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**ALLERGY:**

**(**General introduction & History**)**

Symptoms of allergic diseases have been known for many centuries, although allergy has come in regular medical practice in the past few decades. Probably the first reference to the allergic diseases was found in the **Papyrus Ebers** in which asthma and diseases due to “autointoxication” were mentioned. The writings of Hippocrates record at least 12 cases of asthma; the first case of hay fever symptoms was recorded by Herodotus. The term allergy was first defined by **Von Pirquet in 1906** and described it a changed or altered reaction in the body.

Allergy may be defined as **“When an individual develops an unusual response to a substance or condition that is harmless to others, the individual is said to the allergic” and the condition is called “allergy”.**

According to a survey, approximately half to the population of the United States suffers from some sort of allergy; however, it is estimated that only one person in 10 develops symptoms sufficiently severe to require the services of an allergist or a physician who specializes in allergic disease.

**The exact cause of allergic is still undetermined (unknown).** The reasons why certain individual’s exhibit and allergic response to ragweed pollen and others do not are understood. Based on genetic studies, medical and immunologic investigators generally agree that the tendency to be allergic is hereditary. e.g.; when both parents are allergic, 75 % of offspring may develop an allergy; similarly, when one parent is an allergic; and when neither parent is allergic, 7-12% of offspring may develop and allergy . However, at present time, it is impossible to predict whether a new born infant will be allergic or not.

**Mechanism of Allergy:**

When the body of an individual is first subjected to the allergens (antigens), the condition is said to the **“primary exposure**”. As no antibodies are formed previously, no symptoms of the allergy are produced during this primary exposure. However, during **the subsequent exposures**, the antibodies are produced by white blood cells (β-lymphocytes) against the allergens. These antibodies stick to the surface of the allergy-cells **(mast cells**), which are present in skin, lungs (respiratory tract), GIT etc. This process is called **“sensitization**”. After this change, there is an allergic reaction every time the body is exposed to the allergens. The allergens stick to the antibodies on the surface of the mast cells. This coupling causes antigen- antibody reaction, that is responsible for liberation of histamine and other mediators of allergic reactions/symptoms, including leukotrienes or SRS (slow-reacting substances) and bradykinin (from the cells of certain tissues and organs referred to as the shock organs). If the state of shock is confined to the area of introduction of the allergens, the condition is a localized reaction; if its effects extend beyond this area, it may be a generalized or constitutional reaction. This constitutional reactions produced in some patients by injections of penicillin preparations are extremely uncomfortable and sometimes dangerous even fatal.

**Types of Allergens**

It has come in daily practice that most allergies are not dangerous, although they can make life miserable. Among all the allergies exception is the **“Anaphylaxis**” , Which is a life-threatening emergency and requires the immediate medical attention

**Following are the three types of Allergies.**

1. **Mild Reaction:**

T he symtomps in this type of allergy are localized and mild; for example, Rash (eruption of the skin in spot or patches,) hives, itchy or watery eyes (lacrimation) and some congestion.

The symptoms do not spread to other parts of the body, rather restricted to limited part or organ or a system.

2. **Moderate Reaction:**

In this the symptoms become stronger and spread throughout the body or may spread form one part of the body to the other parts of the body, i.e., involving more than one system of the body.e.g. Respiratory and skin etc.Breathing may be affected and itching may spread form one part of the body to the other part(s)

**3. Severe Reaction:”**

Anaplytaxis is the most severe of all allergic reactions.Vital system or system are involved in this reaction. Anaphylaxis is rare but is life- threatening. This allergic reaction is sudden and severe, and systemic.It may occur after 1/v, I/M, oral or S/c injection.

**Symtoms:** **CVS**: Lowering of blood pressure, slow pulse rate vasomotor collapse leading to shock.

**Respirtory**:- Shallow breathing, bronchial spasm or bronchoconstriction leading to death

Skin: Itching of the palms of the hands, and the soles of the feet, erythema and peeling of the skin, and swelling especially face, tongue and throat; lips etc.

Similarly nausea, vomiting and abdominal cramps.Sometimes CNS is also involved, as there is dizziness and mental confusion.

