NEW APPROACHES TO ALLERGEN-SPECIFIC IMMUNOTHERAPY

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Allergen-specific immunotherapy is an effective treatment used for common allergic conditions, particularly allergic rhinitis/conjunctivitis, allergic asthma and stinging insect hypersensitivity. Allergen-specific immunotherapy (ASIT) is the only causative treatment option and able to change the natural course of disease.

Classically, the allergen extract has been applied subcutaneously to the patient. Thus far, subcutaneous allergen immunotherapy has been the gold standard administration route of ASIT. Subcutaneous allergen specific immunotherapy is an effective treatment of IgE-mediated allergies, but it requires repeated allergen injections with a risk of systemic allergic reactions. New application methods for delivering the allergen to the patient have been developed in recent years. Currently investigated novel ASIT routes include oral, sublingual, intralymphatic, epicutaneous, intradermal, and local nasal administration.

The intralymphatic delivery of allergens named intralymphatic immunotherapy is a highly potent application route with low effort and side effects while having equal efficacy if compared with current standard AIT forms. Epicutaneous immunotherapy (EPIT) is a possible alternative application form. EPIT is minimally invasive and basically consists of the affixation of allergen containing patches to the epidermis over 6 weeks. EPIT is safe and efficacious in a dose-dependent manner after six patches only. EPIT is increasingly attracting attention because of its capacity to offer a safe, needle-free, and potentially self-administrable treatment option for IgE-mediated allergic diseases. Local nasal immunotherapy (LNIT) consists of spraying allergen extracts in a soluble form into the nasal cavity. Adverse effects are mainly limited to the site of administration. Subsequent intranasal vaccines based on allergen extracts in macronized powder forms or on allergen-coated strips enhance clinical efficacy, while decreasing local adverse effects in allergic patients. Oral allergen-specific immunotherapy (OIT) is mainly applied as a treatment for adults and children with food allergies, including cow's milk, egg, peanuts, tree nuts, wheat, soy, fish and shellfish allergies. Owing to the risk of adverse effects, OIT requires the administration of small amounts of allergen (from micrograms to milligrams) by the oral route. Sublingual allergen-specific immunotherapy (SLIT) is effective in decreasing both immediate- and late-phase symptoms, as well as the need for medication, in adult and pediatric patients with allergic rhinoconjunctivitis to either pollen. SLIT consists into the administration of high doses of natural-allergen extracts (pollens, mites or animal dander) as drops or tablets under the tongue, prior to swallowing. Only moderate adverse events occur locally at the start of the treatment, including oral pruritus, throat irritation or tongue swelling, but severe systemic reactions are extremely rare.

Thus, there has been increasing interests in the use of novel approaches to augment the effects of ASIT for atopic disease. This remains a promising field to be studied with vast potential options.