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Enhancing compliance with allergic rhinitis therapy

By Beth Wofford, PharmD, and Deborah Silverstein, PharmD

Facilitating adherence to the prescribed regimen will enhance the clinician's ability to provide quality care, patient satisfaction, and desired treatment outcomes.

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Allergic rhinitis is one of the most common chronic conditions in the US, surpassing even heart disease.[1] Over $1 billion is spent annually for over-the-counter (OTC) and prescription medications.[2] In addition, allergic rhinitis causes an estimated annual loss of $639 million related to lost work days and diminished work performance.[3]

If not effectively treated, allergic rhinitis may lead to potential complications such as otitis media, sinusitis, facial and dental abnormalities, hearing loss, poor speech development, and recurrent upper respiratory tract infections.[1,4] Ineffective treatment is often the result of intentional or unintentional noncompliance and inadequate patient education. Therefore, it is imperative that the clinician effectively educate the patient and tailor the treatment regimen so it enhances compliant behavior.

Describing the causes

Allergic rhinitis is caused by a hypersensitive response to foreign allergens mediated by IgE antibodies.[4] Clinicians need to alert patients to the most common allergens, which include pollens of grasses, weeds, and trees, mold spores, animal dander, house dust mites, insects, and foods. Irritants include tobacco smoke, strong or noxious odors, changes in temperature, and exercise.[1]

Most patients experience sneezing (primarily paroxysmal), watery rhinorrhea, itchy nose, nasal blockage, associated conjunctivitis, allergic shiners (dark circles under the eyes), and symptoms that are worse during the day than at night.

Diagnosing the condition requires a careful medical history that defines the date of onset, duration, frequency, severity, type of symptoms, and precipitating factors.[5] Other tools include IgE measurement and skin testing, which is useful when used with the patient's medical history; however, it may be expensive and requires additional clinic visits.[6]

Selecting the right therapy

The first step in managing allergic rhinitis is to educate the patient on the most direct method of prevention: avoidance of the offending allergens and irritants. Although it may be difficult for patients to eliminate all potential offending agents, it is helpful to offer specific suggestions such as using synthetic pillows and blankets, frequently washing bedding in hot water, and wearing a mask while cleaning. A list of practical tips (see page 34) can assist in patient education.

Pharmacologic management. A variety of OTC and prescription agents are available for the treatment of allergic rhinitis. The clinical and practical advantages and disadvan-

TABLE 1

Selected antihistamines: A practical and clinical comparison

Generic	Dosing interval	Anticholinergic effects	Sedation	Comments
Diphenhydramine	Every 6–8 hr	High	High	Caution—antihistamines are in many OTC products (cold and cough, nighttime, and certain pain medications). Avoid duplicate medication therapy. Use cautiously in the elderly due to anticholinergic side effects.
Clemastine	Every 12 hr	High	Moderate	
Brompheniramine	Every 4–6 hr Every 8–12 hr (time release)	Moderate	Low	
Chlorpheniramine	Every 4–6 hr Every 8–12 hr (time release)	Moderate	Low	
Pyrilamine	Every 6–8 hr	Low to none	Low	
Astemizole	Every 24 hr	Low to none	Low to none	Astemizole only: To be taken 1 hr before or 2 hr after meals. Terfenadine only: FDA recommended recall. Both products: Contraindicated in liver dysfunction, concomitant macrolide, SSRI, or antifungal use.
Terfenadine	b.i.d.	Low to none	Low to none	
Loratadine	Every 24 hr	Low to none	Low to none	Hepatic impairment: reduce frequency to every 48 hr.
Acrivastine	q.i.d.	Low to none	Low to none	Only available as a combination product with pseudoephedrine. Avoid in renal impairment (CrCl ≤ 48 mL/min).
Cetirizine	Every 24 hr	Low to none	Moderate	Renal and hepatic impairment: reduction in dose may be necessary. Elderly: reduction in dose may be necessary.
Fexofenadine	b.i.d.	Low to none	Low to none	Renal impairment: reduction in dose may be necessary.
Azelastine	b.i.d.	—	Moderate	Available only as a nasal spray.

