soup/bouillon, most fast food)
- Bread, bagels, breadsticks, bacon, dairy, condiments, occasional frozen vegetables
- Artificial flavor extracts/food coloring

Propylene Glycol
- Patch testing is challenging
  - Frequently weak positives, common irritant

Recommendations
- Check for crescendo
- Beware reactions w/in 48h that decrescendo
- Carefully consider reactions that appear on Day 3+
- Consider retesting all 1+/? reactions

Propylene Glycol
- NACDG
  - 10% aq (1992)
  - 30% aq (1996) – high clinical relevance
  - 100% aq (January 2013) – relatively low rate of irritancy but significantly improved efficacy of discerning PPT

Take Home Points
- Propylene glycol is an ubiquitous preservative
- Patch testing to propylene glycol is challenging and any potential positives need to be carefully considered
- Propylene glycol 100% aq provides higher sensitivity and a relatively low rate of irritancy compared to propylene glycol 30% aq

Best Practices: Patch Testing Atopic Dermatitis Patients

ACD and Atopic Dermatitis
- ACD occurs at least as commonly in AD pts compared to the general population (OR = 1.5)

When to consider patch testing the AD pt
- Adult/adolescent onset of AD
- Therapy resistant dermatitis that becomes generalized or more severe
- Atypical dermatitis distribution or pattern suggestive of ACD
- Recalcitrant hand eczema in the working population
- Prior to initiating systemic therapy

Potential pitfalls in patch testing the AD pt
- Irritant reactions common (metals, fragrance, lanolin)
- ‘Crescendo’ pattern is not observed to the same degree
- Variations in climate may affect the skin barrier and the rate of positive and irritant reactions
- Patch testing at the time of an AD flare may decrease contact allergy and increase irritancy
- Concomitant systemic immunosuppressive therapy may result in false negatives

Take Home Points
- ACD is at least as common in AD pts as in the general population
- Failure to patch test may result in overlooking an important and potentially curable driver of disease
- Patch test AD pts when recalcitrant dermatitis, atypical distribution, adult/adolescent onset AD, hand eczema in the working population, prior to starting systemic therapy

Thank You