THE "INFO"-HALER

TAKE IN THE INFORMATION

An easy to understand, informative newsletter for our patients of all ages from the
Allergy & Asthma Associates of Michigan, P.C.

ANTI-IgE THERAPY

IgE (Immunoglobulin E) antibodies are the trouble makers in an allergic reaction. Everyone has small amounts of IgE occurring naturally in their body, but allergic individuals have massive numbers of these antibodies which are responsible for allergic reactions.

Allergic individuals have confused immune systems which perceive ordinarily harmless substances such as grass, trees, weeds, ragweed, molds, dust mites, cats, dogs, cockroaches, etc. (allergens) as being harmful. Allergic individuals try to protect themselves from these substances by producing IgE antibodies against them. IgE antibodies develop over time and with repeated exposure to the allergens. There are specific IgE antibodies produced for each specific allergen. For example, if you are allergic to dust mites and cat dander, then there are specific IgE antibodies to dust mites and to cat dander produced in your body and available to cause trouble.

All people have mast cells located throughout their bodies, but especially in the airways, nasal passages, skin, and gastrointestinal tract. The mast cells are capable of releasing chemical mediators such as histamine and leukotrienes. In allergic individuals, all IgE antibodies produced happen to be of an exact shape and configuration to complement the mast cells and hence they attach themselves to the mast cells and park there. In highly allergic individuals there may be several hundred thousand IgE antibodies for specific allergens attached to each mast cell. When there is repeated exposure to the specific allergen (e.g. dust mites or cat dander) the IgE antibodies get agitated and shake the mast cells causing them to release chemical mediators such as histamine and leukotrienes which trigger the allergic reaction. In the areas where the mast cells are most concentrated, symptoms are most likely to develop: respiratory tract (asthma), nasal passages (allergic rhinitis), skin (hives, eczema), GI tract (nausea, diarrhea).

Treatment medications currently available do not stop IgE production, nor prevent the IgE antibodies from attaching to the mast cells. Cromolyn Sodium medications work to stabilize the mast cells and help to prevent them from releasing chemicals. Antihistamines and leukotriene modifiers work to rid the body of chemical mediators as they are released. Bronchodilators and anticholinergics work to keep the airways open. Inhaled and systemic corticosteroids work to control inflammation. In highly allergic individuals, most of these drugs need to be taken on a daily basis to control allergy related problems.

Immunotherapy (allergy injections) adds a new dimension to the treatment therapy by preventing the IgE antibodies from attaching to the mast cells. Allergy injections cause the body to produce IgG (good) antibodies which help to block the effects of the IgE antibodies. IgG antibodies go right to the mast cells, but instead of attaching themselves, they merely surround the mast cells and set up a blockade to prevent the IgE antibodies from attaching. The more IgG antibodies that are produced, the more protection the mast cells receive, and the less damage the IgE antibodies can do. Over time, and with repeated allergy injections, IgG antibodies increase and the patient experiences fewer allergy symptoms. If injections are continued for five to six years, results of a more permanent nature are realized.

Anti-IgE therapy is part of a new class of drugs called biologics which work to block the allergic response at the immune level. Anti-IgE therapy does not stop the production of IgE antibodies either, but like allergy injections, it too works to prevent IgE antibodies from attaching to the mast cells. Anti-IgE antibodies work to lock up and remove

newly formed IgE antibodies before they are able to attach to the mast cells. Anti-IgE therapy is like sending a small army into the body to capture and disable the free IgE antibodies. It works relatively quickly, but requires continued use to be effective.

In June, 2003, the FDA approved the first Anti-IgE medication for use in the United States. It is called Xolair (Omalizumab) and is a very expensive, injectable medication that can only be used, at this time, on patients over twelve years of age who have uncontrollable moderate to severe persistent allergic asthma. Xolair is a controller or maintenance medication that needs to be taken forever. It is given subcutaneously by injection. The dosage is determined by the patient's IgE blood level and the patient's body weight. Depending on these variables, a patient may receive anywhere from one to three injections every two to every four weeks. Once calculated, the dosage always remains the same, unless there is a remarkable change in body weight. Many insurance companies are currently covering this medication, leaving the patient with a small co-payment.

Since Xolair is new and very expensive, it has only been approved for a very select group of patients. It can only be given to patients ages twelve years and older who have positive allergic skin or blood test results, have elevated blood IgE levels, and who have asthma which is triggered by their allergies. It is thought that 70% of all patients with asthma have allergic asthma. In addition, the asthma must be moderate to severe persistent which means the patient has daily asthma symptoms requiring bronchodilator treatment, night time symptoms at least one time per week, two or more asthma attacks per week, and whose symptoms are not controlled with inhaled corticosteroids or other traditional therapies including allergen avoidance.

Xolair works by locking up circulating IgE antibodies in the blood stream and preventing them from attaching to the mast cells. This stops the allergic response and reduces or eliminates the symptoms of an allergic reaction and asthma. Since June of 2003, it is thought that Xolair has reduced the rate of asthma by 38%. Xolair decreases day and night time asthma symptoms, and improves quality of life. In time, the once or twice monthly injections (if taken as directed) may reduce the need for inhaled bronchodilators and inhaled corticosteroids, though these medications are only to be tapered and stopped as directed by the Doctor when the Doctor feels it is appropriate. Until that time, they are to be taken as directed along with Xolair. Xolair treatment is generally well tolerated. An immediate improvement in symptoms may not be seen with Xolair, as IgE antibodies already attached to the mast cells can still cause trouble, but over time, as more IgE antibodies are locked up and removed, symptoms will improve.

At this time, Anti-IgE therapy is a life long therapy. It is hoped that Anti-IgE treatments may one day permanently alter the already confused immune system by convincing the body that IgE antibodies are not needed and should no longer be produced. Currently, however, if the medication is stopped, symptoms generally return within three months. Anti-IgE therapy is also currently being investigated as a treatment for children with allergic asthma under the age of twelve years, for individuals with allergic skin disorders, for individuals with food allergies (particularly peanut allergy), and for individuals with allergic rhinitis. Anti-IgE therapy may also one day be used for treatment of auto-immune diseases and/or arthritis.

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