

Runny Nose, Sneezing, Itchy Eyes...

I gotta get some relief!

A Review of Allergic Rhinitis

Allergic rhinitis, sometimes referred to as allergies or hay fever, is a common airway disorder that affects 20 to 40 million people in the United States annually, including 10 to 30 percent of adults and 40 percent of children. It is estimated that 3.5 million workdays and 2 million school days are missed each year due to allergic rhinitis, with an estimated annual prescription cost of \$6 billion. Although much discomfort and expense are associated with this disorder, nonprescription and prescription medications are effective in relieving symptoms and in lessening the disorder's impact. However, before medication is used, an understanding of types of allergies, causes, risk factors, and signs and symptoms is needed.

Two types of allergic rhinitis exist: season and perennial. **Seasonal allergies** are generally more common and cause problems only at certain times of the year. Usually, seasonal allergies are caused by airborne plant pollens. Since pollinating seasons vary geographically, the occurrence of seasonal allergies largely depends on location of residence. In Alabama, tree pollen is generally at its peak March through May whereas grass pollen peaks April through November. Weeds, such as ragweed, pollinate in Alabama during the months of April through October. Therefore, the most common times of seasonal allergy flares occur during early spring to late fall. In contrast to seasonal allergies, **perennial allergies** cause symptoms continuously throughout the year due to constant allergen exposure. Household allergens are typically the causative agents of perennial allergies and include such things as house dust mites, cockroaches, mold spores, cigarette smoke, and pet danders. Occupational aeroallergens, such as wool dust, latex, resins, biological enzymes, organic dusts such as flour, and various chemicals, can also cause symptoms associated with allergic rhinitis. Avoidance of the causative allergen is essential

to reduce symptoms. Techniques to avoid triggers include keeping doors and windows closed to keep out outdoor allergens, reducing first- or secondhand exposure to cigarette smoke, eliminating common sources of dust (rugs, stuffed animals, carpet, etc.), and venting moisture generating areas to reduce mold. While two types of allergic rhinitis exist, it is important to note that the types may overlap causing an individual to have continuous symptoms but experience flares or an increase in symptoms during certain times of the year.

In both seasonal and perennial allergies, an exposure to an allergen causes an inflammatory response in the mucous membranes that line the nose and sinuses. The inflammatory response is complex and involves many cells and mediators. The most important

mediator is histamine, which causes enlargement resulting in nasal mucus secretion. Other mediators response include kinins, leukotrienes. After exposure to an allergen, symptoms often present in two distinct phases: an early phase and a late phase. Early phase symptoms occur



causes vascular congestion and increased permeability that cause the inflammatory response. Other mediators include prostaglandins, and leukotrienes. After exposure to an allergen, symptoms often present in two distinct phases: an early phase and a late phase. Early phase symptoms occur

within minutes of the exposure and include itching of the eyes, nose or mouth, sneezing, and rhinorrhea (runny nose). A late phase response may occur hours later, with the main symptoms of congestion and nasal obstruction. Other symptoms that may occur include an impaired sense of smell, postnasal drip, sore throat, hoarseness, and watery eyes. Some individuals also experience fatigue or tiredness, irritability, loss of appetite, and difficulty sleeping. Although these symptoms are certainly bothersome, effective nonprescription and prescription medications are available to lessen the severity of these reactions.

Oral antihistamines and intranasal corticosteroids are the two predominant classes of medications used to combat allergic rhinitis.

Severity and duration of a patient's symptoms may determine if one or more medications should be used. Alternative agents, such as mast cell stabilizers, decongestants, and antileukotrienes, can also be considered. Since allergic

rhinitis cannot be "cured," treatment goals are to lessen the symptoms to improve the patient's quality of life.



Oral antihistamines are generally considered first-line therapy for allergic rhinitis due to their effectiveness in reducing sneezing, itching, and watery nose and eyes. Antihistamines are separated into two classes: first generation and second generation. First generation products include chlorpheniramine (Chlor-Trimeton), diphenhydramine (Benadryl), clemastine (Tavist), phenindamine (Nolahist) as well as numerous others. First generation antihistamines are generally available without a prescription and are relatively inexpensive. Although first generation antihistamines are effective, the main disadvantage to their use is the drowsiness and sedation that they cause. The second generation antihistamines are newer medications that cause little to no sedation and still maintain efficacy. Second generation antihistamines include fexofenadine (Allegra), loratadine (Claritin), and desloratadine (Clarinex). The recent nonprescription availability of loratadine gives patients the opportunity to practice self-care with a nonsedating second generation antihistamine. Adverse reactions that may be associated with all antihistamines include drowsiness, dizziness, fatigue, headache, and dry mouth. Second generation antihistamines have a lower incidence of these side effects compared to the side effects of first generation products. These are susceptible to individual variation and may still cause side effects. Antihistamines should not be used by individuals who are hypersensitive to

the drug, by nursing mothers, or by patients with narrow-angle glaucoma, stenosing peptic ulcers, symptomatic prostatic hypertrophy, asthma attacks, bladder neck obstruction, or pyloroduodenal obstruction. Antihistamines should not be used concurrently with monoamine oxidase inhibitors (MOAI) or administered to newborn or premature infants.

