

# Spotlight on Immunotherapy

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**Amena is Head of Clinical Services at Allergy UK. She took up this appointment after working as a Clinical Nurse Specialist in Immunology and Allergy at an NHS Hospital Trust. She trained at University College Hospital, followed by paediatric training at Great Ormond Street Hospital in London. She also holds a Public Health and Specialist Practice in School Nursing qualification gained in 1994. Visiting schools and carrying out health assessments made Amena very aware of the rising incidence of allergy in the UK and was instrumental in developing her interest in the field.**

Amena is a member of the College of Nursing Immunology & Allergy Nurses group and is the first nurse to sit on the British Society of Allergy & Clinical Immunology (BSACI) council where she started the National Nurses in Allergy Group.

**Summary of article content: The immune system helps the body fight infections and other diseases. It is made up of white blood cells, organs and tissues of the lymph system.**

**Allergy is an over or exaggerated response of the immune system to what would usually be deemed as something harmless such as a pollen or a food. Immunotherapy is a disease modifying treatment.**

Allergy represents a major burden to individuals, families and health services as it affects so many (estimated prevalence of 23 million in the U.K.) with allergic rhinitis, asthma and food allergy being the most common, with deaths from Anaphylaxis being mainly due to insect venom and food allergy. Allergists and Immunologists have a good understanding of these diseases and how to manage them.<sup>(2)</sup> Most patients have good disease control with simple pharmacotherapy and avoidance strategies, but unfortunately a minority

still have persistent symptoms or remain at risk of life-threatening allergic reactions; they need additional therapy.<sup>(2)</sup>

Immunotherapy, is an increasingly commonly used term for some highly specialist treatments. Immunotherapy can be used for the treatment of autoimmune diseases and cancer as well as for allergies. We discuss allergies here where it is an immune modulating treatment that can change the course of allergic disease. Immunotherapy to a specific allergen is a medical treatment for mainly environmental allergens such as insect venom, pollens, house dust mites, animals or food like peanut. It is referred to as Allergen-Specific Immunotherapy (AIT or SIT) and often the word desensitisation is used to mean the same. Allergen Immunotherapy is not new and has been used for just over a century. It involves exposing the allergic individual to set amounts of allergen in an attempt to change the immune system's response.

More recently an exciting area of development has been research into using Immunotherapy for Allergy to specific foods, with one product already licensed and received NICE approval (although not widely available yet via the NHS, there is ongoing discussion with pediatric Allergy/immunology Services on how best to fund the whole care package required to deliver this type of Immunotherapy, due to the adverse reactions, including Anaphylaxis, that children may experience during the course of treatment). Oral Immunotherapy has successfully induced desensitisation in some children with a clinically meaningful increase in peanut threshold.

So for families where quality of life is so poor due to ongoing anxiety, constantly having to check food labels, including adherence to precautionary allergen labelling and frequent serious allergic reactions, this still provides the best treatment currently available for specific foods, e.g. peanut, where avoidance is so difficult.

There is currently no cure for allergy, but immunotherapy is the nearest treatment to reducing risk of allergic reactions. Which is why it is so important to highlight the availability of this treatment and the impact it can have on the lives of those who receive it.

Immunotherapy is initiated in secondary or tertiary specialist allergy services for patients referred with severe allergy, usually from a referral via primary care/ GP.

There is a need to raise awareness of immunotherapy as a treatment in the UK, as currently there is a large discrepancy between the use of immunotherapy across Europe compared with the UK. This has led to inequity

