Hay fever: It's nothing to sneeze at

KATHLEEN A. KUK

It is not caused by hay, nor associated with fever. Yet the misnomer "hay fever" has clung stubbornly to this allergic disease ever since British farmers in the 1800s attributed their watery eyes, runny noses and fits of sneezing to the autumn hay harvest.

Today, the allergic condition that afflicts 18 to 20 million Americans is more commonly known as "pollinosis" or "seasonal allergic rhinitis" (as opposed to chronic rhinitis, which persists year round). Modern scientists have made great strides in diagnosing the disease and treating the symptoms, but they are no closer than their predecessors to explaining why some people are prone to allergic attacks while others spend a snuffle-free summer.

Hay fever is actually an allergy to pollen (the powdery grains produced by male plants that are carried by bees or breeze to female plants for fertilization) or to spores of mold (a type of fungus). The ensuing allergic reaction is the unfortunate result of the immune system gone awry.

Normally, white blood cells in the body patrol for and dispose of foreign invaders. But in hypersensitive individuals, harmless substances inadvertently trigger a full-fledged attack. When pollen wafts toward a hay fever sufferer, the white blood cells produce immunoglobulin E antibodies. These foot soldiers of the defense system attach themselves to the surface of mast cells that line the nose, throat, tissues surrounding the eyes, and other mucous membranes. The mast cells then release a powerful array of chemicals, the most

potent of which is histamine. It is this chemical warfare that causes the symptoms of hay fever: itchy, runny, and stopped-up noses; tearing, itchy, red, and swollen eyes; coughing, wheezing, and sneezing; and generalized complaints of tiredness, loss of taste and smell, nausea, and diarrhea.

Clues to diagnosis

The seasonal nature of hay fever is the tip off that your runny nose and cough are not due to a common cold. Spores of pollen and mold peak in certain months, and pinpointing the height of your misery is the first step in identifying the culprit.

There are three main sources of pollen—trees, grasses, and weeds. Folklore maintains that fragrant flowers are the primary vectors of hay fever. These colorful blossoms tend to rely upon insects rather than the wind for pollination, however. It is the dull, odorless plants that pepper the air currents with pollen. The list on page 520/116 highlights the most polliniferous species of plants.

The budding of trees heralds the debut of spring, and the beginning of hay fever season. Tree pollen count begins to rise in early April and continues through May. Grass pollen season commences in mid-May and lingers into July. Weeds disseminate their pollen in early August through September. This time schedule is generally adhered to in the Midwestern and Eastern states. In warmer locales, allergy seasons are extended and not as clearly defined.

Mold season embraces all of the pollen seasons.

Sowing the spores of discontent: Common sources of troublesome pollen.

Trees	Grasses	Weeds
Elm	Bermuda	Ragweed
Maple	Timothy	Sagebrush
Walnut	Orchard	Thistle
Hickory	Bluegrass	Spiny amaranth
Ash	Red top	Lamb's quarters
Sycamore	Rye	Pigweed
Oak		Sorrel
Mulberry		Cocklebur
Box elder		
Cedar		
Pecan		
Juniper		
Cottonwood		
Birch		
Willow		
Poplar		

Landscaping without hay fever: A shopper's guide to nonallergenic or hypoallergenic perennial plants.

Trees	Shrubs	Grasses
Holly	Boxwood	All grasses are suspect;
Flowering dogwood	Cacti	many are highly al-
Russian olive	Bush honeysuckle	lergenic
Tulip poplar	Aucuba	
Southern magnolia	Dogwood	
Chinaberry	Oleaster	
Hawthorn	Azalea	
Stone fruits	Yucca	
Apple	Crape myrtle	
Pear	Lilac	
Western soapberry	Hydrangea	
Sourgum	Yew	
Honey locust	Barberry	
	Hibiscus	
	Flowering quince	

Outdoor microfungi are released from soil, grass cuttings, and decaying vegetation; indoor mold sources include damp cellars, mildewy fabrics, and standing water in humidifiers. Mold spores are not killed off by frost, and they will once again proliferate if winter temperatures climb.