**Allergens**

Allergens are antigenic substances, and microscopic proteins in nature. They are allergy-provoking substances, i.e. capable of sensitizing the body in such a way that unusual responses occur in hypersensitive individual. The allergen must be antigenic; that is, it must be capable of eliciting antibody response. The antigenic fraction of ragweed pollen, for example causes a susceptible person’s body to produce special protein molecules (antibodies) some of which circulate in the blood (circulating antibodies) and others which become attached to the cells of the nasal membranes (fixed antibodies). These particular antibodies have a special affinity for chemical components of the ragweed pollen, and of related pollens in the ragweed family, but they cannot combine with the antigenic molecules in unrelated pollens, in foods, or in other allergic substances. Thus antibodies are considered to be specific and, because of allergenic substances do produce specific antibodies, each type of allergy is constitutionally different from other types.

**Nature of Allergens**

**Biological**: Most allergens are composed of plant or animal origin. i.e., natural products e.g pollens from weeds, grass, flowers and trees.

**Mould and (single fungi)**

Yeast (many fungi) spores of bacteria, fungi, house-dust mites (microscopic insects), feathers, fur, hairs from birds, animals (pet-animals, dog, cat, pigeon, parrot), latex, bee sting.

Foods : vegetables (plant), animal origin

Chemical: medicines, acids (organic ); synthesis: Medicines eg antibiotics (penicillins) cephalosporins, sulfa group, N.S.A.I.D.S, eg Aspirin.

Plastic: rubber, PVC(polyvinyl chloride) cosmetics, perfumes, nail polish, detergents, soaps, nail polish remover.

**Role of Allergens:**

1. **Allergey-causing Agents:**

Allergens are antigenic in nature, i.e., capable of eliciting antibody response, and responsible for allergic reactions. Thus the allergy causes the liberation of histamine and other mediators of allergic symptoms. There is narrowing of bronchial tubes in the lungs, dilation of blood vessels and production of secretions, such as mucus.

**2.As diagnostic tool:**

Allergens e.g., pollens, foods, medicines etc. may be used during skin-test for diagnosis of allergy in hypersensitive individuals.

**3.As therapeutic Agents:**

Allergens in the form of allergenic extracts (which are dilute stable preparations of various allergenic/ antigenic substances) are used for diagnosis/ preseasonal prophylaxis, and treatment of allergies (except food allergies).

**Types of Allergens:**

**Inhalant Allergens:**

The substances that are distributed in the atmosphere and contact the buccal or nasal mucosa during respiration are **inhalant allergens.**The allergic symptoms caused by inhalant allergens are restricted to the nasal mucosa and are manifested by sneezing, lacrimation, itching and swelling of nose and eyes. The condition is known as sinusitis or hay fever. The term hay fever was originated by John Bostock in England, because he believed that the odour emanating from new mown hay was responsible for fever or stuffiness of the nasal passages. Occurrence of the symptoms during certain months of the year indicates **seasonal hay fever** because this condition is usually associated with the release of pollen grain form certain plants; the term pollinosis is often used. Non-seasonal hey fever more commonly called perennial rhinitis may be caused by inhalants other than pollens: mold spores, dust, animal epidermis or dander, feathers, cotton linters volatile oils, and countless other factors. The determination of the exact dates within which symptoms of seasonal hay fever occur frequently give a clue to the type of pollen grain responsible for allergy.

**There are 3-well defined pollen seasons:**

1. The tree season: in spring (extending from February to April); examples of the trees are: populous (pine) , juglans (Black walnut), Quercus (oak), Platanus (Mulberry)
2. The Grass Season: Late Spring to early summer (April-August) e.g Sorghum (Johnson grass) Cynodon dactylon (Bermuda grass), Dactylis (orchard grass)
3. The ragweed Seasons: Late summer to early falls (August-october) e.g chenopodium (Mexican tea), Amaranthus (palmer), Artemissia.

Variations in the pollinating periods of these plants are directly related to geographic locations, severity of winters, similar factors.

