

## THE PHARMA INNOVATION

# Allergy - Symptoms, Diagnosis, Treatment and Management

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An allergic reaction is the body's way of responding to an "invader." When the body senses a foreign substance, called an antigen, the immune system is triggered. The immune system normally protects the body from harmful agents such as bacteria and toxins. Its overreaction to a harmless substance (an allergen) is called a hypersensitivity reaction, or an allergic reaction. Allergy involves an exaggerated response of the immune system. The immune system is the body's organized defense mechanism against foreign invaders, particularly infections. Allergens are substances that are foreign to the body and can cause an allergic reaction. IgE is the allergy antibody. Allergies can develop at any age. Your risk of developing allergies is related to your parents' allergy history. Allergies are your body's reaction to a substance it views as a harmful 'invader.' For example, coming into contact with what is normally a harmless substance, such as pollen, might cause the immune system (the body's defense system) to react. Substances that cause these reactions are called allergens. An "allergic reaction" is way the body responds to the allergen. A chain of events occur that result in an allergic reaction, described here. The first time an allergy-prone person is exposed to a specific allergen (such as pollen), the body responds by producing allergic (IgE) antibodies. The job of these antibodies is to find molecules of the offending substance in the bloodstream and tissues and to escort them to the body's mast cells (a type of white blood cell) for destruction. As the mast cells destroy the allergens, a chemical called histamine is released into the bloodstream. A large amount of histamine swells body tissues (inflammation), causes itching, enlarges blood vessels, increases secretions, and causes bronchospasm.

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**INTRODUCTION:** Allergies are abnormal immune system reactions to things that are

typically harmless to most people. When you're allergic to something, your immune system mistakenly believes that this substance is harmful to your body. (Substances that cause allergic reactions, such as certain foods, dust, plant pollen, or medicines, are known as **allergens**. In an attempt to protect the body, the immune

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system produces **IgE antibodies** to that allergen. Those antibodies then cause certain cells in the body to release chemicals into the bloodstream, one of which is **histamine**. The histamine then acts on the eyes, nose, throat, lungs, skin, or gastrointestinal tract and causes the symptoms of the allergic reaction. Future exposure to that same allergen will trigger this antibody response again. This means that every time you come into contact with that allergen, you'll have an allergic reaction. Allergic reactions can be mild, like a runny nose, or they can be severe, like difficulty breathing. An asthma attack, for example, is often an allergic reaction to something that is breathed into the lungs by a person who is susceptible. Some types of allergies produce multiple symptoms, and in rare cases, an allergic reaction can become very severe — this severe reaction is called **anaphylaxis**. Signs of anaphylaxis include difficulty breathing, difficulty swallowing, swelling of the lips, tongue, and throat or other parts of the body, and dizziness or loss of consciousness. Anaphylaxis usually occurs minutes after exposure to a triggering substance, such as a peanut, but some reactions might be delayed by as long as 4 hours. Luckily, anaphylactic reactions don't occur often and can be treated successfully if proper medical procedures are followed.

## ALLERGIC REACTION CAUSES

Almost anything can trigger an allergic reaction.

- The body's immune system involves the white blood cells, which produce antibodies.
- When the body is exposed to an antigen, a complex set of reactions begins.

- The white blood cells produce an antibody specific to that antigen. This is called "sensitization."
- The job of the antibodies is to detect and help destroy substances that cause disease and sickness. In allergic reactions, the antibody is called immunoglobulin E or IgE.
- This antibody promotes production and release of chemicals and hormones called "mediators."
- Mediators have effects on local tissue and organs in addition to activating more white blood cell defenders. It is these effects that cause the symptoms of the reaction.
- Histamine is one of the better-known mediators produced by the body.
- If the release of the mediators is sudden or extensive, the allergic reaction may also be sudden and severe, and anaphylaxis may occur.
- Allergic reactions are unique for each person. Reaction time to allergens can vary widely. Some people will have an allergic reaction immediately, for others it will take time to develop.
- Most people are aware of their particular allergy triggers and reactions.
- Certain foods such as peanuts, strawberries, shellfish, shrimp, dairy, and wheat.
- Babies can also have food allergies. There are more than 160 allergenic foods. Common foods that can cause allergic reactions in babies include milk, eggs, nuts, and soy. Talk to your pediatrician if you are concerned about food allergies in your baby.
- Food intolerance is not the same as food allergies. Allergies are an immune system response, while food intolerance is a digestive system response in which a person is unable to properly digest or break down a particular food.
- Vaccines and medications (antibiotics like penicillin, amoxicillin, aspirin, ibuprofen, iodine),

