Efficacy of subcutaneous Immunotherapy in Allergic Rhinitis: The Grampian experience

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Introduction:

Allergic rhinitis has a detrimental effect on the quality of life and productivity of affected individuals. It's s a significant public health concern. AR “Allergic Rhinitis” affects more than 400 million people worldwide; in Europe, prevalence ranges between 17% and 29%.^{1,2}

Based on the ARIA criteria, AR was moderate to severe in 80.3% of cases, and persistent in 65.8% despite maximal pharmacotherapy.¹

The standard therapy for AR includes allergen avoidance, intranasal corticosteroids and intranasal / systemic antihistamines. In spite of a plethora of pharmacological agents available, a third of children and almost two thirds of adults with AR report only partial or poor relief with pharmacotherapy.

Allergen specific / Immunotherapy (IT) is the only disease-modifying treatment for allergic rhinitis. The first clinical description of IT was made by Noon and Freeman in 1911 in grass pollen allergic rhinitis. Allergen immunotherapy is a form of treatment that involves administering repetitive doses of allergen over time to induce immunological tolerance - the ability to inhale the antigen without allergic symptoms after discontinuation of the therapy. The two common methods of allergen administration are the subcutaneous route (subcutaneous immunotherapy, SCIT) and the sublingual route (sublingual immunotherapy, SLIT).^{3,4}

Aims:

To evaluate efficacy of subcutaneous immunotherapy in our cohort of patients at Aberdeen Royal Infirmary.

Methods:

A cross-sectional study, carried out through face-to-face interviews, with outcomes being symptom severity recorded using a 10cm visual analogue scale and percentage in reduction of medication usage.

Demographics:

Total cohort in the department where 33 patients (27 had at least 1 cycle complete with responses, 6 had 1st cycle, response awaited, 2 pregnant and 4 uncontactable). Therefore total patients included are 21 patients, eleven of which suffer from polyallergies; with a male to female ratio of 1:1.1 and a mean age of 36.5 years (SD – 11 years).

Two of our patients had completed three cycles of Immunotherapy, eleven completed two cycles and eight completed a single cycle.

References:

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[2] Bauchau V, Durham SR. Prevalence and rate of diagnosis of allergic rhinitis in Europe. Eur Respir J 2004;24:758–64.
[3] Freeman, J. Further observations of the treatment of hay fever by hypodermic inoculations of pollen vaccine. Lancet 1911; 178:814-817.
[4] Noon, L. Prophylactic inoculation against hay fever. Lancet 1911;177:1572-1573.

Results:

The main four domains recorded for symptoms where: nasal, eye, eczema and asthma symptoms. With 3 outcomes measured for reduction in usage of pharmacotherapy including oral anti-histamines, nasal sprays and asthma inhalers.

This showed remarkably promising results :-

Eye symptoms 81.0% (n=17)

Asthma 47.6% (n=10)

Eczema 33.3% (n=7)

% reduction in antihistamines 71.4% (n=15), (by 35%)

% reduction in nasal spray use 66.0% (n=14), (by 35%)

% reduction in asthma inhalers 19.0% (4), (by 20%)

Conclusion:

This study provides a unique perspective on outcome measures and the role of immunotherapy in managing allergic rhinitis. These results have shown effectivity of this disease-modifying treatment in our cohort.

The field of immunotherapy for AR is wide open for further research and improvement in treatment modalities and one of the key research areas would include further understanding of the immunological mechanisms that induce tolerance to allergens following immunotherapy and the development of biomarkers to measure the patient's response to treatment.