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ALLERGY IMMUNOTHERAPY

This brochure is designed to answer the basic *who, what, when, where, how and why* questions you may have regarding allergen immunotherapy, also known as "allergy shots."

What is immunotherapy?

Allergen immunotherapy is a form of treatment aimed at decreasing your sensitivity to substances called allergens. These allergens are identified by allergy testing, and are the substances that trigger your allergy symptoms when you are exposed to them. Allergen immunotherapy involves injecting increasing amounts of an allergen to a patient over several months. Immunotherapy has been shown to prevent the development of new allergies and, in children, it can prevent the progression of the allergic disease from allergic rhinitis to asthma. Allergen immunotherapy can lead to the long-lasting relief of allergy symptoms after treatment is stopped.

Who should be treated with immunotherapy?

Immunotherapy is only recommended for allergic asthma, allergic rhinitis and conjunctivitis, and stinging insect allergy. Immunotherapy for food allergies is not recommended. The best option for people with food allergies is to strictly avoid that food. The decision to begin immunotherapy will be based on several factors including:

- **Length of allergy season and severity of symptoms.**
- **How well medications and/or environmental controls control allergy symptoms.**
- **Desire to avoid long-term medication use.**
- **Time:** immunotherapy will require a significant time commitment.
- **Cost:** may vary depending on region and insurance coverage.

Can children receive immunotherapy?

Five is the youngest recommended age to start immunotherapy in the United States for several reasons, including the difficulties younger children may have in cooperating with the immunotherapy program. Recent studies have suggested immunotherapy may prevent the development of new allergies in children and also may prevent the development of asthma in children who have rhinitis.

There is no upper age limit for receiving immunotherapy. In considering immunotherapy in older persons, consideration must be given to the other medical conditions (such as cardiac disease) that are more frequent in older individuals, which could potentially make immunotherapy more risky.

Where should immunotherapy be given?

Immunotherapy should be given under the supervision of a physician in a facility equipped with proper staff and equipment to identify and treat adverse reactions to allergy injections. Ideally, immunotherapy should be given in the prescribing allergist/immunologist's office but if this is not possible, your allergist/immunologist should provide the supervising physician with comprehensive instructions about your immunotherapy treatment.

How does immunotherapy work?

If you are allergic to a substance such as ragweed, you will not overcome your allergy by repeatedly inhaling ragweed into your nose or lungs. So, how can a series of injections that include the substances that trigger your allergies, relieve your allergy symptoms?

Allergen immunotherapy works like a vaccine. Your body responds to the injected amounts of a particular allergen, given in gradually increasing doses, by developing an immunity or tolerance to the allergen(s).

As a result of these immune changes, immunotherapy can lead to decreased, minimal or no allergy symptoms when you are exposed to the allergen(s) included in the allergy vaccine.

There generally are two phases to immunotherapy: a build-up phase and a maintenance phase.

- **Build-up phase:** involves receiving injections with increasing amounts of the allergens. The frequency of injections during this phase generally ranges from 1 to 2 times a week, though more rapid build-up schedules are sometimes used. The duration of this phase depends on the frequency of the injections but generally ranges from 3 to 6 months.
- **Maintenance phase:** This phase begins when the effective therapeutic dose is reached. The effective maintenance dose is different for each person, depending on their level of allergen sensitivity (how 'allergic they are' to the allergens in their vaccine) and their response to the immunotherapy build-up phase. Once the maintenance dose is reached, there will be longer periods of time between immunotherapy treatments. The intervals between maintenance immunotherapy injections generally ranges from every 2 to every 4 weeks. Your allergist/immunologist will decide what range is best for you.

The benefits of immunotherapy, in terms of reduced allergy symptoms, can begin during the build-up phase but may take as long as 12 months on the maintenance dose. Improvement with immunotherapy may be progressive throughout the immunotherapy treatment period. Effectiveness of immunotherapy appears to be related to length of treatment and the dose of the allergen. Failure to respond to immunotherapy may be due to several factors including:

- **Inadequate dose of allergen** in the allergy vaccine.
- **Missing allergens not identified during the allergy evaluation.**
- **High levels of allergen in environment** (i.e. inadequate environmental control).
- **Significant exposure to non-allergic triggers** (i.e. tobacco smoke)

If there is no improvement after a year of maintenance immunotherapy, possible reasons for failure to respond should be explored. If no apparent reason is found then discontinuation of immunotherapy should be considered and other treatment options should be pursued.

When should immunotherapy be stopped?

If immunotherapy is successful, maintenance treatment is generally continued for 3 to 5 years. The decision to stop immunotherapy should be discussed with your allergist/immunologist after 3 to 5 years of treatment. Some individuals may experience lasting remission of their allergy symptoms but others may relapse after discontinuing immunotherapy. Therefore, the decision to stop immunotherapy must be individualized.

What are the possible reactions?

There are two types of adverse reactions that occur with immunotherapy: local and/or systemic reactions.

Local reactions: are fairly common and present as redness and swelling at the injection site. This can happen immediately, or several hours after the treatment.

Systemic reactions: are much less common than local reactions. Systemic reactions are usually mild and respond rapidly to medications. Symptoms can include increased allergy symptoms such as sneezing, nasal congestion or hives. Rarely, a serious systemic reaction, called *anaphylaxis*, can develop after an immunotherapy injection. In addition to the symptoms associated with a mild systemic reaction, symptoms of an anaphylactic reaction can include swelling in the throat, wheezing or a sensation of tightness in the chest, nausea, dizziness or other symptoms.

Systemic reactions require immediate treatment. Most serious systemic reactions develop within 30 minutes of the allergy injections and this is why it is recommended you wait in the office for 30 minutes after your allergy injections. Your allergist/immunologist is trained to monitor for such reactions and his or her staff is trained to identify and treat systemic reactions.

Summary:

Allergy immunotherapy is a proven effective treatment for allergic rhinitis, allergic asthma, and stinging insect allergy. It also may be effective in some individuals with atopic dermatitis (eczema) if they have allergies to airborne allergens. Immunotherapy can potentially modify the allergic disease leading to lasting remission of allergy symptoms. Immunotherapy may play a preventive role in pediatric allergic disease, in terms of development of asthma and new allergies, thus early involvement of the allergy specialist may be important in the child with allergy symptoms. Adverse reactions to immunotherapy are rare but do require immediate medical attention and this is why immunotherapy should be administered in a medical facility appropriately outfitted with equipment and staff capable of identifying and treating these reactions.