general anesthesia and local anesthetics, latex rubber (such as in gloves or condoms), dust, pollen, mold, animal dander, and poison ivy are well-known allergens. Other known allergens can include detergents, hair dyes, and the ink in tattoos.

- Bee stings, fire ant stings, penicillin, and peanuts are known for causing dramatic reactions that can be serious and involve the whole body.
- Minor injuries, hot or cold temperatures, exercise, stress, or emotions may trigger allergic reactions.
- Often, the specific allergen cannot be identified unless you have had a similar reaction in the past.
- Allergies and the tendency to have allergic reactions run in some families.
- Many people who have one trigger tend to have other triggers as well.
- People with certain medical conditions are more likely to have allergic reactions:
  - severe allergic reaction in the past
  - asthma
  - lung conditions that affect breathing, such as chronic obstructive pulmonary disease (COPD)
  - nasal polyps
  - frequent infections of the nasal sinuses, ears, or respiratory tract
  - sensitive skin, especially sufferers of eczema

## ALLERGIC REACTION SYMPTOMS AND SIGNS

The look and feel of an allergic reaction depends on the body part involved and the severity of the reaction. Some reactions may be localized and limited, while others could involve multiple body systems. Reactions to the same allergen vary among individuals.

- Anaphylaxis is the term for any combination of allergic symptoms that is rapid, or sudden,

and potentially life-threatening. Call an ambulance immediately if you suspect anaphylaxis.

- One sign of anaphylaxis is shock. Shock has a very specific meaning in medicine. The organs of the body are not getting enough blood because of dangerously low blood pressure. Shock may lead rapidly to death. The person in shock may be pale or red, sweaty or dry, confused, anxious, or unconscious.
- Breathing may be difficult or noisy, or the person may be unable to breathe.
- Shock is caused by sudden dilation of many or large blood vessels. This is brought on by the action of the mediators. If the drop in blood pressure is sudden and drastic, it can lead to unconsciousness, even cardiac arrest and death.
- Symptoms and signs of an allergic reaction include any, some, or many of the following:
  - Skin: irritation, redness, itching, swelling, blistering, weeping, crusting, rash, eruptions, or hives (itchy bumps or welts)
  - Lungs: wheezing, tightness, cough, or shortness of breath
  - Head: swelling or bumps on the face and neck, eyelids, lips, tongue, or throat, hoarseness of voice, headache
  - Nose: stuffy nose, runny nose (clear, thin discharge), sneezing
  - Eyes: red (bloodshot), itchy, swollen, or watery or swelling of the area around the face and eyes
  - Stomach: pain, nausea, vomiting, diarrhea, or bloody diarrhea
  - Other: fatigue, sore throat

The tendency to develop allergies is often hereditary, which means it can be passed down through your genes. (Thanks a lot, Mom and Dad!) However, just because a parent or sibling has allergies doesn't mean you will definitely get them, too. A person usually doesn't inherit a particular allergy, just the likelihood of having allergies.

## ALLERGENS

Some of the most common allergens are:

**Foods.** Food allergies are most common in infants and often go away as people get older. Although some food allergies can be serious, many simply cause annoying symptoms like an itchy rash, a stuffy nose, and diarrhea. The foods that people are most commonly allergic to are milk and other dairy products, eggs, wheat, soy, peanuts and tree nuts, and seafood.

