Allergic Disease States in Primary Care: How to Improve Your Patient Care Beyond OTC

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No Conflict of Interest

Objectives:

• Review economic burden of allergic disease states
• Review allergic states frequently seen in primary care
• Discuss treatment options available in the primary provider setting
• Review when to refer the allergic patient to a specialists for further workup and treatment options
• Will leave plenty of time for questions/your cases
BILLIONS of dollars YEARLY

According to the Journal of Environmental and Public Health in 2016 two fundamental estimates are measured in the evaluation of economic burden of disease: cost of illness and willingness to pay. Willingness to pay is the actual costs to society, but is difficult to compute and rarely available. Cost of illnesses are more often used, but less likely to calculate the full economic burden—such as “presentism”.

“Presentism”—those who are at work or school who get nothing done except emptying the Kleenex box and filling the trashcan.

BILLIONS of dollars YEARLY

Over 60 million Americans are affected by Allergic Rhinitis (AR)
3rd leading chronic disease among people 45 and younger
5th leading chronic disease among all Americans
30% of adults, and 40% of children suffer from AR
There is an upsurge in the numbers of individuals suffering from AR both internationally and here, and the number has doubled since 1995
Over 6 million lost school and work days
16 million visits to the providers office

BILLIONS of dollars YEARLY

$24.8 Billion for allergic rhinitis
$13.5 Billion for acute bronchitis
$94.5 Billion for asthma morbidity
$10.8 Billion for asthma mortality
Types of Rhinitis:

- **Allergic Rhinitis Seasonal or Perennial**
  - Occurs when the body's immune system overresponds to specific, non-infectious particles such as plant pollens, molds, dust mites, animal hair, industrial chemicals (including tobacco smoke), foods, medicines, and insect venom.
  - Antibodies, primarily IgE, attach to mast cells (cells that release histamine) in the lungs, skin, and mucous membranes. Once IgE connects with the mast cell, a number of chemicals are released.
  - One of the chemicals, histamine, opens the blood vessels and causes skin redness and swollen membranes. When this occurs in the nose, sneezing and congestion are the result.

- **Non-Allergic Rhinitis**
  - Does not depend on the presence of IgE and is not due to an allergic reaction. The symptoms can be triggered by cigarette smoke and other pollutants as well as strong odors, alcoholic beverages, and cold. Other causes may include blockages in the nose, a deviated septum, infections, and over-use of medications such as decongestants (rhinitis medicamentosa).

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What is Allergic Rhinitis??????
Per ACAAIF

- If you sneeze a lot, if your nose is often runny or stuffy, or if your eyes, mouth or skin often feels itchy, you may have allergic rhinitis.
- Allergic rhinitis, like skin rashes and other allergies, develops when the body's immune system becomes sensitized and overreacts to something in the environment that typically causes no problem in most people.
- Allergic rhinitis is commonly known as hay fever. But you don't have to be exposed to hay to have symptoms. And contrary to what the name suggests, you don't have to have a fever to have hay fever.

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What is Allergic Rhinitis??????
Per MedlinePlus--

- Allergic rhinitis is a diagnosis associated with a group of symptoms affecting the nose. These symptoms occur when you breathe in something you are allergic to, such as dust, animal dander, or pollen. Symptoms can also occur when you eat a food that you are allergic to.
- The immune system normally responds to harmful substances such as bacteria, viruses and toxins by producing symptoms such as runny nose and congestion, post-nasal drip and sore throat, and itchy ears and eyes. An allergic reaction can produce the same symptoms in response to substances that are generally harmless, like dust, dander or pollen. The sensitized immune system produces antibodies to these allergens, which cause chemicals called histamines to be released into the bloodstream, causing itching, swelling of affected tissues, mucus production, hives, rashes, and other symptoms. Symptoms vary in severity from person to person.
What Triggers Allergic Rhinitis??????

• An allergen is something that triggers an allergy. When a person with allergic rhinitis breathes in an allergen such as pollen, mold, animal dander, or dust, the body releases chemicals that cause allergy symptoms. Can also be ingestion of foods.

• This is an immunoglobulin E response and specific to allergy

What is Allergic Rhinitis??????

Swelling and leaking of fluid causes rhinorrhea and conjunctivitis symptoms thus producing rhino-conjunctivitis.

There are varying degrees of symptoms from patient to patient. Not all have to exhibit the same. In fact there is no correlation between IgE serum level and severity of disease.

What is seen in Allergic Rhinitis??????

