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Short Communication

Role on Immune System in Identifying and Protecting Body from Allergens in Allergic Illness

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DESCRIPTION

One of the most prevalent chronic diseases in the world is allergic disease. An increased chance of having an allergic disease exists in people with a family history of allergies. Some examples of allergic disorders include hay fever (allergic rhinitis), eczema, and hives including asthma and food allergies. Mild allergy symptoms can lead to a major, potentially fatal allergic reaction (anaphylaxis) [1]. The body's response to an ordinarily benign material, such as pollen, mould, animal dander, latex, particular foods, or insect stings, is known as an allergy. The symptoms of an allergy can be moderate, such as a rash or hives, itching, a runny nose, or watery or red eyes, or they can be fatal. Antihistamines, decongestants, nasal steroids, asthma medications, and immunotherapy are all forms of treatment. People immune system is where allergic reactions start. The immune system may overreact by creating antibodies that "attack" the allergen when a person who is allergic to a substance, such as dust, mould, or pollen, comes into contact with that substance. Wheezing, scratching, runny nose, watery or itchy eyes, among are some of the symptoms. The immune system's defense mechanisms include preventing harmful bacteria, viruses, and fungi out of the body and destroying any infectious microbes that do get inside. The body's protection against infection is provided by the immune system, which is a critical and complex network of cells and organs. The lymphoid organs are those that play a role in the immune system. They have an impact on lymphocyte production, development, and growth (a type of white blood cell) [2]. Important components of the lymphoid organs are the blood arteries and lymphatic vessels. They transport lymphocytes between various parts of the body. The creation and activation of lymphocytes is a function of every lymphoid organ. Allergens can enter the body through the skin, mouth, or respiratory system. Common allergic reactions including hay fever, some types of asthma, and hives are connected to an immunoglobulin E generated by the body (IgE). Each IgE antibody can react quite specifically with particular allergens and pollens. In other words, one type of pollen may cause an allergic reaction in a person but not another. A susceptible person's body begins to produce a lot of comparable IgE antibodies when they are exposed to an allergen. An allergic reaction could occur after being exposed to the same allergen again, the said allergen. The amount and type of an allergen encountered as well as how the body's immune system responds to that allergen will all affect the symptoms of an allergic reaction .Regardless of age; gender, race, or socioeconomic background, allergies can impact everyone. In general, youngsters are more likely to have allergies. Initially it might occur at any age or reoccur after a protracted period of remission. Allergies may develop or worsen as a result of hormones, stress, smoke, perfume, or environmental irritants. An allergic reaction to a substance such as a medicine, food, serum, insect venom, allergen extract, or chemical can result in anaphylactic shock [3]. Some individuals who are aware of their allergic reactions or allergies keep an emergency anaphylaxis kit with injectable epinephrine on hand (a drug that stimulates the adrenal glands and increases the rate and force of the heartbeat). Although allergies cannot be cured, symptoms can be managed with a mix of avoidance strategies, drugs, and, in carefully chosen circumstances, allergen immunotherapy. Pathogen-Associated Molecular Patterns (PAMP) and Danger-Associated Molecular Patterns (DAMP) forms and combinations are common places to find allergens. The internal acquired immune system and the external environment are separated by the innate immune system. Additionally, it is a crucial component of the skin, intestines, and airways. Allergens, PAMPs, and DAMPs are continuously present in contact with these tissues [4]. Immune tolerance is often produced when allergens interact with the innate immune system, however in the case of allergic illness; this contact also results in the loss of immunologic tolerance. The acquired immune response is committed by the innate immune response to a number of outcomes mediated by various T-cell subsets, such as T-helper 2, regulatory T, or T-helper 17 cells, upon activation by allergens.

CONCLUSION

The prevalence of allergic illnesses has significantly increased during the past few decades, including cutaneous, respiratory, and food allergies. Through the production of IgE-blocking

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antibodies, B cells play a crucial part in allergy and allergen tolerance. However, an increasing number of studies have shown that B cells have a function in controlling immunological responses that goes beyond the creation of antibodies. The innate immune system is crucial for preventing and promoting allergy diseases, while the exact pathways are yet unknown. Nevertheless, innate immune system triggers and gene polymorphisms offer potential therapeutic targets for the prevention and management of allergic diseases.

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