- **Insect bites and stings.** The venom (poison) in insect bites and stings can cause allergic reactions, and can be severe and even cause an anaphylactic reaction in some people.
- **Airborne particles.** Often called environmental allergens, these are the most common allergens. Examples of airborne particles that can cause allergies are dust mites (tiny bugs that live in house dust); mold spores; animal dander (flakes of scaly, dried skin, and dried saliva from your pets); and pollen from grass, ragweed, and trees.
- **Medicines.** Antibiotics — medications used to treat infections — are the most common type of medicines that cause allergic reactions. Many other medicines, including over-the-counter medications (those you can buy without a prescription), also can cause allergic-type reactions.
- **Chemicals.** Some cosmetics or laundry detergents can make people break out in an itchy rash (hives). Usually, this is because someone has a reaction to the chemicals in these products. Dyes, household cleaners, and pesticides used on lawns or plants also can cause allergic reactions in some people.

## AVOIDANCE

In some cases, like food allergies, avoiding the allergen is a life-saving necessity. That's because, unlike allergies to airborne particles that can be treated with shots or medications, the only way to treat food allergies is to avoid the allergen entirely. For example, people who are allergic to peanuts should avoid not only peanuts, but also any food that might contain even tiny traces of them.

Avoidance can help protect people against non-food or chemical allergens, too. In fact, for some people, eliminating exposure to an allergen is enough to prevent allergy symptoms and they don't need to take medicines or go through other allergy treatments.

Here are some things that can help you avoid airborne allergens:

- Keep family pets out of certain rooms, like your bedroom, and bathe them if necessary.
- Remove carpets or rugs from your room (hard floor surfaces don't collect dust as much as carpets do).
- Don't hang heavy drapes and get rid of other items that allow dust to accumulate.
- Clean frequently (if your allergy is severe, you may be able to get someone else to do your dirty work!)
- Use special covers to seal pillows and mattresses if you're allergic to dust mites.

- If you're allergic to pollen, keep windows closed when pollen season's at its peak, change your clothing after being outdoors — and don't mow lawns.
- If you're allergic to mold, avoid damp areas, such as basements, and keep bathrooms and other mold-prone areas clean and dry.

## DEALING WITH ALLERGIES

So once you know you have allergies, how do you deal with them? First and foremost, try to avoid things you're allergic to!

If you have a food allergy, that means avoiding foods that trigger symptoms and learning how to read food labels to make sure you're not consuming even tiny amounts of allergens. People with environmental allergies should keep their house clean of dust and pet dander and watch the weather for days when pollen is high. Switching to perfume-free and dye-free detergents, cosmetics, and beauty products (you may see non-allergenic ingredients listed as **hypoallergenic** on product labels) also can help. If you're taking medication, follow the directions carefully and make sure your regular doctor is aware of anything an allergist gives you (like shots or prescriptions).

## EYE ALLERGY

Eye allergies often are hereditary, and occur due to processes associated with other types of allergic responses. When an allergic reaction takes place, your eyes may be overreacting to a substance perceived as harmful, even though it may not be. These substances are called

allergens. For example, dust that is harmless to most people can cause excessive production of tears and mucus in eyes of overly sensitive, allergic individuals. Allergies can trigger other problems, such as conjunctivitis (pink eye) and asthma. Combined nasal and eye allergies create a condition known as rhinoconjunctivitis.

## Allergy Symptoms and Signs

Common signs of allergies include:

- Red, swollen or itchy eyes
  - Runny nose
  - Sneezing and coughing
  - Itchy nose, mouth or throat
  - Headache from sinus congestion
- Beyond more obvious symptoms, you also may feel fatigued and could suffer from lack of sleep.

## Causes Eye Allergies

Many allergens are in the air, where they come in contact with your eyes and nose. Airborne allergens include pollen, mold, dust and pet dander. Other causes of allergies, such as certain foods or bee stings, do not typically affect the eyes the way airborne allergens do. Adverse reactions to certain cosmetics or drugs such as antibiotic eye drops also may cause eye allergies. Some people actually are allergic to the preservatives in eye drops such as those used to lubricate dry eyes. In this case, you may need to use a preservative-free brand.

## Eye Allergy Treatment

### Avoidance.

The most common "treatment" is to avoid what's causing your eye allergy. Itchy eyes? Keep your home free of pet dander and dust and keep pets off the furniture. Stay inside with the air conditioner on when a lot of pollen is in the air.