For more severe symptoms of seasonal allergies or treatment of perennial allergic rhinitis, intranasal corticosteroids are the primary drugs of choice. Corticosteroids are beneficial in allergic rhinitis due to their ability to decrease inflammation caused by exposure to an allergen. Common nasal corticosteroids include beclomethasone (Beconase AQ), budesonide (Rhinocort), fluticasone (Flonase), and flunisolide (Nasarel), all of which are available by prescription only. Topical corticosteroids are generally associated with only minor side effects, such as sneezing, stinging, headache, and nose bleeds. Patients should know that peak effects will not be seen until after 2 to 3 weeks of continuous use. Patients should also be warned that proper administration techniques must be used for the medication to be effective. Therefore, all patients should be shown the appropriate administration techniques for nasal steroids.

Alternative agents for allergic rhinitis include mast cell stabilizers, decongestants, and antileukotrienes. Cromolyn is a mast cell stabilizer, which is sold over-the-counter as Nasalcrom. By stabilizing the mast cell, this drug prevents the release of mediators, particularly histamine, that cause the symptoms of allergic rhinitis. Because of this unique mechanism, it must be initiated before the onset of symptoms; once symptoms appear, this drug is no longer beneficial. One disadvantage to this drug is that it requires dosing 4 times daily. Although the dosing schedule is tedious, it is one of the first-line therapies for children due to its safety profile. Decongestants, such as pseudoephedrine (Sudafed), are occasionally beneficial for nasal congestion associated with allergic rhinitis, but do not improve other symptoms such as

sneezing, itchy or watery eyes, or runny nose. Decongestants are available without a prescription in intranasal or oral dosage forms. Although decongestants are effective, they are often inadvisable and have warnings that limit their use in certain populations. Always consult a pharmacist before initiating therapy with any decongestant.

Montelukast (Singulair) is another treatment option for allergic rhinitis and is currently available by prescription only. Montelukast works by blocking the leukotriene receptor, which ultimately results in decreased allergic symptoms. Efficacy of montelukast as single drug therapy is still being investigated.

In summary, allergic rhinitis is an inflammatory disorder that affects millions in the United States and results in numerous missed work and school days. The usual symptoms of allergic rhinitis include runny nose; sneezing; itchy, watery eyes; and nasal congestion. These symptoms can be alleviated using effective medication, including antihistamines and nasal corticosteroids. The length and severity of symptoms will dictate what product should be used. Generally, for mild to moderate seasonal allergies, a first or second generation antihistamine, such as chlorpheniramine or loratadine, should be effective. If symptoms are severe or last year-round, see your pharmacist or physician to determine what treatment option is most appropriate. Alternative agents may be considered as necessary. Table 1 provides an overview of types of medications as well as usual adult dosages and side effects. Always feel free to discuss your



Remember to always ask your pharmacist for advice about allergy medications.

condition with your local pharmacist. He or she will be able to help you choose a medication tailored to treat your specific symptoms.

Table 1: Selected Medications Dosing and Adverse Effects

Medication Name	Usual Adult Dosing	Adverse Effects	Legend Status
First Generation Antihistamines			
chlorpheniramine (Chlor-Trimeton)	4 mg every 4 to 6 hours	Drowsiness, headache, tiredness	OTC
diphenhydramine (Benadryl)	25 to 50 mg every 6 to 8 hours	Decreased blood pressure, increased heart rate, severe drowsiness	OTC
clemastine (Tavist)	1.34 mg twice daily to 2.68 mg 3 times daily	Incoordination, sedation	OTC
phenindamine (Nolahist)	25 mg every 4 to 6 hours	Drowsiness, dizziness	OTC
Second Generation Antihistamines			
fexofenadine (Allegra)	60 mg twice daily or 180 mg once daily	Headache, dizziness	RX Only
loratadine (Claritin)	10 mg once daily	Headache, tiredness	OTC
desloratadine (Clarinex)	5 mg once daily	Headache, tiredness	RX Only
Nasal Corticosteroids			
beclomethasone (Beconase AQ)	1 to 2 inhalations in each nostril once daily	Nasal burning or stinging, nose bleeds	RX Only
budesonide (Rhinocort)	2 sprays in each nostril in the morning and evening	Nose bleeds, nasal stinging	RX Only
fluticasone (Flonase)	2 sprays per nostril twice daily	Headache, fever	RX Only
flunisolide (Nasarel)	2 sprays in each nostril twice daily	Nose bleeds, nasal stinging	RX Only
Mast Cell Stabilizers			
Cromolyn (Nasalcrom)	1 spray in each nostril 3 to 4 times daily	Increase in sneezing, nasal burning, or stinging	OTC
Decongestants			
Pseudoephedrine (Sudafed)	30 to 60 mg every 4 to 6 hours	Increased blood pressure, increased heart rate, excitability, headache	OTC
Antileukotrienes			
Montelukast (Singulair)	10 mg daily in the evening	Headache, dizziness, tiredness	RX Only

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