To further frustrate matters, many persons who are allergic to pollen are also sensitive to house-

hold dust, animal dander, cigarette smoke, and noxious fumes. Homes should be kept as free as possible from these aggravating agents. Given the abundance of potential allergens, how is one to know which agent(s) is (are) responsible for your weepy eyes and general malaise? A trip to the family physician or allergist is now in order.

The physician will first ask for an in-depth history of your complaints. Are symptoms worse during certain times of the year? Did a particular event (hiking through tall grass, mowing the lawn, or cleaning the musty basement) precipitate an attack? What plants populate your garden, school yard, or workplace?

A family history of allergy also hints toward a diagnosis of hay fever. If Mom or Dad has allergies, their children have a 50 percent chance of developing them. If both parents are allergic, the odds climb to 75 percent that their offspring will also be affected. Still, it is the tendency toward allergy, and not the sensitivity to a specific allergen, that is inherited.

The physician may then perform a "prick test" to recreate the allergic reaction in an office setting. A single drop of pollen extract is injected under the skin of the inner forearm. An angry red mark that develops within 10 to 20 minutes indicates sensitivity to that particular substance. Unfortunately, more than one allergen may be responsible for the summertime woes. On the bright side, medical researchers have developed a three-pronged attack to combat hay fever.

Avoidance therapy

The best way to circumvent hay fever symptoms is to avoid the oppressive agent. This is easier said than done, however. The ubiquitous, air-borne spores can permeate the most well-sealed building. Moving to a pollen-free region offers slim hopes of relief. Often, one set of allergies is traded for another. And hay fever refugees who flocked to the arid deserts of Arizona are discovering, to their dismay, that they have destroyed their own haven. In an attempt to duplicate the lush landscape of their native soil, the residents have transplanted the very grasses and trees that were the source of their misfortunes.

Still, hay fever sufferers can take the following steps to minimize their encounters with allergens:

- Keep doors and windows closed, and use an air conditioner in the spring and summer.
- When landscaping, consult with knowledgeable personnel at a nursery to select nonallergenic plants.
- Have a nonallergic member of the family cut the lawn frequently to prevent grass and weeds from flowering.
- Avoid strenuous exercise on days with high pollen counts.
- If you must dust or mow the lawn, wear a dust mask.
- Install an electronic air purifier to filter pollen, mold, and dust.
- When running a room or automobile air conditioner, close the vents to the outside air.
- Stay indoors during windy, pollen-swept days.
- Schedule your vacation to a pollen-free refuge during ragweed season.
- Avoid hiking in the country if you are sensitive to pollen. Likewise, steer clear of damp woods and streams if you are irritated by mold.
- Keep your home as dust-free as possible.
- Reduce mildew by operating a dehumidifier in damp areas of your home.
- If you own a pet, restrict its wanderings to one room.

Drug therapy

Drug therapy has three goals: (1) to inhibit the activation of histamine (antihistamines); (2) to block the release of chemical mediators by the mast cells (cromolyn sodium); and (3) to counteract the effects of the chemicals once they are released (decongestants, corticosteroids, anticholinergics, and anti-inflammatory drugs).

The patient-physician team will begin a comprehensive search for the prescription drug combination that maximizes relief while minimizing side effects. Less potent over-the-counter medications are available for the treatment of mild hay fever symptoms. However, sufferers must take care to not become too reliant upon nasal decongestants. Overuse can lead to "rebound rhinitis," which aggravates the stuffiness that the

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National Institutes of Health
Building 31, Room 7A32
Bethesda, Maryland 20205

Allergies: What are they and what to do about them. By J.A. Rudolph and B.M. Rudolph. Jove Publishing, Inc., New York, 1973

The allergy book. By H.V. Dehejia. Contemporary Books, Chicago, 1982

Asthma and hay fever. By A. Knight. Arco Publishing Inc., New York, 1981

The best guide to allergy. By A.V. Giannini. Appleton-Century-Crofts, East Norwalk, CT, 1981

Coping and living with allergies: A complete guide to help allergy patients of all ages. By C.A. Frazier. Prentice-Hall, Inc., Englewood Cliffs, NJ, 1979

Living with your allergies and asthma. By T. Berland and L. Fischer-Pap. St. Martin's Press, New York, 1983

drug was supposed to relieve originally.