Use high quality furnace filters that trap common allergens and replace the filters frequently.

Make sure you wear wraparound sunglasses to help shield your eyes from allergens, and drive with your windows closed during allergy season.

### **Medications.**

If you're not sure what's causing your eye allergies, or you're not having any luck avoiding them, your next step probably will be medication to alleviate the symptoms.

Over-the-counter and prescription medications each have their advantages; for example, over-the-counter products often are less expensive, while prescription ones usually are stronger and may be more effective.

Eye drops are available as simple eye washes, or they may have one or more active ingredients such as antihistamines, decongestants or mast cell stabilizers that inhibit inflammation. Antihistamines relieve many symptoms caused by airborne allergens, such as itchy, watery eyes, runny nose and sneezing. Decongestants help shrink swollen nasal passages for easier breathing.

### **RELIEF FOR WATERY, ITCHY EYES**

Common causes of excessively watery eyes are allergies and dry eye syndrome — two very different problems. With allergies, your body's release of histamine causes your eyes to water, just as it may cause your nose to run. It may seem illogical that dry eye syndrome could cause watery eyes. But sometimes an underlying dry eye condition stimulates your tear glands to overproduce the watery component of your eye's tears as a protective response, leading to watery eyes. Decongestants clear up redness. They contain vasoconstrictors, which make the blood vessels in your eyes smaller, lessening the apparent redness. They treat a symptom but not the cause of eye allergies. In fact, with extended use, the blood vessels can become dependent on the vasoconstrictor to stay small. When you discontinue the eye drops, the vessels actually get bigger than they were in the beginning. This

process is called rebound hyperemia, and the result is that your red eyes could worsen over time. Some products have ingredients that act as mast cell stabilizers, which alleviate redness and swelling. Mast cell stabilizers are similar to antihistamines. But while antihistamines are known for their immediate relief, mast cell stabilizers are known for their long-lasting relief. Antihistamines, decongestants and mast cell stabilizers are available in pill form, but pills don't work as quickly as eye drops or gels to bring eye relief. Nonsteroidal anti-inflammatory drug (NSAID) eye drops may be prescribed to decrease swelling, inflammation and other symptoms associated with seasonal allergic conjunctivitis, also called hay fever. Prescription corticosteroid eye drops also may provide similar, quick relief. However, steroids have been associated with side effects such as increased inner eye pressure (intraocular pressure) leading to glaucoma and damage to optic nerve. Steroids also have been known to cause the eye's natural lens to become cloudy, producing cataracts. Check the product label or insert for a list of side effects of over-the-counter medications. For prescription medication, ask your doctor. In some cases, combinations of medications may be used. You may benefit from immunotherapy, in which an allergy specialist injects you with small amounts of the allergen to help you gradually build up immunity.

### **Eye Allergies and Contact Lenses**

Even if you are generally a successful contact lens wearer, allergy season can make your contacts uncomfortable. Airborne allergens can get on your lenses, causing discomfort. Allergens also can stimulate the excessive production of natural substances in your tears, which can bind to your contacts and cause blur and additional discomfort. Pollen maps can help you determine when allergens are present. Ask your eye doctor about eye drops that can help relieve your symptoms and keep your contact lenses clean. Certain drops can discolor or damage certain lenses, so it makes sense to ask first before trying out a new brand. Another alternative is daily disposable contact lenses, which are

discarded nightly. Because you replace them so frequently, these types of lenses are unlikely to develop irritating deposits that can build up over time and cause or heighten allergy-related discomfort.

