

Anaphylaxis and immunotherapy

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The term anaphylaxis was coined in 1902 by Von Pirquet and Schick ^[1] to define the allergic reaction to the injection of horse serum in a patient. Presently, anaphylaxis is defined as "a serious allergic reaction on exposure to an allergen, which is rapid in onset and may even cause death". ^[2] Hence, it is a severe, potentially fatal systemic allergic reaction that occurs suddenly after contact with an allergy causing substance. Anaphylaxis can occur in response to almost any foreign substance. ^[3] Worldwide, 0.05-2% of the population is estimated to have anaphylaxis at some point in life, and the rates appear to be increasing. The list of potentially known allergens is vast, and it includes the common food items such as nuts, seeds, legumes, fish, egg, grams, milk, and celery. Also, food additives like aspartame and monosodium glutamate can cause anaphylaxis. Various drugs including antibiotics, chemotherapeutics, muscle relaxants, and contrast materials are known to produce acute allergic reactions. Exposure to animal dander of horse, cat, dogs, or mice and even to physical stimuli such as cold, heat, and exercise can cause such allergic manifestations.

The literature is full of conditions that can mimic anaphylaxis. They include the common causes such as vasovagal or vasodepressor response, flush syndromes, carcinoids, postmenopausal, alcohol, drugs, niacin, vasointestinal polypeptide secreting tumors, medullary carcinoma thyroid, and many more. An important feature that can differentiate between vasopressor response and anaphylaxis is lack of urticaria, angioedema, or flush in vasopressor response.

The allergic reaction can occur either as a local reaction or as a systemic reaction based on the amount and period of exposure. Local reactions are confined to the part of the body that comes in direct contact with the allergen, whereas systemic reactions can precipitate a massive IgE response leading to collapse of circulatory as well as respiratory system.

The clinical diagnosis of anaphylaxis requires precise pattern recognition and calculation of time elapsed between allergen contact and symptoms. Anaphylaxis is classified into three types, i.e., anaphylactic shock, biphasic reactions, and non-immune anaphylaxis. Anaphylaxis is a medical emergency condition that may require resuscitation measures such as airway management, supplemental oxygen, intravenous fluids, and close monitoring. Although administration of pharmacological agents, such as epinephrine, by the intramuscular or intravenous route is the

treatment of choice to terminate the acute episodes, these agents do not provide or play any role in long-term protection against such allergic reactions in future. Allergen avoidance is the best remedy for protection against such response, but it is not always possible. Allergy testing by the simple skin prick test may help in identifying the triggering factor. Allergen-specific immunotherapy with venom or whole body extract can be started against the specific triggers or allergen. In India, guidelines have been laid for practicing allergen immunotherapy. ^[4] The outcome of immunotherapy is described as different levels of benefit from early reduction in symptoms over progressive clinical effects during treatment to long-term effects after discontinuation of the treatment and prevention of asthma. The efficacy of SIT (subcutaneous Immunotherapy) increases with proper usage due to the immunological changes leading to potential long-term benefits. Although allergen immunotherapy has shown a promising role in providing long-term benefits, it has no effect in acute episodes. Many cases of anaphylaxis occur due to venom from stinging or biting insects such as Hymenoptera (bees and wasps) in susceptible people. ^[5] A case report from India has mentioned that desensitizing individuals by immunotherapy against honeybee by using venom-honeybee ^[6] has been successful. Other case reports have shown success in desensitization of anaphylaxis due to cannabis ^[7] and horse dander. ^[8] The practice of immunotherapy involves allergy skin testing and testing panels, and also, the treating physicians should be aware of local and regional allergens prevailing in patient's environment. Standardized allergen extracts of known potency and defined shelf life should be used both for allergy diagnosis and immunotherapy. The optimal duration of immunotherapy is still debated. According to reports, immunotherapy can be prescribed for 3-5 years in patients with a good therapeutic response. But the decision to discontinue immunotherapy after 5 years should be made on an individual basis. Skin testing as well as immunotherapy can give severe systemic reaction (anaphylaxis) at times. Therefore, skin testing and/or immunotherapy should be administered under the supervision of trained physicians who have obtained specialized training in allergy and immunotherapy and at a place where facilities of managing anaphylaxis are available.

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