Immunotherapy

Informally referred to as "allergy shots," this technique attempts to desensitize the immune system to future allergen exposure. Once or sometimes twice a week, gradually increasing

amounts of a known allergen are injected under the skin. Eventually (15 to 20 injections later), the highest dose that can be tolerated without a serious reaction is attained. This maintenance dose is administered year round, every two to six weeks, to provide continuous protection from allergy symptoms. A slight variation in strength and dosage schedule limits the shots to only before (pre-seasonal immunotherapy) or during (coseasonal immunotherapy) the allergy season. Nevertheless, immunotherapy incurs the drawbacks of cost, time, and inconvenience.

Outlook for the future

There is currently no cure for hay fever, or, for that matter, any allergic condition. Still, impressive advances in the management of hay fever symptoms may make summertime a season for everyone to enjoy.

(All material in the Patient Health Guide is reviewed by JAOA referees.)

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Less potential for theophylline interaction

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Documentation of safety in older patients

Before prescribing, see complete prescribing information in SK&F LAB CO. literature or PDR. The following is a brief summary.

Based on a large U.S. study with h.s. dosing¹

Indications: 'Tagamet' (brand of cimetidine) is indicated in the short-term treatment of active duodenal ulcer, in maintenance therapy after healing of active duodenal ulcers; in the short-term treatment of active benign gastric ulcer, and in the treatment of pathological hypersecretory disorders (i.e., Zollinger-Ellison Syndrome, systemic mastocytosis and multiple endocrine adenomas).

'Tagamet' HCl (brand of cimetidine hydrochloride) may be administered parenterally to hospitalized patients with pathological hypersecretory conditions or intractable ulcers, or to patients who are unable to take oral medication.

Clinical studies have indicated that suppression of nocturnal acid is the most important factor in duodenal ulcer healing. 'Tagamet' 800 mg. h.s. is the regimen of choice for most patients for acute duodenal ulcer therapy, as it provides a high healing rate, maximal pain relief, a decreased potential for drug interactions, and maximal patient convenience. Other 'Tagamet' regimens in the U.S. shown to be effective are: 300 mg. q.i.d., with meals and at bedtime; and 400 mg. b.i.d., morning and bedtime.

In active duodenal ulcer, concomitant antacids should be given as needed for relief of pain; however, simultaneous administration is not recommended.

Contraindications: There are no known contraindications to the use of 'Tagamet'.

Precautions: While a weak antiandrogenic effect has been demonstrated in animals, 'Tagamet' has been shown to have no effect on spermatogenesis, sperm count, motility, morphology or in vitro fertilizing capacity in humans.

In a 24-month toxicity study in rats at dose levels approximately 9 to 56 times the recommended human dose, benign Leydig cell tumors were seen. These were common in both the treated and control groups, and the incidence became significantly higher only in the aged rats receiving 'Tagamet'.

Rare instances of cardiac arrhythmias and hypotension have been reported following the rapid administration of 'Tagamet' HCl (brand of cimetidine hydrochloride) injection by intravenous bolus.

Symptomatic response to 'Tagamet' therapy does not preclude the presence of a gastric malignancy. There have been rare reports of transient healing of gastric ulcers despite subsequently documented malignancy. Reversible confusional states have been reported on occasion, predominantly in severely ill patients.

'Tagamet' has been reported to reduce the hepatic metabolism of warfarin-type anticoagulants, phenytoin, propranolol, chlordiazepoxide, diazepam, lidocaine, theophylline and metronidazole. Clinically significant effects have been reported with the warfarin anticoagulants; therefore, close monitoring of prothrombin time is recommended, and adjustment of the anticoagulant dose may be necessary when 'Tagamet' is administered concomitantly. Interaction with phenytoin, lidocaine and theophylline has also been reported to produce adverse clinical effects.

