



Allergic Rhinitis

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Overview

- ▶ Types of Allergic Rhinitis
- ▶ Symptoms
- ▶ Diagnostic Testing
- ▶ Treatment and Management
- ▶ Oral Allergy Syndrome

Allergic Rhinitis

▶ 2 Types: Allergic and Non-Allergic

▶ ALLERGIC RHINITIS

Allergen (pollen, dander, mold)

Seasonal (Hay Fever): Pollen from grass, trees, weeds

Perennial: Pet dander, Mold, Dust mites

▶ NON-ALLERGIC

Year round symptoms (runny nose, nasal congestion)

Does not affect immune system



Immune system identifies a harmless substance as an intruder (allergen) → releases Histamine → Nasal symptoms

Statistics

- ▶ Estimated 6.2% of people 18 yo and above in the U.S. have Hay fever (CDC 2016)
 - ▶ 7.1% are Female and 5.4% are Male
- ▶ In 2012, 9.0% or 6.6 million children reported hay fever in the past 12 months (NHIS 2012)

Symptoms of Allergic Rhinitis

- ▶ Itching in the nose, roof of the mouth, throat, eyes
- ▶ Sneezing
- ▶ Stuffy/Runny nose
- ▶ Tearing eyes
- ▶ Dark circles under the eyes, Fatigue

Diagnosis

- ▶ Skin Test
- ▶ Radioallergosorbent Test (RAST)
 - ▶ blood tested for IgE
- ▶ Nasal Cytology Test
 - ▶ Nasal smear measuring eosinophil

Skin Test

I. Prick Test

- ▶ Performed first
- ▶ Allergens are dropped on the arm and pricked with a needle
- ▶ Read 15-20 mins after

II. Intradermal test

- ▶ Done if Prick Test is negative
- ▶ Allergens injected intradermally
- ▶ Read 15-20 mins after



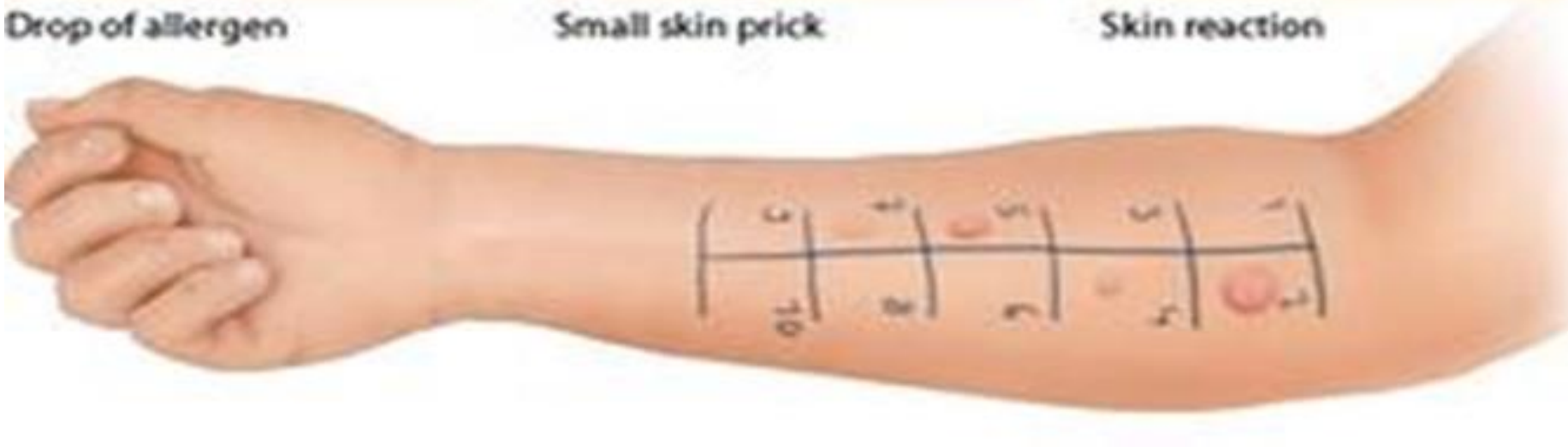
Drop of allergen



Small skin prick



Skin reaction



RAST

RAST rating	IgE level (KU/L)	comment
0	< 0.35	ABSENT OR UNDETECTABLE ALLERGEN SPECIFIC IgE
1	0.35 - 0.69	LOW LEVEL OF ALLERGEN SPECIFIC IgE
2	0.70 - 3.49	MODERATE LEVEL OF ALLERGEN SPECIFIC IgE
3	3.50 - 17.49	HIGH LEVEL OF ALLERGEN SPECIFIC IgE
4	17.50 - 49.99	VERY HIGH LEVEL OF ALLERGEN SPECIFIC IgE
5	50.0 - 100.00	VERY HIGH LEVEL OF ALLERGEN SPECIFIC IgE
6	> 100.00	EXTREMELY HIGH LEVEL OF ALLERGEN SPECIFIC IgE

