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Allergy Newsletter II

Immunotherapy-Allergy Injections

Allergic reactions are linked to specific allergen-IgE-mast cells/basophils and chemical mediators that induce allergic symptoms such as allergic rhinitis, conjunctivitis or asthma. While avoiding offending allergens is always the first step in preventing and treating allergic disorders, this approach is often impractical or even, impossible. For instance, dust mites are extremely difficult to completely eradicate. While medications can be a very effective way to control allergic disease, many people still suffer allergic symptoms despite their use. In many cases, immunotherapy (also known as allergy injections or desensitization) is the most effective form of treatment for allergic rhinitis, conjunctivitis, and asthma.

Immunotherapy alters and lessens the allergic reaction via injections of triggering allergens. Specifically, immunotherapy works in the body by decreasing the production of certain IgE, and by initiating the production of other specific allergen blocking IgG, which further interferes with the IgE. Immunotherapy also stabilizes mast cells and basophiles, as well as fostering other effects, which decreases the release of chemical mediators. Prior to starting immunotherapy, an allergist must perform skin testing, in conjunction with compiling a detailed medical history, to identify offending allergens and the patient's corresponding degree of sensitivity.

Typically, an effective immunotherapy program requires weekly injections for at least three to five years. The injections are a specifically formulated and diluted solution comprised of inhalant allergen extracts to which you are allergic, such as tree, grass, weed pollen, mold spore, dust mite, or animal. Your allergist will gradually build up your dose by increasing the amount of allergen concentration weekly until maximum concentration is reached or side effects occur. At this time you start what is known as a dosage maintenance period. During the maintenance period, you will receive a fixed amount of maximum tolerable concentration, with extended intervals between injections, from two weeks to one month apart, depending on your progress.

In many cases, your sensitivity to allergens decreases and your symptoms improve during the course of immunotherapy. The state of desensitization can be maintained for several years, or in some cases for life, with no need to restart injections. However, in some cases, the reappearance of allergic symptoms may occur. In such instances, your allergist will need to evaluate your symptoms and consider the possibility of restarting immunotherapy or other treatment.

In order for immunotherapy to work, you need to commit to the program and follow the prescribed schedule of treatment, including close monitoring of a possible allergic reaction within the first twenty minutes of injection. You should wait at least twenty minutes in the clinic after your shot, in the event you may experience a rare, but severe reaction. By staying on site, your allergist can assess any reaction and provide immediate medical care if necessary, as well as adjust your next dose appropriately.

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Sublingual Immunotherapy

Sublingual (under the tongue) immunotherapy to treat allergic disorders has been available in Europe for years. This year, FDA approved RAGWITEK (Short Ragweed Allergen Extract) and GRASTEK (Timothy Grass Allergen Extract) tablet for sublingual use. Patients could take tablets at home instead of allergy injection at the doctor office.

The first dose of RAGWITEK and/or GRASTEK should be administered in a healthcare setting under the supervision of a physician. The patients should be observed for at least 30 minutes after receiving the first dose to monitor for signs or symptoms of a severe systemic or severe local allergic reaction. If the patient tolerates the first dose, the patient may take subsequent dose at home. Initiate treatment at least 12 weeks before the expected onset of ragweed pollen season and continue through the season. RAGWITEK and/or GRASTEK may also be taken daily for 3 years to provide a sustained effect for a fourth year in which you do not have to take RAGWITEK and/or GRASTEK.

Sublingual immunotherapy offers a safe and convenient treatment option for patients with allergic disorders. But at present, only Ragweed and Timothy tablets are available for sublingual immunotherapy.

Sinusitis and Allergic Disorders

Our sinuses are located within cavities beneath the formation of our cheekbones, called maxillary, behind the forehead and eyebrows, called frontal, on both sides of the bridge of the nose, called ethmoid, and behind the nose, in front of the brain, called sphenoid.

Each sinus cavity is joined to an opening into a continuous membrane, called the nasal passage, that allows to breathe in and exhale air and to eliminate mucous. However, when the nasal passage becomes swollen, either due to swelling caused by a cold, narrow nasal openings, a deviated septum, nasal polyps or allergic rhinitis, the sinus openings become blocked, and sinus drainage, blood flow and ventilation impaired. This occurrence enables bacteria in the sinuses to multiply, causing an infection.

