Immunomythology* – Public Misunderstanding of Allergy and Immunology, its Origins and Adverse Effects on Health

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*A.S. has served as an expert witness in allergy and immunology related litigation, e.g. “toxic mold”, breast implant, and a host of other “toxic tort” matters. In spite of this, he is a thoroughly nice person.
Faculty Disclosure for Andrew Saxon, MD

For the 12 months preceding this CME activity, I disclose the following types of financial relationships:

- Honoraria received from: None
- Consulted for: None
- Held common stock in: None
- Research, clinical trial, or drug study funds received from: None

I will not be discussing products that are investigational or not labeled for the use under discussion.
"I see nobody on the road," said Alice.

"I only wish I had such eyes," the king remarked in a fretful tone.

"To be able to see ‘Nobody’! And at that distance, too!

Why it's as much as I can do to see real people in this light!"

1. What is the full title of the book

2. Who is the author; pen name and real name
Science and Society: Immunomythology

• How does our society maintains beliefs about health in spite of what we know?

“Explanations exist; they have existed for all time; there is always a well-known solution to every human problem — neat, plausible, and wrong”
Sea food allergy

"I'm allergic to sea food"

Is it true that people who are allergic to crabs, lobster or shrimp are also thereby allergic to clams and oysters and/or fish
Relationship between allergy to various "Sea Foods"

- Fish
- Arthropods
- Molluscs
- Shrimp
- Lobster
- Crab
Sea Food, Iodine & Contrast Media

"Patients allergic to shell fish are allergic to iodinated contrast media"

Is there a connection between iodine, "shell fish" and contrast media?
Sea Food, Iodine & Contrast Media

Is there a connection between iodine, "shell fish" and contrast media?

NO!

www.aaaai.org/media/resources.academy_statements/potassium_iodide.asp
Iodine & Contrast Media

- Reactions to contrast are osmolar and not immunologic (not mediated by specific antibody or T cell reactivity).
- Reactivity occurs with non-iodinated hyper-osmolar and other agents as well although at lower rate.
- Direct effect on mast cells and maybe via complement system in susceptible persons.
- Rate 5% and repeat rate 30% which can be decreased to background level by pre-medication.
Local Anesthetics

“I'm allergic to local anesthetics"

"I'm allergic to 'caines’”

What is the nature of “acute reactions” to local anesthetics?

And what to do about them?
Local anesthetic immune reactivity

**Type I (IgE mediated)**
- Diagnosed by epicutaneous intradermal tests
- Reacts within 30 minutes
- Individual lesions last <24 hr.
- Does not respond to topical steroids

**Essentially does NOT OCCUR with local anesthetics**

**Type IV (T cell mediated)**
- Use patch testing
- Reacts within 72 hours
- Individual lesions last >24 hr
- Lesions respond to topical steroids

**COMMON**
Why don’t people form IgE antibodies to local anesthetics - “most” haptens drive Th1 T cell reactivity.

Reasons for local anesthetic “reactivity”
- overdose - side effects
- anxiety/hyperventilation
- vasovagal
- epinephrine
- idiosyncratic
- preservative reactivity
Do not use local anesthetics with epinephrine for testing.

Level I. Scratch Testing - use undiluted reagents:
  a. Lidocaine 1%
  b. Lidocaine 1% without preservative
  c. And/or Procaïne 1%
  d. Histamine and control

Level II. Intradermal Testing - use 1:100 dilutions of:
  a. Lidocaine 1%
  b. Lidocaine 1% without preservative
  c. And/or Procaïne 1%
  d. Control

Level III. Provocative Dose Challenge - Test only to the 1 anesthetic suspected of causing the allergic reaction.
  1. Use 0.1 cc S.Q. of a 1:10 dilution
  2. Use 1 cc S. Q. Of the undiluted anesthetic
Animal allergy

Doctor: “I’m sorry to tell you but your son Johnny is allergic to cats and having your cat ‘Fluffy’ in the bedroom is really making his asthma worse”

Parent: “Don’t worry, we’ll get rid of him.”