Treatment and Management

- ▶ Environmental control measures/Avoidance
 - ▶ Windows closed, Handwashing, Mite-proof Bedding
- ▶ Medical management
 - ▶ Topical nasal steroids/antihistamine
 - ▶ Oral antihistamines
 - ▶ Decongestants
 - ▶ Leukotriene Pathway inhibitors (Montelukast)

Environmental Control Measures

Pollen

1. Keep Windows closed
2. Use air conditioners, change/clean filters monthly
3. Shower and change clothes after working outside

Mold

1. Correct areas of water damage in the home
2. Dehumidify the basement
3. Use adequate ventilation in the bathroom

Environmental Control Measures

Dust Mites

1. Wash bedding in hot water weekly
2. Use mattress, pillow, and box spring encasements
3. Remove dust reservoirs (drapers, decorations)

Nasal Steroids

- ▶ Rhinocort, Flonase, Nascort, Nasonex



Nasal Steroid with Antihistamine



Oral Antihistamines



Eye Drops



Treatment and Management

▶ Immunotherapy

>helps build body's resistance to effects of allergen

▶ I. Allergy Shots

- injecting diluted allergy extract in increasing doses
- may take 3-5 years

▶ II. Sublingual tablets

- started several months before allergy season begins
- may take up to 3 years
- Only a few allergens can be treated

Treatment and Management

- ▶ Nonpharmacologic Therapies
 - ▶ Acupuncture - unknown mechanism
 - ▶ Release of neurochemicals which mediate the inflammatory pathways involved in AR
 - ▶ Probiotics - limited data; 12 RCTs gave mixed results
 - ▶ Herbal Preparations - effectiveness and safety have not been established
 - ▶ Other - Prevention
 - ▶ Breastfeeding

Oral Allergy Syndrome

▶ Pollen Food Syndrome

- ▶ Cross-reacting allergens from both pollen and raw fruits, vegetables, some tree nuts
- ▶ Immune system recognizes the pollen and similar proteins in the food causing an allergic reaction
- ▶ More common in older children, teens, you adults
- ▶ Birch, Ragweed, Grass pollens

The Cross Reactors

ENVIRONMENTAL ALLERGEN	FRUITS	VEGETABLES
TREE POLLEN (Typically birch and alder)	Apple, Apricot, Cherry, Fig (still being studied), Kiwi, Lychee, Nectarine, Pear, Plum, Peach, Prune, Persimmon, Strawberry	Beans, Carrot, Celery, Green pepper, Potato, Tomato, Parsnip, Peas
GRASS	Date, Fig (still being studied), Kiwi, Melons, Orange, Tomato, Watermelon	Peas, Potato

The Cross Reactors

NUTS	SPICES	OTHER FOODS
Almond, Hazelnut, Walnut	Anise, Basil, Dill, Caraway, Chicory (early evidence only), Coriander, Cumin, Fennel, Marjoram, Oregano, Parsley, Paprika, Pepper, Tarragon, Thyme	Lentils, Peanut, Soybean, Sunflower seeds
		Peanut
	Anise, Basil, Caraway, Coriander, Dill, Fennel, Marjoram, Mustard, Oregano, Paprika, Parsley, Pepper, Tarragon, Thyme	Chamomile, Sunflower seeds

The Cross Reactors

ENVIRONMENTAL ALLERGEN	FRUITS	VEGETABLES
<p>MUGWORT (More common in Europe and Asia)</p>	<p>Apple, Melons, Orange, Peach, Tomato, Watermelon</p>	<p>Carrot, Celery, Green pepper, Onion, Parsnip</p>
<p>RAGWEED (pollinates in autumn)</p>	<p>Banana, Melons (e.g. cantaloupe, honeydew), Watermelon</p>	<p>Cucumbers, Zucchini</p>

The Cross Reactors

NUTS	SPICES	OTHER FOODS
	<p>Anise, Basil, Caraway, Coriander, Dill, Fennel, Marjoram, Mustard, Oregano, Paprika, Parsley, Pepper, Tarragon, Thyme</p>	<p>Chamomile, Sunflower seeds</p>

Chart sources: PubMed.gov

OAS Symptoms

- ▶ Itchy mouth
- ▶ Scratchy throat
- ▶ Swelling of lips, mouth, tongue, throat

Usually confined to one area, subside quickly

Resources:

American Academy of Allergy and Immunology
(aaaai.org)

American College of Asthma, Allergy and Immunology
(acaai.org)

ncbi.nlm.nih.gov

American Family Physician (www.aafp.org)

cdc.gov

Saving lives... one nose at a time!

