

Evaluation of the Role of Autoimmunity in Allergic Rhinitis

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Abstract: Immune system is the most important asset of human body; it plays a significant role in the protection of the body from illness, infection, and disease. Sometimes the immune system makes a mistake and attacks the healthy cells of your body instead of protecting them, when this happens; it is called an autoimmune disease (also called an autoimmune disorder). Although there are many kinds of immune disorders affect different parts of the body, two types of autoimmune disorder include rheumatoid arthritis, celiac disease and lupus. Allergy is an interaction between the immune system and a substance foreign to the body. ^[1]There are two important effects of allergy on the body. One is the classic "allergic reaction" that can cause sudden tissue swelling, itching, sneezing, increased mucous production, and in lungs, wheezing and shortness of breath. In food allergic reactions, the intestinal tract can also be acutely inflamed and cause nausea, vomiting and diarrhoea. Complete body experiences allergic reaction, anaphylaxis, low blood pressure and sometimes shock. The other part of the "allergic response" is persistent inflammation that is important in nasal allergy; inflammation can occur and cause some symptoms without the sneezing, itching and wheezing. Both types of allergic effects are nuisance for the day to day activities of the individual. Diagnosis and effective treatment of allergic disorders requires consideration of both of these effects and should be monitored accordingly.

Keywords: Auto immune, allergy, disease, illness, itching, sneezing, diagnosis, treatment

1. Introduction

Auto immune disorders and allergic disorders are increasing gradually now days. An allergic reaction involving Ig_E occurs within minutes after binding of an allergen to Ig_E antibody located on mast cells on or within mucous membranes or within certain tissues of the body. The Ig_E antibody's structure consists of a body and two arms with "hands" (binding sites) that hold on to only one specific allergen. The "foot" of the Ig_E antibody is attached to the mast cell which is packed full of histamine granules. These antibodies may be attached to the mast cells for weeks to months, and unless there is an allergen to bind to, there are no symptoms to indicate allergy. Once an allergen comes along, such as alder tree pollen in the spring time, symptoms start to occur in those allergic persons who have Ig_E antibody specific for alder pollen.

When allergen binds to its corresponding antibody bound to a mast cell (actually bridging two copies of the same antibody), a signal is sent to the inside of the cell causing the cell membrane to burst open, releasing histamine granules in an explosive like process. Histamine then diffuses out into adjacent tissue and interacts with nearby blood vessels, nerve cells, and, in the nose and lungs, mucous glands. Blood vessels then enlarge and leak fluid and tissues swell, and itching occurs from interaction with nerve cells. In the nose, sneezing and increased mucous production will be noted. In the lungs, increase mucous secretion and airway narrowing occurs if one has asthma. In order for histamine to cause allergic symptoms, it must bind to specific histamine receptors on the above tissues. This receptor can be "occupied" by a medication called an antihistamine, blocking the action of histamine leading to reduced allergic symptoms.

Allergen and Immunity

The application of allergen - SIT has become increasingly popular since first reported by Leonard Noon in 1911. Subcutaneous or oral/sublingual administration of allergens has been used for the successful treatment of a wide range of allergies including those to bee venom, cow's milk, peanut or birch pollen. Typically, this starts with a build - up day where the maximum tolerated dose is determined. This dose is then gradually escalated over a period of approximately two months to a high maintenance dose, which is administered regularly for months to years. By escalating the treatment dose, a maintenance dose can be reached that is far higher than the maximum tolerated dose at onset, with limited adverse effects. Studies have shown that optimal results are achieved using the highest tolerable cumulative dose that is long - term treatment. To further prevent adverse effects caused by allergic rhinitis due to the triggered initiates and increase efficacy, a wide range of novel therapeutic strategies have been employed, including the use of non - IgE binding allergen derivatives, adjuvant, alternative routes of administration, fusion proteins, allergen - encoding C - DNA and peptides that represent T cell epitomes. Hypoallergenic peptides, in particular, are an increasingly popular alternative to whole proteins and have proven successful in animal models and human trials [9 HYPERLINK "https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2977065/", 10, 11 HYPERLINK "https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2977065/"]

Diagnosis

Each allergic reaction is triggered by a specific allergen; the main goal of diagnosis is to identify that allergen. Often, the person and doctor can identify the allergen based on when the allergy started and when and how often the reaction occurs (for example, during certain seasons or after eating certain foods). Skin tests and the allergen - specific serum

Ig_E test can also help doctors detect the specific allergen. However, these tests may not detect all allergies, and they sometimes indicate that people are allergic to an allergen when they are not (called a false - positive result). Skin testing are the most useful way to identify specific allergens. Usually, a skin prick test is done first. Dilute solutions are made from extracts of pollens (of trees, grasses, or weeds), fungal spores, dust mites, animal dander, insect venom, foods, and some drugs. A drop of each solution is placed on the person's skin, which is then pricked with a needle. The skin prick test can identify most allergens. If no allergen is identified, an intra - dermal test is done. For this test, a tiny amount of each solution can be injected into the person's skin. This type of skin test is more likely to detect a reaction to an allergen.

Before skin tests are done, people are asked to stop taking antihistamines and certain, Anti - depressants called tricyclic antidepressants (such as amitriptyline) and monoamine oxidase inhibitors (such as selegiline). These drugs may suppress a reaction to the tests. Some doctors also do not test people who are taking beta - blockers because if such people have an allergic reaction, the consequences are more likely to be serious. In addition, beta - blockers may interfere with the drugs used to treat serious allergic reactions.

Treatment

Avoiding the allergen is the best way to treat as well as prevent allergies. If mild symptoms occur, antihistamines are often all that is needed. If they are ineffective, other drugs, such as mast cell stabilizers and corticosteroids may help. Non - steroidal anti - inflammatory drugs (NSAIDs) are not useful, except in eye drops used to treat conjunctivitis. Severe symptoms, such as those involving the airways (including anaphylactic reactions), require emergency treatment. Anti - Histamines are the drugs of choice for allergic rhinitis. Anti - Histamines are available as Tablets, capsules, or liquid solutions to be taken by mouth. Nasal sprays, Eye drops, Lotions or creams.

2. Conclusion

The concept of allergy is ancient as in ayurveda doshas act as antibodies against allergens. Modern science relates it to immunity system, although both have got same working properties, it's very important to understand the concept of autoimmune system and allergy. Increasing cases of allergic rhinitis indicate there is need of conceptual understanding between autoimmune system and allergic rhinitis.

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