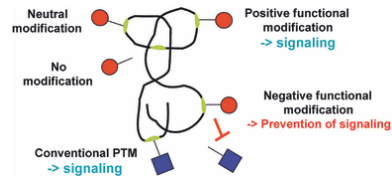


CONTACT DERMATITIS: PATHOPHYSIOLOGY, DIAGNOSIS & MANAGEMENT

2012 WAO International Scientific Conference Hyderabad, India

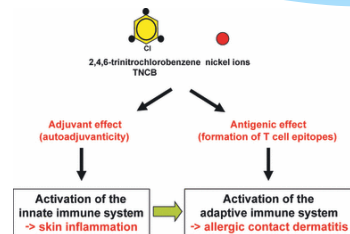
Richard W. Weber, M.D.
National Jewish Health
Denver, Colorado

Contact dermatitis: from pathomechanisms to immunotoxicology



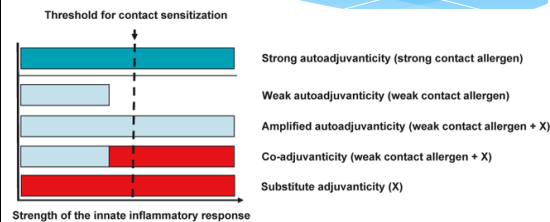
Experimental Dermatology
2012;23:166-174. DOI: 10.1111/j.1522-6625.2012.01471.x
<http://onlinelibrary.wiley.com/doi/10.1111/j.1522-6625.2012.01471.x/full#>

Contact dermatitis: from pathomechanisms to immunotoxicology



Experimental Dermatology
2012;23:166-174. DOI: 10.1111/j.1522-6625.2012.01471.x
<http://onlinelibrary.wiley.com/doi/10.1111/j.1522-6625.2012.01471.x/full#>

Contact dermatitis: from pathomechanisms to immunotoxicology



Experimental Dermatology
2012;23:166-174. DOI: 10.1111/j.1522-6625.2012.01471.x
<http://onlinelibrary.wiley.com/doi/10.1111/j.1522-6625.2012.01471.x/full#>

Role of keratinocytes & Inflammatory cells in ACD

* Sensitization phase:

- * haptens captured by resident dendritic cells (Langerhans cells) that migrate to regional lymph nodes to activate & expand specific T-cell precursors; keratinocytes activated to express TNF- α , IL-6, GM-CSF with downstream activation of Langerhans cells & dermal endothelial cells with induction of ICAM-1 and CXCL8, further expression on keratinocytes of CCL2 & CCL27
- * Activation of keratinocytes is driven by contact allergens & not by cytokines from infiltrating cells

Role of keratinocytes & Inflammatory cells in ACD

* Elicitation phase:

- * re-exposure results in rapid recruitment of specific memory T-cells predominated by Th1 cells with substantial proportion of Th17 cells
- * Milieu of IFN- γ , IL-17, IL-22, & TNF- α causes up-regulation of ICAM-1, MHC II, and MHC I and Fas, which makes keratinocytes targets for T-cell mediated cytotoxicity
- * Amplification phase:
 - * Expression of CXCL9-11 begins @ 12 hours, peaks @ 72hrs
 - * Followed by CCL27, CCL5, CCL22, & CCL1
 - * Keratinocytes more sensitive to Th1 lymphokines

Allergy Patch Testing for ACD

- * Test every patient with “standard tray”
- * Several standard series exist
 - * T.R.U.E. test (36 allergens)
 - * European series (23 allergens)
 - * International standard series (20)
 - * North American (NACDG) series (50)
 - * Pediatric series (40)
 - * Many other institutional or regional series

Allergy Patch Testing for ACD

- * Larger the series used, the more positives found and the more relevant tests found
- * Most common allergen groups
 - * Preservatives (Quaternium 15)
 - * Medicaments
 - * Metals
 - * Fragrances
 - * Rubber

Allergy Patch Testing for ACD

- * Allergen of the Year
 - * 2000 – Disperse dyes
 - * 2001 – Gold
 - * 2002 – Thimerosal (non-relevant)
 - * 2003 – Bacitracin/topical antibiotics
 - * 2004 – Cocamidopropyl betaine
 - * 2005 – Corticosteroids
 - * 2006 – Paraphenylenediamine (henna tattoos)

Allergy Patch Testing for ACD

- * Allergen of the Year
 - * 2007 – Fragrances
 - * 2008 – Nickel
 - * 2009 – Mixed dialkyl thioureas
 - * 2010 – Neomycin
 - * 2011 – Dimethyl fumarate (European epidemic 2007)
 - * 2012 – Acrylates

Allergy Patch Testing for ACD

- * Interpretation
 - * 0 negative
 - * 1+ doubtful – macular erythema
 - * 2+ weak – erythema, edema, ? Papules
 - * 3+ strong – edematous or vesicular
 - * 4+ extreme – spreading, bullous
- * Irritant – decrescendo
- * Allergic – crescendo
- * “Angry back” – multiple (+)

Clinical Relevance

- * Once positive reaction is documented, relevance must be determined
- * Relevance based on:
 - * History of exposures
 - * Sources in patient’s environment
- * Extended visit with patient may be necessary in allergen identification and avoidance

Management of ACD

- * AVOIDANCE
- * AVOIDANCE
- * AVOIDANCE