### When to Seek Medical Care

Because allergic reactions can progress and worsen in minutes causing complications, medical attention is always recommended for all but the most minor and localized symptoms. If the symptoms of your reaction worsen over a few days, or if they do not improve with recommended treatment and removal of the allergen, call your health-care provider. Tell your health-care provider if you have any allergic symptoms after using a drug or other treatment prescribed for you (see Drug Allergy). Allergic reactions can be dangerous. Sudden, severe, widespread reactions require emergency evaluation by a medical professional. Call an ambulance if you or someone around you has any of the following with an allergic reaction:

- sudden, severe, or rapidly worsening symptoms
- exposure to an allergen that previously caused severe or bad reactions
- swelling of the lips, tongue, or throat
- wheezing, chest tightness, loud breathing, trouble breathing, or hoarseness of voice
- confusion, sweating, nausea, or vomiting
- widespread rash or severe hives
- lightheadedness, collapse, or unconsciousness

### Allergic Reaction Diagnosis

For typical allergic reactions, your health-care provider will examine you and ask questions about your symptoms and their timing. Blood tests and X-rays are not needed except under unusual circumstances.

In case of severe reactions, you will be evaluated quickly in the emergency department in order to

make a diagnosis. The first step for the health-care provider is to judge the severity of the allergic reaction.

- Blood pressure and pulse are checked.
- An examination determines whether you need help breathing.
- Often, an IV line is placed in case you need anti-allergy (antihistamine) medications quickly.
- If you can speak, you will be asked about allergy triggers and previous reactions.

### Allergic Reaction Treatment

#### Self-Care at Home

Avoid triggers! If you know you have an allergic reaction to peanuts, for example, do not eat them and go out of your way to avoid foods prepared with or around peanuts (see Food Allergy).

Self-care at home is not enough in severe reactions. A severe reaction is a medical emergency.

- Do not attempt to treat or "wait out" severe reactions at home. Go immediately to a hospital emergency department.
- If no one is available to drive you right away, call an ambulance for emergency medical transport.
- Use your epinephrine auto-injector (Epi-Pen) if you have been prescribed one by your doctor due to previous allergic reactions (see "prevention" below).

Slight reactions with mild symptoms usually respond to nonprescription allergy medications.

- Oral antihistamines.
- Loratadine (Claritin) or Alavert), cetirizine (Zyrtec), and fexofenadine (Allegra) are nonsedating antihistamines that can be taken over the long term.
- Diphenhydramine (Benadryl) can also be taken but may make you too drowsy to drive or

operate machinery safely. It can affect concentration and interfere with children's learning in school. These medications should be taken for only a few days.

- For rashes or skin irritations, an anti-inflammatory steroid cream such as hydrocortisone can be used.

For small, localized skin reactions, use a cold, wet cloth or ice for relief. Apply a bag of frozen vegetables wrapped in a towel as an ice pack.

### Allergic Eyes

Allergic eyes (allergic conjunctivitis) is inflammation of the tissue layers (membranes) that cover the surface of the eyeball and the undersurface of the eyelid. The inflammation occurs as a result of an allergic reaction and may produce the following symptoms:

- Redness under the lids and of the eye overall
- Watery, itchy eyes
- Swelling of the membranes

### Allergic Eczema

Allergic eczema (atopic dermatitis) is an allergic rash that is usually not caused by skin contact with an allergen. This condition is commonly associated with allergic rhinitis or asthma and features the following symptoms:

- Itching, redness, and or dryness of the skin
- Rash on the face, especially children
- Rash around the eyes, in the elbow creases, and behind the knees, especially in older children and adults (rash can be on the trunk of the body)

### Hives

Hives (urticaria) are skin reactions that appear as itchy swellings and can occur on any part of the body. Hives can be caused by an allergic reaction, such as to a food or medication, but they also

may occur in non-allergic people. Typical hive symptoms are:

- Raised red welts
- Intense itching

### Allergic Shock

Allergic shock (anaphylaxis or anaphylactic shock) is a life-threatening allergic reaction that can affect a number of organs at the same time. This response typically occurs when the allergen is eaten (for example, foods) or injected (for example, a bee sting). Some or all of the following symptoms may occur:

- Hives or reddish discoloration of the skin
- Nasal congestion
- Swelling of the throat
- Stomach pain, nausea, vomiting
- Shortness of breath, wheezing
- Low blood pressure or shock

Shock refers to the insufficient circulation of blood to the body's tissues. Shock is most commonly caused by blood loss or an infection. Allergic shock is caused by dilated and "leaky" blood vessels, which result in a drop in blood pressure.

