Allergol Immunopathol (Madr). 2011;**39(5)**:267–270

Allergologia et immunopathologia

www.elsevier.es/ai

ORIGINAL ARTICLE

Safety of specific immunotherapy using a depigmented and polymerised extract of *Dermatophagoides pteronyssinus* in children under five years of age

N. Hernández, M. Ibero*, M. Ridao, R. Artigas, M. Viñas, M.J. Castillo

Allergy Unit, Terrassa Hospital, Barcelona (Spain)

Received 22 July 2010; accepted 1 September 2010
Available online 18 February 2011

KEYWORDS
Specific immunotherapy;
Safety;
Children;
Cluster protocol;
Adverse reactions

Abstract
Background: Different opinion documents point to a patient age of under five years as a relative contraindication to specific immunotherapy, arguing that this age group has a greater risk of developing anaphylaxis, and that specially trained personnel are needed to deal with the problem if it occurs. However, insufficient evidence exists to support such an affirmation.
Patients and methods: A retrospective follow-up observational study was made of patients aged 60 months or younger who had been subjected to specific immunotherapy. We included 77 children with a diagnosis of extrinsic bronchial asthma (n = 68), extrinsic spasmodic cough (n = 5) and allergic rhinitis (n = 4) confirmed by clinical criteria and prick-test, with specific IgE positivity to *Dermatophagoides pteronyssinus*. All patients received specific immunotherapy with an extract of depigmented *D. pteronyssinus* polymerised with glutaraldehyde, involving an initial cluster protocol of two weeks and monthly maintenance doses. All observed adverse reactions were recorded, and classified according to European Academy of Allergy and Clinical Immunology (EAACI) criteria.
Results: A total of 1837 doses were administered to the 77 patients, with four adverse reactions being observed in three patients. Three reactions (0.16% of the administered doses) were local and immediate, while one was systemic and of grade 2 (0.05% of the administered doses) – consisting of an episode of nocturnal wheezing.
Conclusions: Specific immunotherapy in children under five years of age with the extract used is safe. We consider that further studies are needed, involving other types of extracts, to allow reconsideration of the relative contraindication of patient age for the administration of immunotherapy.

* Corresponding author.
E-mail address: Cealergia@cst.cat (M. Ibero).

0301-0546/$ – see front matter © 2010 SEICAP. Published by Elsevier España, S.L. All rights reserved.
doi:10.1016/j.aller.2010.09.002

Introduction

Specific immunotherapy with allergens involves the administration of increasing amounts of an allergen to which the subject is sensitised, with the purpose of suppressing or reducing the symptoms caused by natural exposure to the allergen[1].

Specific immunotherapy with allergens has been shown to be effective in the treatment of bronchial asthma[2,3], is allergen-specific, and is presently the only treatment capable of modifying the natural course of allergic diseases[4,5]. It has also been found to be more effective the earlier it is administered[4]. It is therefore curious that the recommendations of the European Academy of Allergology and Clinical Immunology (EAACI) point to a patient age of under five years as a relative contraindication to the administration of specific immunotherapy[6,7], with the argument that this age group has a greater risk of developing anaphylaxis, and that specially trained personnel are needed to deal with the problem if it occurs.

From the tolerance and safety perspective, we have reviewed the experience of our Allergy Unit in a group of children under five years of age who received specific immunotherapy with a biologically standardised extract depigmented and polymerised with glutaraldehyde.

Material and methods

Study design

A retrospective follow-up observational study was made of patients aged 60 months or younger, during the period 2002-2008, with follow-up until June 2009, and who had received specific immunotherapy.

Patients

The study included 77 children with a mean age of 50.32 ± 7.23 months (range 24-60 months), 46 (59.74%) are boys and 31 (40.26%) are girls. Fig. 1 shows the patient age distribution.

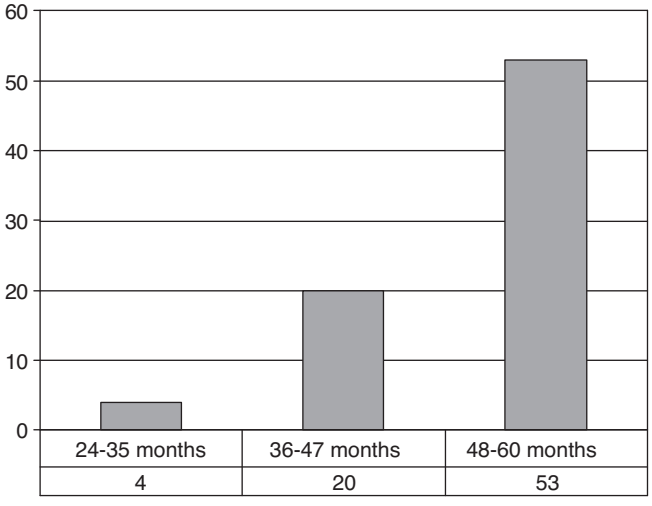

Figure 1 Patient age distribution.

The reason for consultation was bronchial asthma in 68 cases (88.3%), spasmodic cough in five (6.5%), and rhinitis in the remaining four cases (5.2%).

The allergological diagnosis was based on clinical criteria, prick-test and specific IgE positivity to *Dermatophagoides pteronyssinus*. Sixty-seven children were sensitised exclusively to dust mites, while the remaining 10 presented other clinically non-relevant sensitisations to pollen (grasses and olive), animal epithelia (dogs and cats), and fungi (*Alternaria)*.

Allergenic vaccine used

All the patients received treatment with an extract of *Dermatophagoides pteronyssinus*, depigmented and polymerised with glutaraldehyde (DEPIGOID®, Laboratorios LETI, S.L. Tres Cantos, Spain). The characteristics of this extract have been described elsewhere[8].

The native extract of *Dermatophagoides pteronyssinus* contained 20.35 μg of Der p1 and 12.3 μg of Der p2 per mg of dry lyophilised extract. In the modified extract neither Der p1 nor Der p2 could be detected.

Two vials were prepared for each patient, numbered 1 and 2, for the initial cluster protocol. Vial 1 contained 8.5 μg/ml of polymerised and depigmented extract, and vial 2 a 10-fold higher concentration (85 μg/ml). The maintenance doses were prepared with vial number 2.

Immunotherapy regimen

Immunotherapy was initially administered in the hospital setting, using a cluster protocol consisting of the administration of doses of 0.20 ml and 0.30 ml of vial number 1 at intervals of 30 minutes the first day; 0.20 ml and 0.30 ml of vial number 2 one week later; and then maintenance doses of 0.50 ml of vial number 2 at monthly intervals. The patient remained under observation up to 30 minutes after the last administered dose. Once good tolerance of the maintenance dosage was confirmed, we switched to an outpatient administration regimen, with a written registry of the possible incidents using a vaccination card completed by the nurse in charge of administration of the doses.

Safety

A record was kept of all the adverse reactions observed; these were classified according to the criteria of the EAACI into immediate and delayed local reactions, and immediate and delayed systemic reactions. A scale from 0 to 4 proposed by the EAACI was used to assess the severity of the immediate systemic reactions recorded[7].

Results

A total of 1837 doses were administered to the 77 patients, with the observation of four adverse reactions in three patients. Three reactions (0.16% of the administered doses) were local and immediate, while one was systemic and of grade 2 (0.05% of the administered doses) – consisting of an episode of nocturnal wheezing on the day of administration