Sinusitis, "itis" meaning inflammation, can or cannot be caused by an infection. Often caused by bacteria, acute sinusitis usually develops as a result of a viral

respiratory infection, or common cold. Most of the time, the common cold subsides on its own without medical treatment. However, a small percentage of cases, the common cold progresses into acute sinusitis.

When sinusitis lasts more than three months, the sinusitis is considered to be chronic. Unfortunately, chronic sinusitis is more complicated and difficult to treat than acute sinusitis. Also, chronic sinusitis is commonly seen in patients with a medical history of allergic rhinitis, asthma or nasal structural problems

Typical symptoms of acute sinusitis include cough, sinus pressure, facial pain, toothache, a stuffed nose, postnasal drip, yellow-green nasal discharge or even fever. For patients with chronic sinusitis, symptoms may be less sudden, but may still include facial pain and pressure, cough, nasal congestion with colored discharge, in addition to reduced sense of smell, loss of taste, foul breath, hoarseness and recurrent sore throat.

If you have sinusitis, and in addition to a detailed history and physical examination, your allergist may perform allergy skin testing, and order a sinus x-ray, CT scan and even endoscopic examination to rule out other possible underlying causes of chronic sinusitis.

While, treatment for acute sinusitis must include a course of antibiotics, oral decongestants, nasal corticosteroid spray, nasal irrigation with salt water and saline nasal spray, prolonged antibiotic treatment for several weeks for chronic sinusitis may be necessary to completely eliminate bacteria to prevent recurrent sinusitis. Surgical intervention by an ENT (ear, nose and throat) specialist is also indicated for patients with chronic and recurrent sinusitis with structural problems. It is not uncommon patients with recurring or chronic sinusitis to have both allergic rhinitis and structural impairment; therefore, addressing only one issue may not be the sole answer in preventing or treating chronic sinusitis.

Antihistamine Relieves Allergic Symptoms

As we know, allergic reactions involve an interaction amongst IgE, allergens, mast cells or basophils, which release chemical mediators such as histamine, leukotrenes, and prostaglandins to name a few. After being released from mast cells, histamines seek out "receptor" sites located in the

nasal lining tissue. Like a key inserted into a lock, the histamine (key) links up with a receptor site (lock) and triggers allergic symptoms such as sneezing and itching.

First generation antihistamines (over-the-counter) have been used to treat allergic symptoms since 1942. Antihistamines counter the effects of histamine because they attach themselves to the receptors before histamine gets to them. Because receptors accept only one chemical at a time, if antihistamines block histamine, allergic symptoms won't be triggered.

The most common antihistamine medications are first-generation or nonprescription products available over-the-counter. Most of these products, while bearing different brand names, contain similar active ingredients such as Brompheniramine maleate (Dimetapp), Chlorpheniramine maleate (Chlor-Trimeton), Clemastine fumarate (Tavist-1), and Diphenhydramine hydrochloride (Benadryl).

Corticosteroid and Anti-Histamine Nasal Spray

Although first-generation OTC antihistamines can relieve symptoms of allergic rhinitis, they also can make you drowsy by crossing the blood-brain-barrier and affecting histamine receptors in the central nervous system, thus resulting in drowsiness. Other side effects of first generation OTC antihistamines can include dry mouth, gastrointestinal distress, and urinary retention.

Due to noteworthy advances in research, several newer, second-generation anti-histamines have been developed such as Xyzal, Zyrtec, Allegra, Claritin, Clarinex, and Alavert that do not cross the blood-brain-barrier, therefore are less sedating, if sedating at all. The only downfall of second generation antihistamines is that they are normally more expensive.

Typically, antihistamines work best when taken on a regular basis before exposure to the offending allergen. So, if you know that animal dander triggers your allergic rhinitis and you plan to visit someone who has pets, take your anti-histamine two to five hours beforehand.

Because antihistamines normally do not decrease nasal congestion, they are frequently combined with a decongestant (D) such as Allegra-D, Zyrtec-D, and Claritin-D. The most commonly used decongestants are pseudoephedrine and phenylephrine. Common

side effects of oral decongestants are sleeplessness, nervousness, agitation, dryness of the mouth, difficulty urinating, high blood pressure and heart palpitations.

Although antihistamines can effectively treat some allergic symptoms, it cannot decrease inflammation and nasal congestion. The pharmacological approach focuses on decreasing inflammation by stabilizing mast cells and basophiles while decreasing the release of chemical mediators, and blocking the effects of histamine, leukotrienes, and prostaglandins.