### FOOD ALLERGY

It doesn't take much to trigger a reaction in someone with a food allergy — ingesting a tiny piece of peanut or unknowingly eating pasta containing shrimp in a restaurant. In someone with a severe allergy to these items, this can be life-threatening. It's estimated, based on clinically documented cases, that about 1.8 million Canadians may be affected by food allergies, Health Canada said in a recent release. Some studies show these numbers are increasing, especially among children. Peanuts, tree nuts, sesame seeds, soy, seafood, wheat, eggs, milk, mustard and sulphites are the food allergens most commonly associated with severe allergic



reactions in Canada. When someone ingests even a tiny amount of an allergen, a reaction may develop quickly and can become very serious. The most dangerous symptoms include breathing difficulties or a drop in blood pressure with shock, which may result in loss of consciousness, anaphylaxis and even death. There's no cure for food allergies. Avoiding an allergen is the only effective way to prevent allergic reactions. Here are some tips from Health Canada on how to protect yourself if you have a food allergy:

1. Read product labels carefully as manufacturers sometimes change the ingredients used in familiar products.

2. Avoid food products that contain the specific allergens and/or derivatives of the specific allergens to which you are allergic.

3. Avoid food products that bear a precautionary statement naming an allergen that you are allergic to; for example, precautionary statements like "may contain X" (where "X" is the name of a commonly known allergen).

4. Avoid food products that don't list their ingredients or food products that contain an ingredient you don't recognize.

5. When eating at a friend's or in a restaurant, tell your host/server about your food allergy, and ask specific questions about the food being served.

6. If an allergist prescribes an epinephrine/adrenaline auto-injector, learn how to use it and carry it all the time.

7. Wear a Medic Alert identifier so that, in case of an accident, others know about your allergies and reactions.

8. Look out for allergens listed by other names; food allergens and their derivatives are sometimes found in food under different names.

## MEDICATION

Allergy medications are available as pills, liquids, inhalers, nasal sprays, eye drops, skin creams and shots (injections). Some allergy medications are available over-the-counter, while others are available by prescription only. Here's a summary of the various types of allergy medications and why they're used.

### Corticosteroids

Corticosteroids help prevent the release of symptom-causing chemicals during an allergic reaction. Most corticosteroid medications require a prescription.

- **Nasal corticosteroid sprays** prevent and relieve signs and symptoms of allergies such as allergic rhinitis (hay fever). These medications can help with nasal stuffiness, sneezing, and itchy, runny nose. Examples include fluticasone (Flonase), mometasone (Nasonex), budesonide (Rhinocort Aqua), triamcinolone (Nasacort AQ) and beclomethasone (Beconase AQ), fluticasone (Veramyst) and ciclesonide (Omnaris). Side effects can include unpleasant smell or taste, nasal irritation and nosebleeds.

**Inhaled corticosteroids** are used to relieve symptoms triggered by airborne allergy-triggering substances (allergens). These medications are generally taken on a daily basis as part of asthma treatment. Examples include fluticasone (Flovent Diskus, Flovent HFA),

budesonide (Pulmicort Flexhaler), mometasone (Asmanex Twisthaler), beclomethasone (Qvar) and ciclesonide (Alvesco). Side effects are generally minor and can include mouth and throat irritation and oral yeast infections.

- **Corticosteroid eyedrops** are used to treat severe eye irritation caused by hay fever and allergic conjunctivitis. Examples include dexamethasone (Maxidex, others), fluorometholone (FML) and prednisolone (Pred Forte, Pred Mild). These medications may cause blurred vision. Prolonged use may increase your risk of eye infections, glaucoma and cataracts.
- **Corticosteroid skin creams** relieve allergic skin reactions such as scaling and itching. Some low-potency corticosteroid creams are available without a prescription, but talk to your doctor before using a topical corticosteroid for more than a few weeks. Examples include hydrocortisone (Cortaid, others) and triamcinolone (Kenalog, others). Side effects can include skin irritation and discoloration. Long-term use, especially of stronger prescription corticosteroids, thins the top layer of the skin, resulting in easy bruising where the cream has been applied. Corticosteroids are available in liquid form that can be useful for skin conditions involving the scalp.
- **Oral corticosteroids** (pills and liquids) are used to treat severe symptoms caused by all types of allergic reactions. Examples include prednisone (Prednisone Intensol) and prednisolone (Prelone, others). Because they can cause numerous short- and long-term side effects, oral corticosteroids are usually prescribed for short periods of time

Long-term use can cause cataracts, osteoporosis, muscle weakness, stomach ulcers and delayed growth in children. Oral corticosteroids can also worsen hypertension. In some situations, corticosteroids may be given as a shot (injection) rather than pills.