OTC = over the counter; FDA = Food and Drug Administration; SSRI = selective serotonin reuptake inhibitor; CrCl = creatinine clearance
Adapted from references 8, 10, 11, 16-20

tages of each agent play a key role in determining medication compliance and patient satisfaction. The practical characteristics of a medication include, but are not limited to, the financial cost, frequency of administration, and side effects that may interfere with the patient's life-style. Table 1 lists selected antihistamines.

Antihistamines are the first-line agents for the prevention and treatment of allergic rhinitis symptoms.[7] They are effective in reducing nasal pruritus, watery rhinorrhea, and sneezing associated with allergic rhinitis. These agents, however, have little to no effect on nasal congestion. Both generations of antihistamines are comparable in potency and have a rapid onset of action that is seen within 15 to 30 minutes. Sedation and anticholinergic effects (such as urinary retention, dry mouth, constipation, and blurred vision) limit the usefulness of the first-generation agents, such as diphenhydramine, chlorpheniramine, and brompheniramine. Sedative effects can also cause cognitive impairment and irritability in elderly patients.

Second-generation agents, which include astemizole, loratadine, terfenadine, cetirizine, acrivastine, and fexofenadine, have minimal to no anticholinergic effects and with the exception of cetirizine, have little or no sedative effects. Azelastine, approved in late 1996 by the Food and Drug Administration (FDA), is the first prescription antihistamine nasal spray for allergic rhinitis. Side effects reported include drowsiness, bitter taste, headache, and nasal burning. Azelastine has not been shown to be more effective than the oral antihistamines.

The second-generation antihistamines, astemizole and terfenadine,

IM Patient information

Take this guide home with you and keep it handy for a quick reference. Call your physician or pharmacist if you have any questions or problems.

How to avoid the triggers of allergic rhinitis

Controlling house dust mites

- In the bedroom, use an allergen-impermeable mattress, duvet, and pillow covers.
- Thoroughly vacuum the mattress, pillows, around the base of the bed, and floor weekly. In other rooms, vacuum at least twice a week, including headrests, arms, and edge of seats.
- Replace feather pillows and woolen blankets with synthetic ones and wash them weekly at 140°F.
- Remove carpet wherever possible, particularly in the bedroom.
- Wipe all surfaces each week with a damp cloth, including window sills and tops of cupboards.
- Hang light, washable cotton curtains, and wash often.
- Use a vacuum cleaner with disposable paper bags and a filter or a vacuum with a water-reservoir.
- Wear a mask when cleaning or have someone else do the cleaning.

Dealing with pets

- If anyone in the home has allergies, don't buy a pet with fur or feathers. An allergic sensitivity may develop in time, even if it's not seen right away.
- Wash pets regularly.
- Don't allow pets in the bedroom at any time.

Coping with pollen

- Check the pollen forecast and stay inside when the count is high, keeping windows and doors closed.
- Avoid high pollen days (low humidity, warm temperature; dry, windy, sunny days; between the hours of 5 PM and 1 AM).
- Use a filter mask while gardening or mowing.

Carefully read the labels of over-the-counter drugs. Because decongestants and antihistamines can be found in cough and cold medicines, diet aids, nighttime pain medications, and health store remedies, it is important to ask your doctor or pharmacist about any nonprescription medication before taking it.

Adapted from International Rhinitis Management Working Group: International consensus report on the diagnosis and management of rhinitis. *Allergy* 1994;19(suppl):S1

This patient information sheet may be photocopied without permission of the publisher and given to patients.

have quinidine-like effects on cardiac muscle that can prolong the QT interval. Occasionally, elevated concentrations of either one of these agents can lead to potentially fatal arrhythmias.[1] An elevated plasma concentration can be the result of an excessive dose, hepatic impairment or concomitant use of macrolide antibiotics (erythromycin, clarithromycin), selective serotonin reuptake inhibitors,[8] or some oral antifungals (ketoconazole, itraconazole). Fexofenadine, an active metabolite of terfenadine, has not been reported to cause cardiovascular reactions.[9,10]

In January of this year, the FDA announced its intention "to withdraw the approval of terfenadine, terfenadine–pseudoephedrine, and generic versions of the drug." The FDA states that terfenadine containing products "are no longer shown to be safe" because other nonsedating antihistamines are now available.[11]

Since antihistamines do not reduce nasal congestion, they are often used in conjunction with decongestants. Studies have shown that combination therapy with an antihistamine and a decongestant is more effective than either of the components given alone.[12]

Topical and systemic decongestants work primarily by shrinking swollen nasal mucosa and improving ventilation.[4] Topical decongestants are known for their fast onset of action and have little or no systemic absorption. Side effects include nasal burning and stinging, sneezing, and dryness of the nasal mucosa. Prolonged use (greater than 3 to 5 days) may result in rhinitis medicamentosa. This condition is thought to be caused by severe nasal edema and reduced receptor sensitivity. As a result, topical decongestants should only be used to help patients sleep during severe rhinitis exacerbations, diagnose and evaluate upper airway disease, and aid in the administration of topical steroids.