(Ragweed-North America’s: plant with allergenic pollen of ambrosia genus)

Pollen grains are heterogenous in nature and may be round, oval, angular, square, rectangular, or otherwise shaped, depending on whether the grains are contracted or fully expanded. Most pollen grains are single entities, but some may 2- compound, 3-comd, tetrads, and so forth. Their out wall is known exine and the inner wall as intine. Atmospheric pollens are liberated chiefly by anemophilous (wind-pollinated) plants and are usually small (15 to 45 µm in diameter), light, non-adhesive and relatively smooth. Trees (oak, walnut) Grasses (Bernuda, timothy) and weeds (ragweed, plantain) are examples of plants having anemophilous flower. In contrast, pollens of entomophilous (insect-pollinated) plants are usually larger (upto 20o μ in diameters); heavier, adhesive, and may be somewhat spiny. Plants with scented coloured flowers(rose) are entromophilous. Wild-pollinated flowers are rarely coloured and are generally not fragrant because they do not need to attract insects for the pollination process.

Non-seasonal hay fever, as the name indicates, cannot be related to a seasonal trend. The allergic symptoms may be manifested throughout the entire year or perhaps at several periods during the year but with no regularity. Often inhalant allergens may occur in home. At place of employment, or in some particular locale frequented by the patient in the home, cotton pillowcases, sheets, and blankets usually shed” linters” or fragment of cotton fibers that are light enough to float in the air. The pillows, if made of feathers, may be a source of the allergen, particularly if the pillows are old, and the feathers are disintegrating. Odours and perfumes are major factor in non-seasonal allergy. e.g., sandal wood oil, and many other volatile oil are allergenic.

Animal epidermis or animal danders (epithelial scales) is a frequent source of allergenic matter. Cats, dogs, gunea pigs, and other pets, are responsible for a patient’s cough, wheeze or asthmatic attack.

Much of the non-Seasonal hay fever is thought to be caused by fungus spores, especially to Helminthosporium cladosporium and Aspergillus. Mold spores are almost constantly present in the atmosphere; even during winter ad have been contributing factors to many cases of perennial rhinitis.

Similarly is allergy to dust that is composed of mold spores, cotton linters animal danders, sizing form rugs and carpets; various types of mites may be a major allergen in house dust.

**Ingestant Allergens: (Food Allergy)**

Ingestant allergens are present in food-stuffs and are swallowed. As ingestant allergens are present in various foods and food-product, hence may also be called as food allergens.Their allergens reactions are usually not life threatening. They ordinarily cause gastro intestinal symptoms, but may also cause skin rash, puffed lips and tongue, migraine, rhinitis, or sometimes other more serious effects, such as bronchial asthma. Severe cases of eczema of the hands have been caused by allergenic foods. In food allergy, the activity of the allergen is not localized in one organ or area of the body, but is transferred to other organs by the blood. By eating organs, chocolate or shellfish and atopic dermatitis, such as a tomato rash or strawberry rash or similar symptoms may occur in hypersensitive individuals. No doubt, may persons who exclaim “Cucumbers don’t agree with me! “ have discovered (by trial and error), that they have an allergy to certain foods. Such persons may not know that eating certain foods leads to dire consequences. Some of the most allergens ingested by common children are foods considered essential to proper diet and growth, such as cow’s milk, orange juice, cold liver oil, or other vitamin-containing fish liver oils. Colic may sometimes be an allergic manifestation to a food substances, just as dermatitis may indicate a hypersensivity to other foods.

The most satisfactory method of combating food allergies is elimination of offending substances from the diet.

**Milk allergy**: It is a specific immunologic, antigen-antibody response owing partially to a lactalbumin. Heating or boiling alters this protein, and renders it suitable for use. Milk allergy may result in severe dermatitis, recurrent rhinorrhoea, bronchitis and asthma. Evaporated milk may be used as an effective substitute for cow’s milk. Various commercial milk substitutes that are prepared from soybeam isolates offer a milk-free formula claimed to be free antigenicity. .Soyalac ® and Prosobee ® are soybean products.