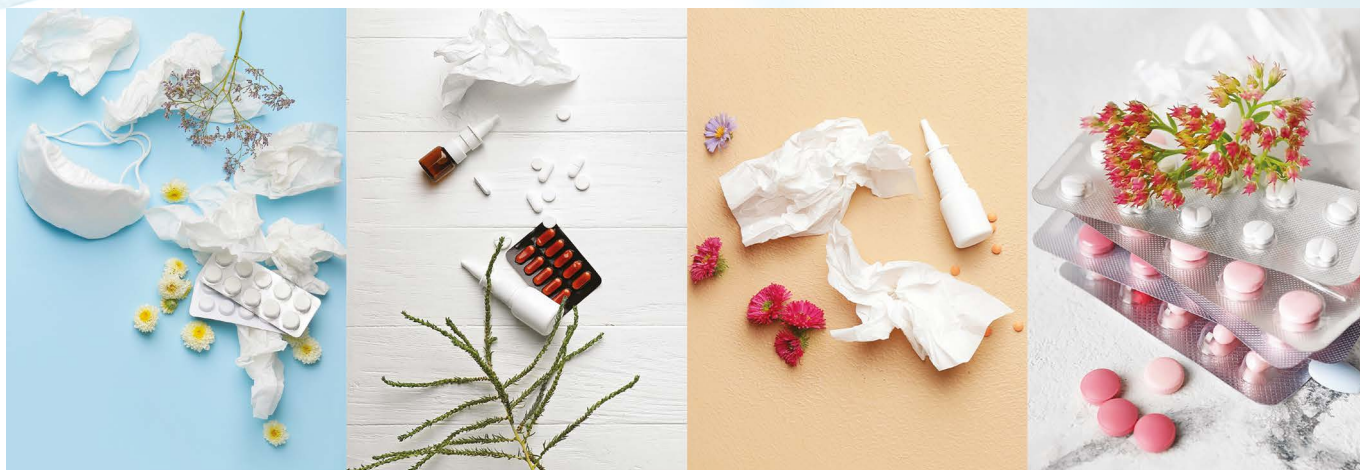
of access to treatment for people with severe allergic disease in the UK.

There is much more Immunotherapy use in Europe than the U.K. and much of its use in the U.K. is via unlicensed products, although we are now seeing many more Immunotherapy products getting marketing authorisation. This means that they are a licensed medicine, where clinicians along with drug and therapeutic committees of NHS Trusts can see safety and efficacy data, for decision making.

Immunotherapy is a high-cost medication and the associated issues with access to treatment in the UK - including references to the significance of timing in relation to the referral process - can be barriers to patient access. It is important to have some knowledge of which patients may benefit from this treatment. Patient identification & Selection is a crucial factor for primary care, so the correct patients get the correct treatments.

Allergy symptoms can have a significant negative impact on quality of life. A survey of children and adolescents 4 to 17 years of age and their parents or caregivers indicated that allergy decreased school performance, interfered with daily activities, and disrupted sleep patterns.<sup>(3)</sup>

Allergen immunotherapy is an effective treatment for allergic rhinitis with or without conjunctivitis (AR/C), and, in contrast to pharmacotherapy, allergen immunotherapy induces immunologic tolerance.<sup>(4)</sup> Furthermore, children receiving allergen immunotherapy have a decreased risk for the development of asthma.<sup>(5)</sup>





*Why is it important to treat rhinitis?* As well as reduction in the nasal symptoms and trying to improve QOL, allergic rhinitis is a risk factor in the development of asthma and treatment of rhinitis is associated with benefits for asthma. There is a 'one airway one disease' concept where it is acknowledged that the nasal airways have a direct correlation to the respiratory airways.

It is so important that these children are referred to an Allergist/ Immunologist for assessment and management. If children are referred at an early stage before developing asthma, then they may be more eligible for treatments like Immunotherapy which could change the course of their allergic journey and dramatically improve quality of life.

*What happens if usual over the counter or GP/Nurse prescribed medications such as antihistamines, nasal steroid spray's, leukotriene receptor antagonist etc, don't work?*

There should be a step wise approach i.e. long acting, non-sedating antihistamines (if eye symptoms coexist i.e. allergic rhino conjunctivitis, then it is important to treat these symptoms) patients should be taught how to use any prescribed aqueous nasal steroid spray for

greater compliance and effectiveness. Then think about addition of leukotriene receptor antagonist. If QOL is impacted and patient's symptoms not well controlled then think Referral to an allergy (or Immunology) service. This helps not only to identify triggers but also access to advanced management strategies of therapeutic benefit such as use of immunotherapy/ desensitisation. Immunotherapy is highly effective when the specific allergen is the responsible driver for the symptoms and is available usually for monosensitised individuals, such as those who have severe allergic rhinitis driven by allergy to grass or some tree pollens. Also for those who's work is affected by allergy to animals, such as vets. There is strict criteria for its use.

