Immunotherapy of Atopic Dermatitis by Injections of Antigen-Antibody Complexes

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Key Words

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Abstract

The effectiveness and safety of injections of complexes made of specific anti-allergen antibodies and allergen was confirmed in a double-blind placebo-controlled trial with adult patients suffering from atopic dermatitis.

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Atopic dermatitis (AD) is a pruriginous inflammatory skin disease characterized by a clinical and histological aspect of eczema, a typical topography and a chronic fluctuating evolution. Its frequency has been estimated to be as high as 10% in children and 1-2% in adults [1].

Although the precise etiology of AD is not entirely understood, a number of arguments indicate its immune nature. The key role played by Langerhans' cells and cyto-kines is presently better understood [2]. On the other hand, hyperreactivity towards allergens of the environment seems to play a primary role, an assumption based on both biological [3] and clinical grounds [4]. Among those allergens, *Dermatophagoides pteronyssinus*, one of the main house dust mites, plays a determining role in symptom triggering and exacerbation, due to its ubiquitous nature and presence in the environment all over the year [5].

Considering the importance of AD and the lack of specific therapy, we have studied the potential benefit of immunotherapy using antigen-antibody complexes made from *D. pteronyssinus* allergens and specific autologous antibodies. The rationale behind this research was based on the fact that such complexes could, under some experimental circumstances, specifically suppress the immune response towards allergens contained in the complexes [6].

A previous experience in allergic bronchial asthma had shown a highly significant improvement associated with

reduction in both specific IgE and IgG antibodies [7]. A first study carried out as an open trial with AD patients, i.e. 10 patients selected according to clinical criteria of severity and chronicity, had shown encouraging results [8]. The solution of antigen-antibody complexes used for injections was obtained by preparing specific antibodies from each of the patient's serum, a procedure which necessitated a number of steps which are described in the corresponding

publication. The results obtained in that study could not be attributed to the spontaneous evolution of disease, even though the trial was not controlled. The treatment was pursued over 3 years in 8 patients, 5 of whom had practically no residual skin lesions after 2 years of follow-up, while the 3 others had a partial recurrence. An average improvement of more than 80% was observed in those 8 patients [9].

A double-blind placebo-controlled study was thus performed with 24 adult patients with severe AD, which has confirmed both the efficacy and safety of this novel therapy [10]. However, the very fact that the procedure has to be carried out with autologous antibodies, and therefore requires a long and cumbersome preparation procedure, somewhat limits its usefulness on a larger scale. Alternative methods are currently under evaluation to simplify procedures of antibody purification and to allow an easier and wider application.

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