Allergy-Immunology Outpatient Rotation

Welcome to Allergy! Since we are a subspecialty (of pediatrics and internal medicine) and see mostly patients with chronic problems, our approach to patient care is a little different from what you'll see in your other rotations this year. We want you to enjoy this brief rotation — please let us know if you have specific questions or concerns.

Objectives

1. To gain further experience in the outpatient evaluation and management of children, and in interacting with children and their parents, in a subspecialty setting.
2. To apply basic science knowledge, clinical reading, and clinical skills to patient care.

Important points (read before coming to clinic the first time)

1. Morning clinic on Monday, Tuesday, Wednesday, and Thursday begins at about 8 AM with a brief orientation. If you are late, you will miss this important orientation session, so don't let anyone tell you to go somewhere else. Being late can affect your "professionalism" assessment. On the first Tuesday of every month, the morning begins after Problem Case Conference. You should go to that, and then come to clinic as soon as it's over.
2. Afternoon clinics begin at 1 PM. If you have a noon conference, please come back as soon as it's over. We know that these can run late.
3. If you have a noon or 4:30 PM lecture, or will have to miss clinic, please let the attending know, with as much advance notice as possible.
4. Before you come the first time, please review the Peds 5000 lecture handout (especially if you haven't had the lecture yet), and the required reading. On the first day, you will be given a list of drugs frequently prescribed in the allergy clinic. It is for your reference only; you are not expected to memorize names and dosages. The encounter forms we use will be reviewed with you, and you will be shown how to use our chart note system.
5. If you are going into ENT, internal medicine, pediatrics, or family medicine you may wish to consider a month-long allergy-immunology elective. During this time, you will see both children and adults, and will have the opportunity to prepare and present a topic summary.

Allergy-immunology is a conjoint subspecialty of medicine and pediatrics. Prospective fellows usually apply during the second year of their residency for a training period of 2 years (with an optional 3rd year). Sitting for the board examination in allergy-immunology requires completion of an approved allergy-immunology training program and board certification in medicine or pediatrics. Thus, all of the fellows you will work with in the clinic are board certified or board eligible in medicine or pediatrics.

Your chart note is the official record of the day's visit. It may be submitted as a write-up or entered into our computer chart note program. We recommend that you use the computer, and we have a wireless Tablet PC that can even be taken into the exam room with you, if you wish. We realize that some of you will have had extensive experience doing chart notes in other clinics, and that this will be a first time for others of you. We have templates for you to make history taking a bit easier.

During the short time you are with us, you should have the opportunity to see 1-4 new patients and several followup patients. Feedback is important to us — faculty and fellows were all once junior students, and we know how challenging the clerkships are. Please don't hesitate to ask questions or make suggestions for improving the rotation.

rev. 5/07

Allergy-Immunology

William K. Dolen, MD
Medical College of Georgia

Objectives:

On completion of this lecture, the student should be able to

1. Compare and contrast presenting signs and symptoms and the clinical course of the common cold versus allergic rhinitis.
2. Discuss etiology, pathogenesis, evaluation, and management of asthma in children.
3. Discuss similarities and differences in management of allergic rhinitis and asthma.
4. Identify patients who are candidates for Hymenoptera allergy testing and treatment.
5. List other "atopic diseases" often managed by allergists in collaboration with primary care physicians.
6. Explain circumstances under which a child with "too many infections" should be evaluated for possible immunodeficiency.

Before the Lecture

1. Read about allergic rhinitis and asthma in the supplied articles.
2. If you have time, review handouts on allergic diseases and immunodeficiency from last year's microbiology course. (You *didn't* throw them away, did you?) Remember who gives most of the immunology lectures?
3. Be ready to discuss yourself or a patient you have seen with a common cold, allergic rhinitis, or asthma.

Allergic Rhinitis

Clinical Features

1. Nasal pruritus
2. Watery rhinorrhea
3. Sneezing
4. Nasal congestion

The above 4 define the syndrome of rhinitis - a universal illness. In allergic rhinitis, there is eosinophilic inflammation; the first three are largely due to histamine release; nasal congestion in chronic rhinitis is largely due to continued inflammation. If someone with chronic rhinitis also reports ocular pruritus, lacrimation, erythema then allergic rhinitis is almost certain.

Differential Diagnosis

1. Nonallergic rhinitis with eosinophilia
2. Common cold; other infections; sinusitis, nasal polyps
3. Physical (irritant) rhinitis ("vasomotor")
4. Rhinitis medicamentosa
5. Mechanical obstruction (adenoids, septal deviation, etc.)

Evaluation

1. History and physical are most important
2. A nasal smear is useful to look for eosinophils, a hallmark of allergic rhinitis (although not pathognomonic)
3. Skin testing or specific IgE immunoassays to define specific allergens when symptoms are perennial or when allergen immunotherapy being considered.

Treatment

1. Environmental control - first and foremost
2. Saline nasal spray - soothing, inexpensive, and surprisingly effective for some people
3. Antihistamines, decongestants for symptom relief
4. Anti-inflammatories (cromolyn, antileukotrienes, topical steroids)
5. Antimuscarinics (ipratropium)
6. Allergy shots

Antihistamines

1. Reduce itching (nasal, ocular), sneezing, rhinorrhea
2. Some have a *minimal* effect on congestion
3. Sedating: significant CNS and performance effects in many individuals
4. Nonsedating: optimal workplace safety and school performance
   - Cetirizine (Zyrtec): “less” sedating
   - Fexofenadine (Allegra):
   - Loratadine (Claritin, Alavert, generic); desloratadine (Clarinex)
5. Topical: azelastine (Astelin)