### Antihistamines

Antihistamines block histamine, a symptom-causing chemical released by your immune system during an allergic reaction.

**Oral antihistamines** (pills and liquids) ease symptoms such as swelling, runny nose, itchy or watery eyes, and hives (urticaria). Over-the-counter oral antihistamines include loratadine (Claritin) and cetirizine (Zyrtec). Desloratadine (Clarinex) and levocetirizine (Xyzal) are available by prescription. Fexofenadine (Allegra) is available both over-the-counter and by prescription. Some oral antihistamines may cause dry mouth and drowsiness. Older antihistamines such as diphenhydramine (Benadryl), chlorpheniramine (Chlor-Trimeton) and clemastine (Tavist) are more likely to cause drowsiness and slow your reaction time. These sedating antihistamines shouldn't be taken when driving or doing other potentially dangerous activities.

**Antihistamine nasal sprays** help relieve sneezing, itchy or runny nose, sinus congestion, and postnasal drip. Prescription antihistamine nasal sprays include azelastine (Astelin, Astepro) and olopatadine (Patanase). Side effects of antihistamine nasal sprays may include bitter

taste, dizziness, drowsiness or fatigue, dry mouth, headache, nasal burning, nosebleed, nausea, runny nose, sore throat, and sneezing.

- **Antihistamine eye drops** are often combined with other medications such as mast cell stabilizers or decongestants. Antihistamine eyedrops can ease symptoms such as itching, redness and swollen eyes. You may need to use these medications several times a day, because the effects may last only a few hours. Over-the-counter examples include ketotifen (Zaditor, Alaway, others) and pheniramine (Visine-A, Opcon-A, others). Prescription examples include emedastine (Emadine) and olopatadine (Patanol, others). Side effects of these medications can include red eyes, watery eyes, mild stinging or burning and headache. Antihistamine eyedrops increase the risk of eye inflammation when you're wearing contact lenses.

### Decongestants

Decongestants are used for quick, temporary relief of nasal and sinus congestion. You may need to avoid decongestants if you're pregnant, if you're an older adult or if you have high blood pressure. Check with your doctor to see which medications are safe for you.

- **Oral decongestants** (pills and liquids) relieve nasal and sinus congestion caused by hay fever. Many decongestants are available over-the-counter. A common example is pseudoephedrine (Sudafed, others). A number of medications contain a decongestant such as pseudoephedrine combined with other medications. Claritin-D, for

example, contains pseudoephedrine and an antihistamine. Oral decongestants can cause a number of side effects, including irritability, fast or irregular heartbeat, dizziness, insomnia, headaches, anxiety, tremors, and increased blood pressure.

• **Nasal decongestant sprays and drops** relieve nasal and sinus congestion. Examples include phenylephrine (Neo-Synephrine, others) and oxymetazoline (Afrin, others). Nasal decongestants can cause dryness, burning or stinging inside the nose, runny nose, and sneezing. Taking too much of a nasal decongestant can cause irritability, fast or irregular heartbeat, dizziness, insomnia, headaches, anxiety, tremors, and increased blood pressure. Don't use a decongestant nasal spray for more than a week or so, or you may develop severe congestion as soon as you stop taking it (rebound congestion).

- **Decongestant eyedrops** (or combined decongestant-antihistamine eyedrops) can temporarily ease symptoms such as red, itchy eyes. Available over-the-counter, examples include tetrahydrozoline (Visine others) and naphazoline (Clear Eyes, others). Side effects include persistent eye redness and damage to blood vessels in the eye when overused. In rare cases, decongestant eyedrops can cause a type of sudden (acute) glaucoma.

