

Key words

Long lasting effects • Local nasal immunotherapy • Rhinitis • Asthma • Bronchial reactivity • Nasal eosinophilia

Long lasting effects of local nasal immunotherapy in severe respiratory allergy due to parietaria: case report

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Summary

We describe the case of a patient with difficult to treat parietaria-induced allergic asthma, who refused both subcutaneous and sublingual immunotherapy, and who was successfully managed by local nasal immunotherapy. The clinical benefit was long-lasting and persisted several years after nasal immunotherapy discontinuation.

We report the case of a patient suffering from allergic rhinitis with difficult-to-treat asthma who was successfully managed by local nasal immunotherapy, achieving a long-lasting control of the disease. The patient was a 31-year old female, referred to our Allergy Unit in 1993, for seasonal rhinoconjunctivitis associated with difficult-to-control bronchial asthma. Symptoms lasted many years, and she had been repeatedly hospitalized for asthma exacerbations. The skin prick tests and CAP-RAST displayed mono-sensitization to *Parietaria* pollen. She was prescribed a standard pharmacotherapy with cetirizine (10 mg/daily), intranasal beclometasone dipropionate (100 µg 2 puffs per nostril twice daily), inhaled salmeterol (50 µg twice daily), inhaled beclometasone dipropionate (500 µg twice daily), inhaled salbutamol (2 puffs on demand) and prednisone (25 mg) 1 tablet as needed. She was also instructed to keep a clinical diary of symptoms. A score 0 to 3 was assigned to the following: nasal itching, rhinorrhea, sneezing, nasal obstruction, cough, dyspnoea, wheezing and chest tightness. The drug intake was scored 1 point for each daily dose of the aforementioned drugs. During season (after a 72 hour wash-out of bronchodilators and inhaled steroid) a spirometry (Masterlab, Jaeger, Wurzburg, Germany) was carried out, showing a pre-bronchodilator forced expiratory volume in 1 second (FEV1) 66% of the predicted, which increased by 15% after salbutamol. The nasal cytology revealed an important eosinophilia (36% of total cells).

The methacholine challenge, performed out of the pollen season showed a severe bronchial hyperreactivity (PD20FEV1 = 89 µg). Despite the maximal therapy, asthma remained uncontrolled, and the patient had to frequently use oral steroid. In September 1993, subcutaneous and sublingual immunotherapy were proposed, but the patient refused. After discussing the possible options, she accepted local nasal immunotherapy (LNIT) (Allerkin® Lofarma, Milan, Italy). LNIT (*Parietaria*, standardized in Allergen Unity, prepared as micro-powder) was started on October 1993. The induction phase with increasing doses lasted 4 weeks and the maintenance was then given weekly until October 1998. The mild side effects (nasal itching, sneezing, rhinorrhea) were easily controlled by chromolyn pre-medication. The patient was followed-up with regular clinic visits, and continued to fill in the diary cards. At the 3rd and 5th year of LNIT, skin prick tests, spirometry, methacholine challenge and nasal cytology were repeated. After discontinuation of LNIT the clinical diary was recorded yearly whereas cytological and functional parameters were evaluated at the 5th and 10th year (2003 and 2008).

The clinical symptoms were reduced from 552 at baseline, to 309 (-44%) at the 3rd year, and to 37 (-92%) at the 5th year. The clinical benefit persisted for the subsequent 10 years (Fig. 1). A parallel reduction in the drug consumption was seen. The patient, who was steroid-dependant, could stop oral prednisone starting from

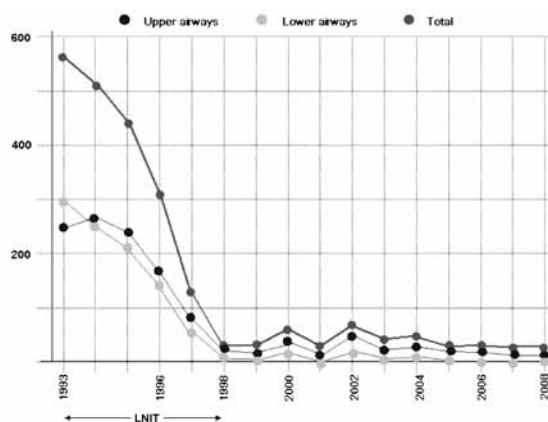


Fig. 1. Total symptoms, nasal symptoms and chest symptoms assessed yearly (March-July) by diary card.

the 5th year of LNIT with the simultaneous wash-out of bronchial steroids and long acting bronchodilators. It was apparent that asthma improved more than rhinitis. There was an increase in FEV1, associated with a progressive decrease in nasal eosinophils (Fig. 2). The methacholine PD20FEV1 increased from 89 μ g to 571 μ g at the 3rd year, to 1015 μ g at the 5th year. Five and 10 years after discontinuation the PD20FEV1 remained > 1200 μ g. LNIT was applied for the first time in 1913¹, and it was re-proposed at the end of the XX century, when several randomized studies were carried out with aqueous extracts, native allergens and polymerized allergoids, all of them showing a good clinical efficacy². Subsequently, LNIT was improved by the preparation in micronized powder to be administered with a special nasal device.

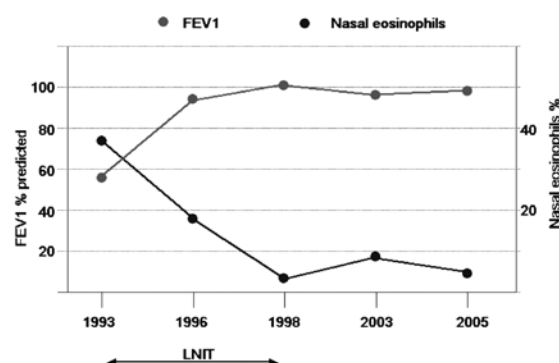


Fig. 2. FEV1 (red line) in percentage of the predicted value and nasal eosinophils (blue line) in percentage of total cells assessed at baseline, during LNIT and in the follow-up period.

This new product was used in 10 randomized controlled trials with grass³⁻⁵, Parietaria⁶⁻⁹, dust mites¹⁰ and birch¹¹⁻¹². All studies confirmed a significant clinical efficacy and an excellent safety profile. The reduction of nasal inflammation and reactivity¹³ and the decreased proliferation of allergen-specific peripheral lymphocytes¹⁴ were also demonstrated. The present case report confirms the clinical efficacy of LNIT, and most importantly, evidences the long-term effects on both asthma and rhinitis symptoms, thus confirming previous observations over a period of 4-5 years¹⁵. The long-lasting and systemic effects of LNIT resemble those observed with subcutaneous and sublingual routes and suggest that LNIT could be still proposed to selected patients who refuse other forms of immunotherapy.

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