• Symptoms that occur shortly after you come into contact with the substance you are allergic to (the tip of the iceberg) may include:
  • Itchy nose, mouth, eyes, throat, skin, or any area
  • Problems with smell
  • Runny nose
  • Sneezing
  • Watery eyes
  • Eczema/hives—with food allergens
Signs of AR--Acute

- Puffy eyelids
- Open mouth breathing
- Rhinorrhea
- Sneezing
- Sneezing
- Coughing
- Irritable

What is Allergic Rhinitis??????

- Symptoms that may develop later (the body of the iceberg under water) include:
  - Stuffy nose (nasal congestion)
  - Coughing may include wheezing
  - Clogged ears and decreased sense of smell
  - Sore throat
  - Dark circles under the eyes
  - Puffiness under the eyes
  - Fatigue/irritability/trouble concentrating
  - Headache
  - Cough
  - Trouble sleeping

Signs of AR--Chronic

- Allergic Salute
- Allergic shiners
- Rhinorrhea
- Erythema of eyes
- Facial characteristics of chronic disease-elongated face
- Nasal speech
- Recurrent acute/chronic sinusitis
Now we know what it is....

What are we going to see in primary care???

AR=one airway

Other problems associated with AR:
• Acute and /Recurrent Chronic Sinusitis
• Allergic Conjunctivitis
• Otitis
• Sleep Apnea
• Asthma
• Reflux
• Eczema/Urticaria
• Nasal Polyps
• Recurrent Upper Respiratory

Sinusitis

• Acute and chronic sinusitis are identified in 31 million Americans each year. AR has been documented to be a predisposing factor in 30 percent of patients with acute maxillary sinusitis, in 78 percent of individuals suffering with extensive sinusitis, and in up to 67 percent of patients who had symptoms of chronic sinusitis with unilateral involvement. In contrast, 80 percent of patients with bilateral sinusitis suffered with AR. Furthermore, an association between extensive sinus disease and asthma was documented in 71 percent of patients.
Otitis Media with Effusion & Dental disorders

• Acute otitis media with effusion (OME) is an inflammatory disorder of the middle ear frequently associated with Eustachian tube dysfunction and the loss of hearing in children. OME is commonly linked with AR. This AR-linkage is corroborated by observing that the prevalence AR in children with OME ranges up to 50 percent. Allergic rhinitis is a risk factor for the development of orthodontic malocclusions. The incidence of malocclusions is almost three times greater in obligate mouth breathers (a common finding in moderate and severe AR) than in unaffected individuals.

Sleep disorders

• AR has a profound effect on normal nocturnal breathing. This in turn contributes to aberrant patterns of sleep. Approximately 57 percent of adult patients and 88 percent of pediatric patients with AR experience sleep disruptions. These sleep disruptions contribute to daytime fatigue, learning performance disorders, work inefficiency, behavioral disorders, and attention-deficit disorders. AR is a risk factor for obstructive sleep apnea syndrome (OSAS) due to the associated nasal obstruction, enlarged tonsils and adenoids, and an elongated face characteristic of chronic AR, all of which constitute a smaller upper airway size. The size of the upper airway determines the severity of the OSAS. Thus, adequate treatment of AR would diminish the severity of OSAS. Effective treatment of AR may prevent the occurrence of OSAS and reduce the severity of existing OSAS.

Respiratory infections

• There is a reciprocal relationship between AR and respiratory viral infections. Childhood viral infections have been reported as risk factors for the development of allergic rhinitis and asthma. In contrast, the expression of intercellular adhesion molecule 1, which is the receptor for 90 percent of human rhinoviruses, is upregulated upon allergen exposure. This may in turn enhance the susceptibility of atopic individuals to rhinovirus infections. Nasal mucociliary clearance is the first line of defense of the respiratory tract ciliated epithelium against inhaled pathogens. AR, as a rhinopathic disorder is in part, characterized by alterations in nasal mucociliary clearance. In AR, the rhinopathic consequence is impaired mucociliary clearance which investigators have associated with a predisposition to respiratory infections.
Headache, pain, cough

- Symptoms of AR can significantly reduce quality of life. Adults and children demonstrate physical discomfort, psychomotor dysfunction; disrupted sleep results in daytime somnolence and reduced alertness; impaired cognitive functioning, job performance, and learning often are diminished; and lost time from work, school, and leisure activities occurs.