**Coffee Allergy**: Coffee can produce allergic response; the principal water- extractable allergenic component of green coffee is chlorogenic acid (3- caffeylquinic acid). It is claimed by some authorities that coffee-roasting process alters the allergenic properties of chlorogenic acid. Various symptoms of coffee allergy are : severe migraine, gastroenteritis, and wide spread hives.

Spices: caraway, cinnamon, clove, dill, ginger, Garlic, nutmeg mustard seed

Meat: Chicken, Deer, Duck, Goat, Lamb, pork, Rabbit,

Milk: Cow, goat

Fish: Codfish, crab, Blue fish Trout, White fish

Grains: Barley, corn, oat, rice, rye, wheat

Fruits: Apple, Apricot, Banana, Blackberry, Blueberry, Grape, Fig,Dat, Peach, Pear, Pineapple, plum, Raspberry

Vegetables: Pea, potatoes, pumpkin, radish, spinach, tomato

**Injectant Allergens:**

Injectant allergens may be present in solutions intended for parenteral administration. Allergic reaction to penicillin injections are well known to most of the lay public. More attention has paid to the allergies following penicillin injection than to all other allergies produced by injectables. It is estimated that anaphylactic reactions to penicillin occur with a frequency of 1 to 5 per 10,000 patients. Once a patient has suffered penicillin reaction, he is keenly concerned about the next injection he may receive. Skin testing for penicillin allergy is of definite value, but tests must be conducted under controlled conditions. 6- Amino penicillin acid (6- APA) and 7- Amino cephalosporanic acid (7-ACA), as well as the semi synthetic penicillins and cephalosporins, cause positive intracutaneous reactions in most susceptible patients. For this reason such antibiotics as the cephalosporins and semi synthetic penicillins should be used with caution by physician treating patients (that are sensitive to penicillin G).

In addition to penicillin products, other injectables may cause allergies; among them being liver extract, antitoxins, and the glandular products. The symptoms in each case are similar to those of the antibiotic; itching of the palms of the hands and the soles of the feet, erythema, and peeling of the skin are characteristic.

Stings of such insects can induce several local and constitutional reactions, sometimes causing death. In fact, it has been estimated that more people die annually from bee stings and wasp sting than from snakebites. Such patients can be immunized by using injections of antigens because one antigen is common to all bees and wasps. However, still it is not clear that whether biting arthropods like spiders, mites, lice, ticks, chiggers, sand flies, horse flies, stable flies scorpions, centripedes and numerous others may be a reason for allergy or not.

**Contactant Allergens**

These allergens are present in a variety of plants, drugs, clothing, additives and products etc. When these contact allergens come into direct contact with epithelium, they give rise to allergic manifestations in hypersensitive individuals.

**Allergy causing plants**

There are a few most important allergy causing plants i.e phytoallergens; like “Poison ivy” (Toxicodendron radicans).Other allergenic species of the genus Toxicodendron (formerly Rhus) include T. diversilobum ,Greene (known as western poison oak) T.quercifolium etc. All of these contain a non-volatile, phenolic oily resin principle, urushiol (or Toxicodendrol) and all produce allergic symptoms in hypersensitive individuals. It causes dermatitis on penetration to the epidemis of the skin. It may be conveyed by the hands or clothing from one person to another. Toxicodendrol, can be transmitted from place to place by many different carries, both animate and inanimate. Shoes, gloves and clothing can retain the toxicity of urushiol for months. Dogs, cats and farm animal frequently become contaminated and their hairs may be the source of human contamination.

Similarly, sesquiterpene lactones (compounds) obtained from members of the compositae, lauraceae etc. are major class of substances causing allergic contact dermatitis. Watery blisters associated with pruritis (severe itching of the skin) are indicative of this allergic affliction which can become quite distressing if not properly treated. The blisters break open, and the exuding fluid forms new blisters that spread quite rapidly. Other plants excitants of contact dermatitis are: asparagus, buckwheat, buttercups, chrysanthemum, daffodils, English ivy ginkgo leaves, lobelia, mayapple, and dozens of others.

