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Commentary

Overview of Allergen for Immunotherapy

David Bernstein*

Department of Immunology, Allergy, University of Cincinnati, Cincinnati, USA

DESCRIPTION

Allergic rhinitis is one of the most common chronic conditions in the United States, ranking sixth in terms of prevalence and expense (6.1–11.2 billion dollars). Allergic rhinitis is also a significant predictor and risk factor for asthma, which increases its economic impact. Because once treated to aeroallergens, allergen immunotherapy (AIT) is the only treatment that can modulate TH2-directed immune responses and decrease allergy nasal and ocular symptoms. Subcutaneous Allergen Immunotherapy (SCIT) and Sublingual Allergen Immunotherapy (SLAI) are the two most common AIT methods utilised in clinical practise (SLIT). The possibility of unexpected systemic reactions following injection is a major patient safety concern, despite the fact that both methods have been proved to be effective in reducing symptoms and the need for rescue medicines.

Allergen immunotherapy

When grass pollen-allergic patients were inoculated with grass pollen extracts. The use of SCIT in the present day involves administering increasing amounts of allergen extract, generating an optimal 'maintenance dose' in the range of doses previously shown to be clinically beneficial for a specific treatment allergy. For years, this method has been successfully utilised in clinical practise to treat patients with allergic rhinitis, allergic asthma, and hypersensitivity to stinging insects. Three years of SCIT or SLIT with grass pollen has been demonstrated to provide on-going clinical improvement for up to two years after termination for seasonal allergic rhinitis.

The benefits of SCIT must be weighed against the real risks of severe anaphylaxis and rare life-threatening systemic allergy. As per a national survey of allergists in North America, one death reaction occurs every 2.5 million injection visits, resulting in an annual average of 3.4 fatal reactions. Uncontrolled asthma at the time of injection administration, dosing errors, delay or inadequate administration of epinephrine during anaphylaxis, a prior history of injection-related systemic reactions, and injection administration during peak allergy seasons are all known risk factors for fatal reactions.

SCIT-induced allergy responses can be characterised as either locally or systemically. Pruritus and erythema (>2.5 cm) at the injection site are known as Large Local Responses (LLRs) and are common among recipients. Local responses occur in as many as 26%-86% of patients who receive SCIT. Despite the fact that there is inconsistent data on the hazards of earlier LLRs, practises recommend that SCIT doses should not be changed until there is a significant prevention of subsequent systemic reactions. Nevertheless, it is reasonable to repeat or adjust the dose for patients who really are considered to be at higher risk of a systemic reaction. With conventional build-up procedures, the rate of SCIT-associated systemic reactions of different severity is rather low, at 0.1%–0.2%. Accelerated cluster build-up regimens increase the rate of systemic responses. Due to the on-going worry for serious or fatal systemic responses, a North American surveillance study was established to survey fatal SCIT reactions among certified allergists on a yearly basis, and data for the years 2008–2013 have been reported. Two direct reports of fatal reactions in patients treated by allergists were confirmed during this period, whereas two directly reported occurrences occurred under the care of no allergists. Although the survey's variable and low response rates could be challenged, these findings imply a decrease in the incidence of injection-related fatal occurrences among practising allergists when compared to the aforementioned 12-year retrospective survey of 1990–2001. Although unproven, guideline suggestions stressing rigorous pre-injection screening and withholding injections from patients with uncontrolled asthma, which is commonly regarded the most critical risk factor for deadly responses, could explain this increase. The fact that 14% of reported systemic responses started 30 minutes after injection administration was a key finding from these surveys. The majority of these late-onset systemic reactions were mild to moderate in severity, none were fatal, and patients rarely self-administered epinephrine during these events. This finding, along with others, has sparked debate about whether all SCIT patients should be given epinephrine auto injectors. Current guidelines advise against routinely prescribing self-injectable epinephrine and suggest that the decision to administer epinephrine to SCIT patients should be left to the physician's discretion. Clinical practises that never gave injections to uncontrolled asthmatics had much less severe

Correspondence to: David Bernstein, Department of Immunology, Allergy, University of Cincinnati, Cincinnati, USA, E-mail: Davidbernstein@gmail.com

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systemic reactions than other practises, according to the study. During peak pollen seasons, practises that reduced allergen SCIT dosages in highly sensitive patients experienced reduced systemic responses.