Eczema

- Allergic eczema mostly related to a food allergen
- Most common food allergens are milk (mostly children), egg, wheat, soy, tree nuts, peanuts, fish/shellfish (mostly adults)
- Seeing increasing reports of beef and pork allergies related to tick bites (Alpha Gal)
- Areas most affected: AC, behind knees, ankles, wrists, hands-- can be anywhere
- Very serious condition: infection, self esteem, depression

Urticaria

- Multiple types: allergic, cold, heat, pressure, vibratory, idiopathic etc.
- Treatment aimed at control and trying to find cause which can be difficult
- R/O: Allergic (including medications such as NSAIDS), infections, endocrine (thyroid disease or blood sugar issues) and cancers
- Included on allergic are the "contact allergens" such as dyes, adhesives, metals = Patch testing
- Usually requires polypharmacy to control (H1 + H2 blockage)
- ****TRY TO AVOID PO/IM/IV STEROIDS*****
Asthma
• Incidence of AR in asthmatic adults is as high as 60%, perhaps higher in children
• Allergen exposure and development of AR often precedes the onset of asthmatic symptoms suggesting an etiologic relationship
• AR has been defined as a risk factor for the development of asthma
• Treatment of AR reduces the incidence and severity of asthma
• Subcutaneous immunotherapy has proven to prevent the onset of asthma in some, and others it diminishes the severity and morbidity as it addresses the core pathophysiology of AR

Treatment Options for AR

• Environmental Control Measures:
  1. Windows Down at home, UP in the car
  2. Showering, rinsing nose, washing hair and changing clothes when coming inside from being outside for extended time
  3. Avoid outside in early morning hours if possible
  4. Not hanging clothes/sheets outside to dry
  5. Pets out of the home...at least try out of the bedroom
  6. Humidity level around 50%--dehumidifier summer/humidifier winter
  7. Mattress and pillow encasements *****
  8. Do NOT go to bed with hair wet

• Topical Nasal preparations
  1. Saline lavage (do not underestimate)
  2. Intranasal Corticosteroids: reduces swelling and mucus in the nasal passageway. The sprays work well for treating: congestion, runny nose, sneezing, itching, or swelling of the nasal passageway.
  • Over the counter: Flonase, Rhinocort, Nasacort etc..
  • Prescription: Nasonex, Qnasl, Zetonna and some of the above in generics (less covered by insurance everyday it seems)
Treatment Options for AR

3. Antihistamine nasal sprays/combination: prescription
   • azelastine (Astelin, Astepro), olopatadine (Patanase): relieve congestion, itchy and runny nose, and sneezing. They usually cause less drowsiness than antihistamine pills, but they still may make some people sleepy.
   • Azelastine/fluticasone (Dymista): ICS nasal spray and antihistamine nasal spray together

   **Beware:** OTC sprays are very confusing to patients. Make sure they understand what to get. I am seeing an increase in Afrin dependence.

4. Antihistamines—prevent histamines from attaching to your cells and causing symptoms such as itching, sneezing and runny nose
   • Older generations—ChlorTab available otc, can be sedating
   • Newer generations—levocetirizine (Xyzal), cetirizine (Zyrtec), fexofenadine (Allegra) and loratadine (Claritin) available OTC

5. Leukotriene modifiers—
   • Montelukast (Singulair) is a selective and orally active leukotriene receptor antagonist that inhibits the cysteinyl leukotriene CysLT1 receptor. Approved for treatment of asthma and allergies—I anticipate to be otc soon
   • Zafirlukast (Accolate) less commonly prescribed

6. Decongestants—vasoconstrictors to help relieve tissue congestion
   • Available in tablet and nasal preparations
   • OTC and prescription
   • Not a good product to use on a daily basis due to rebound affects
   • Examples: pseudoephedrine (any of the "D" products), phenylephrine, Oxymetazoline (Afrin) etc
   • Can be used sparingly for severe symptoms (no longer than 3 days)—if used longer than 3 days, usually require oral prednisone to stop the rebound effects (rhinitis medicamentosa)
Treatment Options for AR

7. Antihistamine eye drops—
   • OTC—Zaditor, Systane Ultra etc.. (beware of those containing vasoconstrictors)
   • RX—Olopatadine (Pataday, Patanol), azelastine (Optivar)
   • Steroid eye drops I mainly leave to eye doctors

Treatment Options for the Skin

1. Avoidance of the offending agent if possible: food, dust mites, pollen, animals
2. Good skin care: hydration (20 min soaks), hydrating emollient ointment or cream, skin sealant, topical medications when needed applied consistently
3. Topical steroid creams (TAC)/non steroid creams (Elidel, Protopic, Eucrisa)
4. Goal: decrease breakage of the skin to prevent infections

Treatment options for Cough

• Treat allergies aggressively
• Albuterol ok, but make sure you are not dealing with asthma
• If patient is using more than one (1) albuterol inhaler in a year then asthma needs to be evaluated
• ICS inhalation therapy still remains the number one recommended treatment for inflammation of the lungs
• montelukast (Singulair) can be added as add on therapy to ICS
• Use peak flow meters for monitoring
• Chronic cough can lead to reflux and vocal cord dysfunction
Medication Potpourri--

If medications and environmental control measures are not doing it......