Question?
Who are the parents going to get rid of?
Fluffy or Johnny?
Animal allergy

• Can I buy my daughter a non-allergic (hypoallergenic) cat (dog) <bad sign>

• I just bought buy my son a non-allergic kitten (puppy) <worse sign>
Animal allergy

• The main antigen/allergen is *Fel d I*, a protein found in all cats

• This is found in the skin (dander) and saliva,
  - it is not an intrinsic hair protein

• A similar situation occurs with dogs *Can d I*

• And where is it in rodents?
Animal allergy

What to do with the cat, dog, rat or hamster?
(other than eat it)

- Keep out of bedroom
- Wash it (frequently) and clean up bedding
- Use tannic acid to destroy the antigens
- Role of room HEPA filters
If you wash the cat, be sure to start when it is as kitten
I'm allergic to Aspartame (NutraSweet®),
it gives me hives

Harvard, Northwestern, UCLA DBPC challenge with aspartame in patients with urticaria


### TABLE III. Positive reactions that occurred during the study

<table>
<thead>
<tr>
<th>Subjects</th>
<th>No. of Hives</th>
<th>Wheal (mm)</th>
<th>Flare (mm)</th>
<th>Time of onset*</th>
<th>Duration</th>
<th>Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>B01</td>
<td>1†</td>
<td>&lt;4</td>
<td>–</td>
<td>13 hr/45 min</td>
<td>45 min</td>
<td>Aspartame</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>40</td>
<td>65 × 140</td>
<td>14 hr/45 min</td>
<td>9 hr/45 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F03</td>
<td>1†</td>
<td>1.5</td>
<td>10 × 8</td>
<td>4 hr/10 min</td>
<td>30 min</td>
<td>Aspartame</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4 × 4</td>
<td>15 × 15</td>
<td>7 hr/55 min</td>
<td>30 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1†</td>
<td>2</td>
<td>5</td>
<td>10 hr/55 min</td>
<td>1 hr</td>
<td></td>
</tr>
<tr>
<td>E04</td>
<td>Generalized</td>
<td>50 (largest hive)</td>
<td>150</td>
<td>1 hr</td>
<td>4 mo</td>
<td>Placebo</td>
</tr>
<tr>
<td>F05</td>
<td>1</td>
<td>4</td>
<td>32</td>
<td>2 hr/30 min</td>
<td>1 hr/25 min</td>
<td>Placebo</td>
</tr>
</tbody>
</table>

*Relative to first dose.
†Hive did not meet study criteria for a positive reaction.
The "Big G" is killing me
“NO MSG”

Does this cause

- "Chinese Restaurant Syndrome"
- Asthma
- Heart Disease
- Anaphylaxis
- Neurocognitive dysfunction
No MSG

120 Subjects entered @ Harvard, Northwestern and UCLA

Symptoms of 2 or more of:
- headache, muscle tightness, feeling of weakness,
- palpitations/heart pounding, numbness/tingling,
- burning sensation, flushing feeling, sweating sensation,
- muscle twitching sensation, chest pain

1. Double blind placebo challenge with 5 grams of MSG in liquid vehicle
   - 20 subjects "reacted" to both challenge and not placebo
2. Repeat double blind challenge with 5 grams of MSG in capsules
   - No subject repeated (many symptoms on placebo)

Multiple drug allergy

I’m allergic to all antibiotics
I have “multiple drug allergy syndrome”

Is there an intrinsic syndrome in which subjects have more immune/allergic reactions to medications than expected?

Macy, E. Multiple Antibiotic Allergy Syndrome, Immunol Allergy Clin N. America, Aug;24(3):533-43, 2004
Multiple drug allergy

Studies have NOT revealed a biochemical basis for these claims

• Hyper- vigilance
  (Blends into MCS)
• Increased exposure
• Bad luck
Multiple drug allergy

Deal with "Multiple Reactors" by

• Reducing unnecessary use (in collaboration with primary care MD, family and others)
• Taking it one drug at a time
• Explaining the non-allergic nature of most reactions (and documenting)
• Seeing them when they are having a reaction
• Testing for penicillin and using it if necessary
• Psychological/Psychiatric interventions
• Cab fare to your worst enemy
Multiple Chemical Sensitivity (MCS) (aka idiopathic environmental intolerance)

I’m allergic to the 21st Century
I’m a universal reactor
I have multiple chemical sensitivity

Does this exist as a disease state?

MCS IS; COMMON MULTISYSTEM COMPLAINTS ATTRIBUTED TO EXTERNAL FACTORS.

Known as: Multiple chemical sensitivity, Environmental Illness, Multi-organ Dysesthesia, "Idiosyncratic environmental intolerance"

Complaints = fatigue, neurocognitive problems, weakness, low grade fevers, malaise, arthralgias, myalgias and any other symptoms of any other process the patient coincidentally happens to have (allergic rhinitis, asthma, rash etc).

External factors = chemical exposure formaldehyde, pesticides, insecticides, volatile materials from carpets, paints, perfumes and indeed, anything that is volatile.
Multiple Chemical Sensitivity

- Symptoms overlap those of CFS but are less well defined. Also overlap symptoms of panic attacks, fibromyalgia, hyper-ventilation, laryngeal dysphonia, somatization syndromes etc.
- Symptoms occur at levels below those associated with any known toxicity and often below that which is detectable by odor.
- Symptoms occur to any number of increasing variety of "chemicals".
- There is no objective data that can be used to include or exclude this “diagnosis”.