Decongestants

1. Oral: pseudoephedrine
2. Combination antihistamine-decongestants

Topical agents

1. Azelastine (Astelin): an antihistamine; approved for nonallergic rhinitis
2. Topical decongestants (oxymetazoline, phenylephrine)
3. Cromolyn (Nasalcrom)

4, Antimuscarinics: ipratropium (Atrovent)

Topical steroids

1. reduce inflammation; decrease rhinorrhea, pruritus, nasal obstruction
2. generally not helpful in allergic conjunctivitis
3. first-line therapy for moderate-severe persistent rhinitis
4. possible compliance issues in adults and children
5. side effects: irritation, drying, epistaxis
6. multiple agents available in a hugely competitive market

Allergy shots

1. only treatment that interferes with basic mechanisms of the allergic response
2. Indications: allergen specific IgE, correlating with symptoms; poor response to indoor avoidance measures; poor symptom control, adverse effects, or high cost of medications
3. occupational requirements

ARIA guidelines for rhinitis

1. mild vs. moderate-severe
2. intermittent vs. persistent

Allergy consultation

1. persistent rhinitis; inadequate Sx relief from environmental control or medications; medication side effects; any need for allergy testing; questionable diagnosis; coexisting or complicating conditions

Asthma

Clinical Features

Asthma is an eosinophilic inflammatory disease of the airways characterized by:

1. Recurrent episodes of wheezing, cough, dyspnea
2. Exercise intolerance
3. Trigger factors: infections (usually viral), allergy, exercise, irritants
4. Reversible obstruction on spirometry
5. Other than history and physical, the best test for asthma is demonstration of clearcut reversibility of the FEV1 following bronchodilator.

Differential Diagnosis

1. Bronchitis, bronchiolitis, pneumonia, cystic fibrosis
2. Foreign body, aspiration
3. Chronic bronchitis, emphysema
4. ABPA, hypersensitivity pneumonitis
5. Heart disease
6. Etc., etc.

Evaluation

1. History and physical are most important
2. Forced expiratory spirometry pre/post bronchodilator (age 5 or so and up)
3. Skin testing or specific IgE immunoassays to define specific allergens when symptoms are perennial or when allergen immunotherapy being considered.

Treatment

1. Be sure about diagnosis. If therapy is not effective, reevaluate the diagnosis!
2. Patient education is essential (as with any chronic disease)
3. Environmental control - first and foremost for allergic patients
4. Beta-2 adrenergic agonists for symptom relief (albuterol, pirbuterol, etc.)
5. Anti-inflammatories (cromolyn)
6. Allergy shots
7. Topical steroids (beclomethasone, fluticasone, budesonide, etc.)
8. Antileukotrienes
9. Long-acting beta agonists (salmeterol, formoterol)
10. Steroid + LABA (fluticasone+salmeterol; formoterol + budesonide)
11. Anticholinergics (ipratropium)
12. Oral steroids; the “unusual” (gold, immunosuppresives, etc.)
13. Anti-IgE (omalizumab)

Stinging Insect Reactions

1. Children and adults who have had systemic reactions to insect stings (honeybee,wasp, hornet, fire ant, etc.) are candidates for allergy testing and venom immunotherapy.
2. Children and adults who have had large local reactions are not candidates for testing and shots.
3. Children who have had cutaneous reactions only are not candidates for testing and shots.

Other Atopic Diseases

1. Atopic dermatitis (the itch that rashes; often triggered by allergens)
2. Chronic urticaria (more frequently allergic in children than in adolescents and adults)
3. Anaphylaxis
4. Adverse food and drug reactions

Too Many Infections

1. Too many infections? The wrong kinds of infections?
2. Viral vs. bacterial; documented vs. nondocumented
3. Evaluation begins with history and physical, routine labs as indicated
4. Screening evaluation: CBC with diff and platelet count; CH50, AH50, NBT or DHR (maybe); levels of IgG, IgA, IgM, IgE; IgG subclasses (maybe); consider antibody (e.g., tetanus, pneumococcal) titers; anergy panel; HIV-1 antibody & antigen.
5. More detailed tests for study are also available

JMS Skills in Allergy-Immunology

1. Relate basic science immunology to patients
2. Read, interpret forced expiratory spirometry
3. Teach use of metered dose inhaler, spacer, peak flow meter
4. Apply, read, and interpret "modified prick" skin tests, specific IgE immunoassay results
5. Be able to order and interpret a "screening evaluation" for suspected immunodeficiency

Further Reading (required)

Lemanske R, Busse WW. Asthma. J Allergy Clin Immunol 2003;111:S502-19
Dykewicz MS. Rhinitis and sinusitis. J Allergy Clin Immunol 2003;111:S520-29

Further Reading (optional)

American College of Allergy, Asthma and Immunology: http://www.acaai.org
    Allergy-Clinical Immunology Learning Objectives for Medical Students
    Expert Care and Immunotherapy for Asthma
    Latex Allergy Home Page
    Insect Allergy
Allergy Case Studies (CD-ROM) - located in the allergy clinic workroom
Bonilla FA, Geha RS. Update on primary immunodeficiency diseases. J Allergy Clin Immunol 2006;111:S435-41
Valentine MD. Anaphylaxis and stinging insect hypersensitivity. JAMA 1992;268:2830-3.
Sicherer SH, Sampson HA. Food allergy. J Allergy Clin Immunol 2006;111:S470-75
Greenberger PA. Drug allergy. J Allergy Clin Immunol 2006;117:S464-70
Boguniewicz M, Leung DYM. Atopic dermatitis. J Allergy Clin Immunol 2006;117:S475-80
Frew AJ. Immunotherapy of allergic disease. J Allergy Clin Immunol 2003;111:S712-19

wkd 6/97; last rev. 5/07