However, a crossover study in healthy subjects receiving either 'Tagamet' 300 mg. q.i.d. or 800 mg. h.s. concomitantly with a 300 mg. b.i.d. dosage of theophylline (Theo-Dur[®], Key Pharmaceuticals, Inc.), demonstrated less alteration in steady-state theophylline peak serum levels with the 800 mg. h.s. regimen, particularly in subjects aged 54 years and older. Data beyond ten days are not available. (Note: All patients receiving theophylline should be monitored appropriately, regardless of concomitant drug therapy.)

*The most commonly reported adverse events were nausea, diarrhea, and headache; incidences were similar to those for placebo. Other adverse effects have been reported with 'Tagamet' therapy. Please see prescribing information for a complete description of precautions, adverse reactions, and drug interactions.

† theophylline anhydrous sustained action tablets/ Key Pharmaceuticals, Inc.

1. Data on file, Smith Kline & French Laboratories.
2. Sabesin, S., et al.: Postgrad. Med. [special report, interim data], pp. 43-46, Nov. 1985.
3. Seaman, J.J., et al.: Postgrad. Med. [special report], pp. 47-53, Nov. 1985.

Lack of experience to date precludes recommending 'Tagamet' for use in pregnant patients, women of childbearing potential, nursing mothers or children under 16 unless anticipated benefits outweigh potential risks; generally, nursing should not be undertaken in patients taking the drug since cimetidine is secreted in human milk.

Adverse Reactions: Diarrhea, dizziness, somnolence, headache, rash, gynecomastia. Reversible arthralgia, myalgia and exacerbation of joint symptoms in patients with preexisting arthritis have been reported. Reversible confusional states (e.g., mental confusion, agitation, psychosis, depression, anxiety, hallucinations, disorientation), predominantly in severely ill patients, have been reported. Reversible impotence in patients with pathological hypersecretory disorders receiving 'Tagamet', particularly in high doses, for at least 12 months, has been reported. Reversible alopecia has been reported very rarely. Decreased white blood cell counts in 'Tagamet'-treated patients (approximately 1 per 100,000 patients), including agranulocytosis (approximately 3 per million patients), have been reported, including a few reports of recurrence on rechallenge. Most of these reports were in patients who had serious concomitant illnesses and received drugs and/or treatment known to produce neutropenia. Thrombocytopenia (approximately 3 per million patients) and a few cases of aplastic anemia have also been reported. Increased serum transaminase and creatinine, as well as rare cases of fever, interstitial nephritis, urinary retention, pancreatitis and allergic reactions, including hypersensitivity vasculitis, have been reported. Reversible adverse hepatic effects, cholestatic or mixed cholestatic-hepatocellular in nature, have been reported rarely. Because of the predominance of cholestatic features, severe parenchymal injury is considered highly unlikely. A single case of biopsy-proven periportal hepatic fibrosis in a patient receiving 'Tagamet' has been reported.

How Supplied: Tablets: 300 mg. tablets in bottles of 100; 300 mg. tablets in bottles of 100 and Single Unit Packages of 100 (intended for institutional use only); 400 mg. tablets in bottles of 60 and Single Unit Packages of 100 (intended for institutional use only); and in 800 mg. Tiltab[®] tablets in bottles of 30 and Single Unit Packages of 100 (intended for institutional use only).

Liquid: 300 mg./5 mL, in 8 fl. oz. (237 mL) amber glass bottles and in single-dose units (300 mg./5 mL), in packages of 10 (intended for institutional use only).

Injection:

Vials: 300 mg./2 mL in single-dose vials, in packages of 10 and 30, and in 8 mL multiple-dose vials, in packages of 10 and 25.

Prefilled Syringes: 300 mg./2 mL in single-dose prefilled disposable syringes.

Plastic Containers: 300 mg. in 50 mL of 0.9% Sodium Chloride in single-dose plastic containers, in packages of 4 units. No preservative has been added.

ADD-Vantage[®] Vials: 300 mg./2 mL in single-dose ADD-Vantage[®] Vials, in packages of 25.

'Tagamet' HCl (brand of cimetidine hydrochloride) Injection premixed in single-dose plastic containers is manufactured for SK&F Lab Co. by Travenol Laboratories, Inc., Deerfield, IL 60015.

*ADD-Vantage[®] is a trademark of Abbott Laboratories.

BRS-TG-172

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