**Aeroallergens**:

Occasional contact dermatitis has been caused by aeroallergens, such as the various pollen grains that contain oils, hairs from different kinds of leaves and flowers and even small fragments of plant tissue

**Beauty products**

Certain beauty products contain irritant allergens. Orris root and ingredient in “violet” talcum powders, is a chief contact allergen. Dibromofluorescein, commonly used in indelible lipsticks, is another. Beause perfums can be allergenic, many hypoallergenic products are unscented; in others, the perfuming agents are carefully screened to eliminate possible allergens.

**Wool and wool products**

Frequently, individuals cannot tolerate wool in clothing, blankets, or even in the form of wool fat (lanoin) in cosmetics, and other products (like shoe polish)

**Soap and Detergents**

Soap and soap powders, plain detergents and enzyme detergents nail polishes and nail polish removers, and hair dyes and hair sprays may be the major cause of contact dermatitis.

**Medicines**

Various Medicines (powders) may be reason for contact allergy e.g penicillins, Aspirin, streptomycin, sulpha group etc.

**Pet Animal**s

Hair, feathers, fur, excreta etc, of animal and birds etc., lacquer (furniture varnish) used for producing an oriental-type finish on furniture constitutes an industrial hazard for the craftsmen.

**Infectant allergens**

Numerous living organisms may cause allergy through the products they release during their metabolism in the human body. Some individuals harbor certain types of bacteria, protozoa, molds, helminthes, and other parasitic forms which, by their continual presence in the body, are responsible for chronic illness. The patient may or may not be aware of this infection because it may or may not manifest recognizable symptoms. Metabolic products of growth of these organisms may be of such nature that the individual becomes sensitized. The Chronic bacterial infection of the bronchioles known as bronchiectasis, wherein the constant presence of bacterial wastes may sensitize the allergic individual, is an example. Thus the person may exhibit allergic symptoms but does not respond positively to skin tests for inhalant allergens. In this case, the bacterial metabolic wastes are considered as infectant allergens, because the micro-organisms get entry into the body of the host, as well as cell.

**Infestant allergens**

In a manner somewhat similar to the infectants, parasitic organisms may sensilize the human body. Invasions of hockworms, pinworms, threadworm. dermatophytes, and other forms have caused allergic response in susceptible individuals. Growth products and metabolic wastes of these parasites are constantly present in the body and are referred to as infestant allergens. However, these parasitic organisms enter into the body of the host, but not inside the cell.

**Case History or Allergy History**

Case history is the record of all details regarding the allergic attack. It includes the data like name of the patient, type of occupation, and the familial background, information concerning the place, time, and mode of onset of past symptoms, as well as those causing the most recent attack; is recorded in the case history or allergic history of the individual. A typical case history reports contains the following entries:

Name and sex

Marital status

Occupation

Chief complaint

Present illness

Age of onset

Date of first attack

Place, time, and mode of onset

Seasonal variation

Duration

What relieves attacks

Present attack

Date of onset

Place of onset

Mode of onset

Symptoms

Sneezing, nasal discharge

Wheeze, cough, headache etc

Symptoms affected by:

Meals

Drugs

Excitement

Weather changes

Wind

Smoke or fumes

Time of Day

Mowing lawn, working in garden

Rain

Automobile rides, playing golf

Feeding stock

Cleaning stock

Change of season

Change of environment

Change of occupation

Other informations needed:

Other points of information include the types of medication the patient may be taking and conditions of the home environment (heating system, type of floor covering, presence of household pets, kinds of cosmetic used, nature of bed covers and pillows and numerous other details). A past medical history may be required. Allergic symptoms of the pateranal and maternal relatives are frequently a clue.

**A physical and a laboratory exam**:

A complete case history includes both a physical and a laboratory examination, the latter to include reports on urine, blood sputum, and nasal smears. In addition, results of a radiograph and an electro-cardiogram are customary. Following or concurrent with the laboratory examination, the allergist makes his diagnosis and attempts to confirm it by the use of skin tests.

**Skin Tests**

A skin test is actually a localized reaction to determine if the patient responds to that particular allergen. Skin tests are quite useful in determining sensitivity to inhalants, injectants, contactants and some ingestants. Followings are a few skin-tests that may be conducted to know whether a person is susceptible (hypersensitive) to the material being tested.