It is time to refer

At the Allergists----

- Review of medications tried—what has helped/what has not?
- What symptoms are interfering in their life the most?
- Any previous allergy testing?
- Is there a seasonal component? Or is it all the time?
- Are there any known triggers? [Cats/Dogs/Foods/Pollens]
- Are there any components of Cough? Shortness of breath? Wheezing?
Testing-- Blood testing/RAST:

- Can be done in the primary care, but limited ability to do anything else besides environmental control measures and medications with the results.
- Used in the allergist office when skin testing can not be used. (Patients can not stop antihistamines, are on medications that interfere with skin testing such as antidepressants, some neurologic medications, sleep aids and otc meds/supplements such as melatonin)
- Not the preferred method of testing-skin more specific and sensitive
- Does give IgE level (IgE level does not indicate severity of disease)

Scratch Testing

- Skin tests for allergic disorders have been around since the 1860s
- Prick/puncture. A diluted allergen is applied with a prick or a puncture on the surface of the skin.
- Intradermal. Using a 26- to 30-guage (very thin) needle, a diluted allergen is injected immediately below the skin surface.
- Results in 15 minutes
- The “wheal”—a raised, red, itchy bump and surrounding “flare”—indicates the presence of the allergy antibody response
- Patch testing for non animal/plant kingdom
Spirometry, Nitric Oxide and Alpha 1

- For anyone with complaints of cough, shortness of breath or a history of chronic/recurrent cough. Also for anyone who has an albuterol inhaler. Remember: asthma is a variable disease and estimates of up to 60-80% of asthmatics are allergic driven
- Spirometry tells us lung volume status
- Nitric Oxide tells us lung inflammatory status (?? Eosinophilic??)
- Alpha 1 antitrypsin deficiency tells us if there is a genetic component of the lung disease (free finger stick done in office)

Treatment Plan

- Environmental control measures reviewed
- Medications reviewed/changed—ONLY trying to treat symptoms
- Immunotherapy—get rid of disease state
  - Goal: no meds/no symptoms
  - Targeted therapy to what the patient is specifically allergic to

Immunotherapy

- The Economic Impact of Immunotherapy In the majority of cases, immunotherapy, results in: significant clinical improvement, the diminished utilization of antihistamines and nasal steroids, diminishing the severity of allergic asthma and reducing the utilization of asthma medications, and diminishing the severity of the other comorbidities of sinusitis, OME, respiratory infections and sleep disorders. As a consequence, there are fewer physician visits, and fewer hospitalizations. These outcomes diminish the economic-burden associated with AR and comorbidity treatment.
Immunotherapy

- Most allergy sufferers spend their entire lives battling their symptoms without knowing the exact cause of their reactions. Often, they treat their undiagnosed allergies with over-the-counter and prescription drugs that only mask the symptoms. Over 100 years of scientific research and medical practice have proven that the only lasting relief from allergies is immunotherapy, which induces immunologic tolerance by introducing a patient to the administration of safely increased doses of an allergen(s).

Immunotherapy

- Allergen Immunotherapy (IT) is a therapeutic modality directed towards diminishing a patient’s sensitivity to allergens. It involves introducing the patient to increasing amounts of an allergen (e.g. pollen, mold) through a series of customized single-injections, over the course of several years. Immunotherapy desensitizes the patient to the allergen that triggers their symptoms, ultimately allowing patients to be exposed to these allergens without any subsequent allergic reaction.

Immunotherapy

- IT is the only known disease-modifying treatment for allergies. The results of IT can be life-changing and significantly increase the quality of life while simultaneously diminishing morbidity. It has been shown to diminish symptoms of allergic rhinoconjunctivitis, and decrease the severity of allergic asthma. Remarkably, IT also prevents the onset of new allergies and allergic asthma.
Biologics in the Allergist Office

- Omaluzimab (Xolair)—approved for patients 6 years and above for the treatment of uncontrolled allergic (IgE) asthma (SQ)
- Omaluzimab (Xolair)—approved for patients 12 years and above for chronic idiopathic urticarial (SQ)
- Mepolizumab (Nucala)—approved for patients 12 years and above for severe eosinophilic asthma (SQ)
- Benralizumab (Fasenra)—approved for patients 12 years and above for eosinophilic asthma (SQ)
- Reslizumab (Cinqair)—approved for patients 18 years and above for eosinophilic asthma (IV infusion)
- Dupilumab (Dupixent) approved for adults with moderate to severe eczema (SQ)

Questions????????

Thank you
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