Multiple Chemical Sensitivity (MCS) (aka idiopathic environmental intolerance)

A “syndrome” with great economic utility for:

- billing
- disability
- toxic tort litigation

(previously)
Does Silicone cause autoimmunity or any systemic illness in humans?

- Silicone Breast Implants
- VP Shunts
- Norplant
- Pacemakers
- MCP joints
What is Silicone

Does not occur naturally. Liquid, Gel, Elastomer

Chemical structure of Silicone Monomer and Cross linked monomers.
Use of Silicone in Medical Devices - History

• Silicone liquid for injection (1950’s)
  Migration
  Never released for general medical use but…..
  Misuse
  Non-medical grade materials

• Development of Silicone Breast Implants (early 1960s)
  Rupture
  Gel bleed

• How DO you hide a dollar from a plastic surgeon?
Why silicone does NOT induce specific immunity

Silicone Breast Implants

SBI DO NOT cause or exacerbate

- Autoimmune diseases
- Cancer
- Central or peripheral neurologic illness
- Immunodeficiency
- Any systemic illness

SBI DO cause

- Local non specific inflammation with resulting Capsule formation, pain, local lymphadenopathy
“Toxic Killer Mold”: Or how I learned to stop worrying and love the fungus

Yahoo! I’m going to nuke that mold....
WHAT MOLDS CAN DO

• Hypersensitivity Disease
  – Allergy
    • Allergic Rhinitis, Asthma
    • ABPA, AFS
    • Hypersensitivity Pneumonitis

• Infection
  – Superficial
  – Invasive
    • in normal hosts
    • in immunocompromised hosts

• Toxicity – from ingestion
  – Acute
  – Sub acute
WHAT MOLDS DO NOT DO

• Cause chronic sinusitis in the majority of persons with chronic sinusitis

• Induce a generalized state of mold hypersensitivity
  – Candida hypersensitivity state
  – Chronic “candida” syndrome
  – Generalized mold hypersensitivity

• Induce Mycotoxicosis from breathing ambient spores
  – Toxic mold in homes and offices inducing ………
  – It is dose, dose and dose
Mold toxicity: Facts

• Molds make mycotoxins as secondary metabolites
  Aflatoxins, Ocratoxins, Cyclosporine, Penicillin, etc.

• There are many thousands of molds that make
  many hundreds of “mycotoxins”

• The issue of mycotoxicosis relates to dose,
  dose, and dose (and half-life)

• Mycotoxins are NOT volatile
  – Have to ingest, breath or otherwise get the mold
    particle with the toxin into the body
  – Don’t transmigrate through wall, floors, & ceilings
Mold Toxicity: Mycotoxicosis

- Acute = Mushroom poisoning
  - which one would you choose??

- “Chronic” (really subacute) = half life issue
  - Ergotism (St. Anthony’s Fire), contaminated flour
    - *Claviceps purpurea*
  - Balkan nephropathy, ocratoxins in food
  - Stachybotrys toxicity - Horses ? Humans from food
Potential Adverse Health Effects from Exposure to mold in non-occupational environments

Position Paper from the ACOEM, 2002
http://www.acoem.com

Position Paper from the AAAAI, 2006
http://www.aaaai.com

Institute of Medicine report “Damp Indoor Spaces and Health”, 2004
http://www.iom.edu/CMS/3793/4703/20223.aspx
Can love kill you?

Can you really be allergic to those you love??
Yes, you can be allergic to those you “love”

Semen allergy - very rare women reaction to seminal fluid proteins

Beware of latex allergy as a confounder
Predatory Publishing: You absolutely can NOT trust what you read!

Predatory publishers are corrupting open access. Journals that exploit the author-pays model damage scholarly publishing and promote unethical behaviour by scientists, argues Jeffrey Beall.

http://scholarlyoa.com/2012/12/06/bealls-list-of-predatory-publishers-2013/


"I see nobody on the road," said Alice.
"I only wish I had such eyes," the king remarked in a fretful tone
"To be able to see ‘Nobody’! And at that distance, too!"
"Why it's as much as I can do to see real people in this light!"

Book?

Author? Pen name and real name?
“The majority of men prefer delusion to truth. It soothes. It is easy to grasp. Above all, it fits more snugly than the truth into a universe of false appearances—of complex and irrational phenomena, defectively grasped.”
IF IT SOUNDS TOO GOOD TO BE TRUE, IT PROBABLY ISN’T TRUE.

Who is this?
Thank you for your attention