### Other allergy medications

A few other medications work by blocking symptom-causing chemicals released during an allergic reaction.

- **Montelukast (Singulair)** is a prescription medication that blocks symptom-causing chemicals called leukotrienes. This oral medication relieves allergy signs and symptoms including nasal congestion, runny nose and sneezing. Side effects can include upper respiratory infection in adults, and headache, ear infection and sore throat in children. The Food and Drug Administration (FDA) has warned that in some people, leukotriene-blocking medications could possibly cause psychological symptoms, such as irritability, anxiousness, insomnia, hallucinations, aggression, depression, and suicidal thinking or behavior.
- **Cromolyn (Nasal crom)** is an over-the-counter nasal spray. It prevents the release of histamine and other symptom-causing chemicals during an allergic reaction. This medication works best when you take it before your symptoms start. Some people need to use the spray three or four times a day. Side effects may include nasal stinging or sneezing.
- **Mast cell stabilizer eyedrops** prevent the release of symptom-causing chemicals such as histamine. These prescription medications reduce allergy symptoms such as red, itchy eyes. Examples include cromolyn (Crolom), lodoxamide (Alomide), pemirolast (Alamast) and nedocromil (Alocril). These medications don't usually cause significant side effects.

### Immunotherapy

Immunotherapy injections (allergy shots) may relieve hay fever symptoms or allergic asthma that doesn't improve with medications. Injections

may also be an option if you aren't able to take oral allergy medications without having side effects. Over a period of three to five years, you receive regular injections containing allergen extracts. The goal is to stop your body from reacting to specific allergens and decrease or eliminate your need for medications. Immunotherapy may be especially effective if you're allergic to cat dander, dust mites, or pollen produced by trees, grass or weeds. In children with allergic rhinitis, immunotherapy may help prevent the development of asthma. Rarely, immunotherapy injections can cause a life-threatening allergic reaction (anaphylaxis).

### SEASONAL ALLERGY TREATMENTS

Seasonal allergy treatments come in several forms — for example pills, liquids, nasal sprays, eye drops. No known medicine can “cure” allergies. So the goal of allergy treatment is to help relieve symptoms.

What seasonal allergy medication works best for you can often depend on your symptoms and the severity of those symptoms. Your doctor can help you decide what seasonal allergy treatment is right for you.

### Different Types of Seasonal Allergy Treatments

Allergy treatments come in different forms and work in a variety of ways. Here are some examples.

- **Antihistamines** are one of the most commonly used types of allergy medications. They block histamine, a chemical that is released by the body's immune system. Antihistamines are available in several forms; for example, pills you swallow or as nasal sprays.

Some antihistamines may cause drowsiness.

- **Decongestants** relieve congestion in the nose and sinuses. They work by constricting blood vessels in the nose. However, decongestants may sometimes lead to an increase in blood pressure. For this reason, and others, decongestants should be used with caution in people with certain common medical conditions, including high blood pressure.
- **Nasal steroid sprays** are used to prevent and treat the inflammation often caused by allergies. They can take up to a week to work. They also have been linked to worsening glaucoma and cataracts.
- **Leukotriene blockers** treat symptoms by blocking the effects of a chemical that is included in the allergic reaction.
- **Immunotherapy**, commonly called "allergy shots," may help in cases of persistent seasonal allergic rhinitis. Allergy shots are given regularly over a period of years and contain allergen extracts. The goal is to reduce your sensitivity to specific allergens so that you are less likely to react or to react as strongly to them.

## CONCLUSION

The treatment goal is to relieve symptoms and prevent a severe reaction. Treatment may include: Antihistamines to relieve mild symptoms such as rash, hives, and itching Bronchodilators such as albuterol to reduce asthma-like symptoms (moderate wheezing or cough). Corticosteroids applied to the skin, given by mouth, or given intravenously (directly into a vein). Epinephrine by injection to treat anaphylaxis. An allergist has advanced training and experience to properly diagnose your condition and prescribe an allergy treatment and management plan to help you feel better and live better.

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