**Intradermal or intracutaneous tests**:

In this test, a small quantity of the allergenic extra t is injected between the layers of the skin. Allergenic extracts are stable preparations of various antigenic substances and are used for diagnosis, preseasonal prophylaxis and treatment of allergies (except food allergies). In each case, the allergenic extract consists of a solution of the chief constituents of the material being tested. By injecting a small amount usually 0.1ml into the arm of the patient, the allergist can within 20 minutes observe the resulting reaction. Appearance of a wheal with erythema or redness of the skin or itching sensation shows that person is hypersensitive to the tested material test is used for testing of injectant allergens.

**Patch test**

Ordinarily, the contactants are applied as a patch test, where the material is applied as a patch test; where the material is applied directly to the skin, which is neither scratched nor penetrated with a needle. Patch testing usually involves application of the test substance to a piece of cloth or pad or soft paper placed on the outer arm or upper back and taped in place. After 24 to 48 hours, the patch is removed and the test site is examined for presence or absence of the characteristic rash. A red raised itchy patch indicates the allergy. Patch testing is generally applied for contact dermatitis.

**Merits**

It is not painful

No specific skill is required for test performance

Large number of allergens can be tested simultaneously

There is no chance of severe reaction or infection, so safe.

**Demerits**:

It is time consuming i.e 48 hours

It is non suitable in emergency cases

Limited scope suitable for contactants only.

**Open Test**

In this test, the test substance is applied to the marked area of the skin and the site is left uncovered. The test substance is applied twice a day for two days. If the test site is red after two days and symptoms like erythema, itching and papules, etc appear it indicates test is +ve and the patient is hypersensitive to the tested material.

**Rast Test**

Another method for diagnosis of allergy is the Phadebas Radio Allergo sorbent Test (RAST), developed by (former) Pharmacia and Upjohn

**Principle**:

The test is based on occurrence of allergen-specific IgE (antibodies) in the blood of the patient.

A small paper-disc with attached allergen is put into a sample of blood serum from the patient. If the patient is allergic to the allergen tested, his serum contains specific IgE-molecules which bind to the allergen attached to the paper disc. Other IgE molecules in the serum sample do not react. After a suitable reaction time, the paper disc is washed and put into a solution of radioactively (125I) labeled IgE antibodies. These bind to IgE molecules that are already bound to the allergen on the paper disc. The disc thus becomes radioactive and intensity of the radioactivity is a measure of the sensitivity of the patient to the allergen tested. If strongly allergic, the blood contains a large amount of IgE. Test discs with allergens from a large number of pollen types, animal epithelia, foodstuff, house dust molds and yeast are commercially available.

**Management of Allergy**

If the patient has a case history of allergy, it may be managed with the help of following methods:

1. Hyposensitization method
2. Elimination diet
3. A change in environment
4. Treatment with anti-histarninic

Hyposensitization Method:

If the patient shows a positive allergic reaction to ragweed pollen extract, the allergist will probably employ to hyposensitization method of treatment. This is also called densensitization or immune therapy. At regular intervals, a measured amount of the greatly diluted extract of (allergic extract) (e.g: ragweed pollens) is injected subcutaneously. The dose gradually is increased until the patient is able to tolerate the inhalation of normal seasonal atmospheric concentration of the ragweed pollens but with little ill effect. Complete freedom from the symptoms is rarely possible. Pollen extract are made on a weight-volume basis using defatted pollens and are standardized according to the pollen units, protein nitrogen units, or total nitrogen units. One pollen unit (called a Noon unit) represents the activity in 0.01mg of pollen. The strength of the protein extracts is expressed in terms of mg of protein nitrogen per ml. Others use the no. of mg of total nitrogen per ml. At present time there is no standard, which is generally recognized, although the measurement of protein nitrogen is perhaps the most accepted method.