Additional monoclonal antibody therapy may be helpful for those with clinically important polysensitization. These are newer types of therapies and appear efficacious.<sup>(1)</sup>

Currently types of allergy that are treated with immunotherapy include:

- Grass pollen allergy
- Tree pollen allergy
- Housedust mite allergy
- Animal dander, including immunotherapy for cat allergy and dog allergy

Immunotherapy Treatment is usually given via the following routes, sublingual (SLIT), subcutaneous (SCIG) (injection) or in the case of peanut by the oral route (OPIT). (other food allergens are also being researched and there is also an epicutaneous patch (EPIT) which is showing promising results).

Immunotherapy is usually given over a 3-5 year period on a regular basis for patients being treated for severe allergy. Post immunotherapy treatment should provide effects for several years.

### Venom immunotherapy (VIT)

VIT is the only specific treatment currently available to prevent systemic reactions/anaphylaxis to bee and wasp stings in patients with a previous history of anaphylaxis/life-threatening immediate (type 1) hypersensitivity reactions to bee or wasp stings. It is usually not indicated in patients with systemic non-life threatening reactions e.g.: urticaria and/or angioedema or in localised reactions.<sup>(1)</sup>

About half of adult patients will react similarly or worse to another sting unless desensitized with a series of appropriate venom injections. The percentage of serious reactions to another sting is less with

children, but may still occur. Multiple factors including occupation (e.g. farmer, tree surgeon etc.) hobbies, (bee keeper) access to emergency medical care and patient preferences/anxiety are important determinants in the decision-making process.<sup>(1)</sup>

Immunotherapy is the desensitisation treatment and is given every 6-8 weeks once the up dosing schedule has successfully been completed, usually for between 3 and 5 year's. Although, in special circumstances individuals may have their treatment course extended (i.e. if the patient has mastocytosis and receiving venom Immunotherapy). Venom immunotherapy is believed to be 95 percent effective, so it is worth the time investment of this long term treatment for peace of mind that research has shown can reduce anxiety from fear of having a fatal allergic reaction to a bee or wasp sting as it provides a high level of protection. This treatment is available at NHS clinics.

I hope that you have enjoyed reading this spotlight on Immunotherapy and a key message to remember is:

Unlike pharmacotherapy, AIT has the potential to really modify patient journeys delivering them long term therapeutic benefit.<sup>(2)</sup>

#### References

[1] BSACI Immunotherapy Guidelines

[2] EAACI Allergen Immunotherapy guidelines part 2: recommendations 2017

[3] Meltzer EO, Blaiss MS, Derebery MJ, et al. Burden of allergic rhinitis: results from the Pediatric Allergies in America survey. *J Allergy Clin Immunol.* 2009; 124:S43eS70.

[4] Cox L, Nelson H, Lockey R, et al. Allergen immunotherapy: a practice parameter third update. *J Allergy Clin Immunol.* 2011;127:S1eS55.

[5] Jacobsen L, Niggemann B, Dreborg S, et al. Specific immunotherapy has long- term preventive effect of seasonal and perennial asthma: 10-year follow-up on the PAT study. *Allergy.* 2007;62:943e948.

Are you prescribing allergen immunotherapy? If you are a GP or other non-specialist prescribing allergen immunotherapy therapy then you should be aware of the national registry. The BSACI Registry for Immunotherapy or BRIT records the use of these specialist treatments in the UK. It covers treatment with aero-allergens such as grass and mites, venom and peanut treatment. We currently have over 50 sites involved in the UK and registration is part of the RCP accreditation process for allergy centres. The registry keeps track of patients progress by regularly asking them for patient related outcome measures so that you can see if treatment is working. So it is an active clinical

tool for prescribers to monitor progress. If you would like to find out more contact the registry administrator [Maria.Smith@bsaci.org](mailto:Maria.Smith@bsaci.org)

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