Health (20 and Below)

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What's Your Poison?

The many facets of allergic rhinitis by Dr Dharambir S Sethi

> **ALLERGIC RHINITIS IMPLIES** an inflammation of the mucosal lining of the nasal airways primarily caused by an "allergen". It is one of the most common medical conditions encountered globally. It affects 10% to 40% of the population in industrialised countries. The incidence of allergic rhinitis in the US is about 17% of the population; and in Singapore, a study showed the incidence to be around 13%. The economic impact of allergic rhinitis in the United States is estimated to be roughly 8 billion dollars annually. The time lost from work is estimated at 10 million days a year; and for children the time lost from missing school is 2 million days a year.

The Development of Allergy

For the patient to develop allergy, the allergen must enter the body to produce symptoms. The most common portal of allergy is the respiratory route – in other words, most of the times we inhale the allergens. Not surprisingly, most symptoms caused by inhalant allergens occur in the respiratory tract.

When an allergen – something that one is allergic to – enters the body, it incites certain cells (B cells) of the immune system to produce antibodies specific to that particular allergen. These antibodies then bind to some other type of cells called the mast cells. This binding causes the mast cells to become "sensitised" to that particular allergen. When these sensitised mast cells come in contact with the allergen they liberate histamine and other chemical mediators responsible for the symptoms of allergy. This process is triggered when the allergen enters the body and binds to the specific antibodies already present on the surface of the mast cells.

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Types of Allergens

For practical purposes, the inhalant allergens are generally divided into two types: perennial and seasonal. Perennial offenders are present throughout the year. These include house dust, which has been considered as the universal antigen. The best known antigen present in house dust is the mite Dermatophagoides. Other allergens include insects such as cockroach and cricket.

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Epidermal allergens include animal hair of furry animals where cats and dogs top the list. The dander and other allergens produced by the furry animals are light and become an intimate part of the drapes, carpets and other décor.

Mould allergy is worldwide and at all seasons. Moisture and decay promote mould growth. Area around plumbing and water pipes is subject to condensation and accumulate major amounts of mould growth. There are currently more than 80,000 species of mould identified!

Food allergy includes allergy to milk, wheat, corn, yeast, egg and soy. Food allergy is even more insidious. Its manifestations have been well described by the term "many syndrome" i.e. many symptoms, many organ symptoms, many physicians, many tests, many failures.

Inbalant allergy may vary in its manifestation depending on the type of allergen. In perennial allergic rhinitis, the signs and symptoms may be indistinguishable from the common cold. The patient often complains of a "cold that never goes away".

Diagnosing Allergy

The presumptive diagnosis is usually made from history and physical examination.

Skin Prick Test

Among the tests to confirm the diagnosis of allergy, the skin prick test is quite popular. This test is inexpensive and can be safely performed in the clinic. The skin prick test is very sensitive but is, however, subject to a variety of external influences. Antihistamines, several tranquilisers, cough medications, and drugs with similar actions may depress skin activity making readings unreliable. The skin tests can also be time consuming.

Radioallergosorbent Test

For patients not suitable for skin prick test, a blood test is available. This is called the Radioallergosorbent

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Allergy Can Affect Any Part of the Body

Nose. In the nose, allergy causes inflammation of the nasal passages and is usually associated with runny nose, sneezing, itch and blocked nose.

Ears. In the ears, allergy may be the cause of "otitis externa" i.e. chronic inflammation of the pinna or the ear canals. Allergy may also cause "glue ear", recurrent ear infections, barotrauma and Eustachian tube dysfunction.

Throat. The throat is not as commonly involved as the nose and ears, but allergy can be the cause of chronic sore throat in some patients. The sinuses may be affected as well.

Test (RAST). Each antigen produces an antibody specific to the antigen. This test measures the serum level of that specific antibody. This test overcomes or entirely eliminates the variability of the skin tests. It saves time and causes less discomfort to the patient. The cost, however, may be a concern as it can be expensive to test a whole panel of allergens. It is also not as sensitive as skin prick test.

Treatments of Allergic Rhinitis

Once the allergen/s is/are identified, some definitive form of therapy is planned. In most cases, more than one approach will be needed before the patient reaches the maximal benefit. Treatment includes environmental control, pharmacotherapy, and immunotherapy.

Ideally, allergy should be controlled by elimination of the offenders. Inhalant allergens consist of pollen (in seasonal countries), moulds and various members of the dust group including animal dander. Unfortunately, elimination of these from the environment is far from easy. Pollen allergy is not common in Singapore, but dust, mould and animal dander are abundant.

Pharmacotherapy includes antihistamines, decongestants and steroids. Antihistamines have been in general use since the 1940s. Chemically, they compete with histamine for attachment sites on the target organs. Antihistamines function best when administered before allergen exposure. Almost all antihistamines tend to be sedative in nature; therefore, operating machinery and driving a vehicle may be dangerous while on antihistamines. Steroids exert probably the most profound effect on both allergic and other related inflammatory conditions of any drug available. Over a short period they are also among the least likely to produce side effects. The most appropriate use of systemic steroids is the short burst necessary to control an intolerable acute condition.

Immunotherapy aims at hyposensitising the patients to the allergens and offering a reasonable possibility of a cure at least for a time. It is a form of immunisation which is accomplished by intentional exposure to regular, progressive doses of the same specific aeroallergens that are responsible for producing symptoms. It results in down-regulation of the immunologic response and control of symptoms associated with usual levels of environmental exposure to the treated allergens. It is, however, expensive and may take as long as three to five years to be effective. Therefore, a firm commitment from the patient is necessary before considering this mode of treatment. eh



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