The two most commonly used systemic decongestant agents are phenylpropanolamine and pseudoephedrine. These two agents are equally potent. The most common side effects are irritability and insomnia. Systemic decongestants should be used with caution in patients with hypertension, heart disease, seizure disorders, or hyperthyroidism.[4] Pseudoephedrine appears to be the safest of the two agents with regard to effects on blood pressure and heart rate. The use of systemic decongestants in patients taking monoamine oxidase inhibitors or methyldopa is strongly discouraged due to the potential risk of a severe hypertensive reaction.[13]

A variety of combination antihistamine and decongestant products are available OTC. These agents contain first-generation antihistamines that have sedative and anticholinergic properties and may need to be taken as often as every 6 hours. Three prescription antihistamine and decongestant combinations are also available. Loratadine and pseudoephedrine sulfate, acrivastine and pseudoephedrine, and terfenadine

and pseudoephedrine hydrochloride contain nonsedating, second-generation antihistamines. (Because of the FDA recommendation concerning terfenadine and terfenadine-containing products, terfenadine and pseudoephedrine should no longer be prescribed.)

Topical corticosteroids are the most potent medication available for the treatment of allergic rhinitis.[1] Steroids reduce pruritus, sneezing, rhinorrhea, and nasal blockage when applied to the lining of the nasal passageways. The benefits seen with topical steroids significantly reduce the need for systemic steroid treatment. Short courses of systemic agents can be used in urgent or severe cases of rhinitis except in children and pregnant women. Side effects of topical steroids include nasal burning and stinging, throat irritation, and a distinctive aftertaste. Because systemic side effects have been reported with dexamethasone spray, long-term use of this agent is not recommended.[5] Patients must be informed that it may take 2 to 3 weeks to see any improvement in symptoms.[4] Patients unaware of the slow onset of action may become dissatisfied with the medication and stop taking it before it has a chance to work. The patient must also understand the importance of reevaluation within 1 to 2 weeks of the initiation of therapy to rule out signs of local irritation or mechanical trauma.[1]

Cromolyn sodium nasal solution prevents and relieves rhinorrhea, nasal congestion, sneezing, and postnasal drip. It has recently switched from prescription to OTC status. Cromolyn is the first OTC allergy medication that both prevents and treats symptoms. It should be initiated before exposure to allergens and continued throughout the allergen season.[14] Patients must inhale cromolyn as much as six times a day.

Striving for compliance

Adherence to the treatment regimen requires active participation by *both* the healthcare professional and the patient. To be effective, the clinician must involve the patient in the treatment selection process. The approach must involve creating a practitioner–patient team, providing for good communication (especially listening), and effective patient education. Using this approach, the clinician can tailor the regimen to meet both the clinical *and* practical needs of the patient. Practical needs include but are not limited to:

Physical abilities. Can the patient physically follow the directions for administration of the medication? For instance, does the patient have difficulty swallowing the medication? Is the intended medication available in a variety of forms, such as a syrup or quick-dissolving tablet to compensate for such difficulties? Can the patient read the prescription label or perform the manual tasks involved in taking the medication?

Cost. Does the patient think the costs of therapy are worth the benefit received? Such costs include medication costs and inconvenience of taking medication (four- times-a-day compared to once-a- day dosing).

Life-style. Does the medication schedule fit the patient's life-style, or is it complex—unnecessarily disrupting the patient's daily routine? Are the side effects tolerable or are they significant enough (such as excessive drowsiness) that they interfere with daily function?

Creating a team approach, providing patient education, and tailoring the regimen to both the patient *and* the person will help enhance compliance, result in safe and effective use of the medications, and clinical outcomes and patient satisfaction will improve.[14] **IM**

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