Currently, the most effective medication available to control sneezing, itching, a runny nose and nasal congestion are corticosteroid nasal sprays such as Flonase, Nasacort AQ, Nasonex, Rhinocort, Omnaris, Zetonna, Veramyst, Patanase. Corticosteroid nasal sprays can block leukotrienes, prostaglandins and other chemical mediators and reduce inflammation which is the cause of allergic symptoms. These sprays must be used regularly in order for them to work and it may take one to three weeks to achieve maximum benefit.

While side effects of corticosteroid nasal sprays are generally mild and limited to the nose, common ones, if the used incorrectly, include burning, stinging, and irritation of the lining of the nose or nasal septum (the wall that divides the nose into right /left sides) rarely. Patients are advised not to point the nozzle of the spray toward the nasal septum as this can injure the septum. Rather, the nozzle should be pointed slanted back, following the direction of airflow into the nose.

The antihistamine nasal spray Astelin (azelastine), which usually takes effect within three hours and in contrast to most oral antihistamines, is also effective in helping reduce nasal congestion. New nasal spray Dymista (azelastine hydrochloride and fluticasone propionate) which combines corticosteroid with antihistamine has shown more effective than either nasal corticosteroid spray or antihistamine nasal sprays alone.

Cromolyn sodium, which is not an antihistamine, decongestant or steroid, is widely prescribed because of its ability to prevent the release of these chemicals from mast cells into the nasal tissue. For the best results, Cromolyn sodium should be started two weeks before allergy season. Although Cromolyn is not as effective as corticosteroid nasal sprays, doctors may often prescribe it for children.

Controlling Asthma with Bronchodilator and Corticosteroid

Asthma, known as chronic inflammation of the lining of the airway, can be triggered by allergens such as trees, grasses, weeds, dust mites, and animal dander (allergic asthma) or irritants (non-allergic asthma).

The first step in treating allergic asthma is to avoid the aggravating allergens and then with immunotherapy (allergy injections), if necessary. Whether you have allergic or non-allergic asthma, most patients still need relief with medication for wheezing, chest tightness or shortness of breath.

Let's look at the three basic classes of asthma medications: short acting bronchodilators, long acting bronchodilators and anti-inflammatory medication.

Short acting bronchodilators (quick-relief inhalants or rescue medication) work by rapidly relaxing muscles in the airway, causing the airway to open, usually within five minutes. Drugs in this class include Albuterol (Proventil), Levalbuterol (Xopenex) and others.

Long-acting bronchodilators, such as inhaled salmeterol, formoterol can dilate the airway for up to 12 hours per dose. While long-acting bronchodilators are commonly used to prevent nighttime and exercise-induced asthma, they require about 10 to 30 minutes to take effect and four to six hours to reach full effect. Therefore, they should not be used as "rescue medication". Studies have shown that long acting bronchodilators can enhance the anti-inflammatory properties of inhaled corticosteroids when used together such as Advair (a combination of fluticasone with salmeterol), Symbicort (budesonide with formoterol) and Dulera (mometasone with formoterol).

Decreasing airway inflammation with the use of anti-inflammatory medication can lessen the frequency and severity of asthma attacks and airway damage. Inhaled corticosteroids, which have few side effects, can provide the most effective long term control for moderate to severe asthma.

Cromolyn sodium and Nedecromil, which are not as strong as corticosteroids, are widely prescribed to prevent or treat mild asthma because of their ability to stop the release of mast cells into the bronchial tissue. Leukotriene blockers, such as Singulair (montelukast) and Accolate (zafirlukast), can relieve asthma and allergic rhinitis, but not as effectively as inhaled corticosteroids. Still, leukotriene blockers are a good choice for patients with mild allergic rhinitis and asthma.

During moderate to severe episode of asthma, you may require a short course of oral corticosteroid to rapidly gain control over worsening symptoms. In such cases, oral corticosteroids can help quick-relief medications work more effectively, resulting in a more rapid reversal or reduction of airway inflammation.

With bronchodilators and anti-inflammatory drugs, asthma episodes can be well controlled and even prevented. Furthermore, a ground-breaking anti-IgE therapy called Xolair can offer new hope for severe allergic asthmatics.