If the treatment is conducted before pollination of the plants, it is termed pre-seasonal, if it is maintained throughout the year for some allergies, it is called perennial; if the treatment is conducted during the symptomatic period (i.e., attack of allergy), it is known as co-seasonal (this is least satisfactory method).

Immunosuppression or Immuno therapy or densisitization was first used in UK in 1915 for hay fever, and is still used nearly exclusively in the treatment of IgE-medicated allergy. Desensitization against Rhus contact dermatitis has met with little success.

The Precise mechanism of immunotherapy is unknown, but a variety of both humoral and cellular changes have been observed. Clinical improvements of the patient may be co-related with level of IgE blocking antibodies, that bind the allergen and prevent its interaction with most cell bound IgE.

Optimum therapy duration is uncertain, but usually continues until the patient is symptom-free for at least one year. Average course of therapy is 3-5 years.

Success is often relative, but some patients remain free of symptoms for extended period. In others, there is sufficient reduction of symptoms of allergy than by symptomatic therapy alone. Some patients may need re-sumption of therapy.

This method is effective for allergic rhinitis and asthma, caused by aeroallergens; e.g., ragweed pollens, common grass and tree pollens. Moreover, it is feasible and safe. It is successful method in treating wasp and bee venom allergies. The patient is given small injections every 20 or 30 minutes for at least several hours. Immunity is developed in from 10 to 14 days. This method is not recommended for food allergens.

**Elimination Diet**

Allergy due to food allergens may very effectively be managed by advising the patient to avoid the offending or allergy causing food in his diet. This is called “elimination diet”, e.g., elimination of milk in the diet of hypersensitive (allergic) patients to milk; or its substitution by various commercial milk subsititutes that prepared from soybean isolates.

Similarly, is the elimination of other allergic diets from the diet of hypersensitive (s); eg, beef, fish, citrus fruits, chocolate, egg and any other food article, that may cause allergy in hypersensitive individuals. This method is very simple, easy and very effective, success rate is almost 100%

**Change in environment**

This method of allergy management is very effective in allergies due to inhalant allergens. e.g., patient allergic to feather pillows may use foam rubber pillow to avoid allergy. In peak pollen season (i.e., mid Feb to Apr) patient hypersensitive to pollen grains should keep himself away from the exposure; or change his environment, it may help him a lot in overcoming his allergy. A change in life/living style may also be very effective in a few allergy provoking situation, e.g., A heatful and closed house may be made more airy and spacious to avoid pre-expoure to allergens people allergic to feather, furs, hair of the animals and birds, and dust, mite and animal danders must avoid close contact with these allergens. People engaged in professions like textile and /or birds, if exhibit allergy to the allergens so produced, should preferably change their environment by changing their profession. They may use mask and gloves to prevent allergy altogether or minimize its occurrence or severity.

**Treatment with use of antihistaminics**:

In addition to the allergenic extract, allergist may also use antihistaminic drugs orally/parenteally . Although the antihistaminics cannot prevent the antigen-antibody reactions, they do prevent the shock damage normally caused by the release of histamine. The pharmacist should be capable of advising the physicians about the many anti histaminic drugs; he should know the chemical nature and therapeutic merits and/or meritss of each in addition to the generic and trademarked names. The pharmacist should familiarize himself with his products in his role as a drug specialist. Moreover, he should warn his customers about the potential dangers of self-medication of antihistaminics. Following are examples of a few commonly used antihistaminics drugs.

* 1st generation antihistamines
  + **cause sedation in therapeutic doses**
  + **affect autonomic receptors (cholinergic and adrenergic**)
* 2nd generation antihistamines
  + **are called “non-sedating” antihistamines or low-sedating**
* 3rd generation antihistamines

**the active metabolites of 2nd generation agents**

**Examples**

Alkylamines of chlorpheniramine maleate (P:iriton; Avil)

Ethanolamines; eg Dimenhydrinate (tab. Dramamine) Diphenhydramine

Phenothiazine:eg. Promethazine (Elixir Phenergan)

Piperazines: eg Hydroxyzine (tab.atarax) and cyclizine (Marzine)

Miscellanceous: eg. Cetrizine (zyrtec); Loratadine (Claritin)

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