Immunotherapy and Immunomodulation

Five-Year Follow-up on the PAT Study: Specific Immunotherapy and Long-term Prevention of Asthma in Children

PURPOSE OF THE STUDY. The Preventive Allergy Treatment (PAT) study was designed to investigate the preventive effect of specific immunotherapy (SIT) on the development of asthma in children suffering from allergic rhinoconjunctivitis. SIT was performed as a 3-year course of subcutaneous immunotherapy with extracts of grass and/or birch pollen. The PAT study showed that SIT can prevent the development of asthma in children suffering from seasonal allergic rhinoconjunctivitis. This article was a follow-up evaluation on the development of asthma in these children 2 years after discontinuation of SIT versus no treatment.

STUDY POPULATION. Children aged 6 to 14 with rhinoconjunctivitis triggered by allergy to grass and/or birch pollen were enrolled onto the PAT study. A total of 183 of the 205 children (now aged 11–20 years) from the PAT study were included in this 5-year follow-up evaluation.

METHODS. Of the initially randomly assigned 205 patients, there were 183 patients (95 receiving SIT, 88 controls) suffering from rhinoconjunctivitis caused by allergy to grass and/or birch who underwent conjunctival provocation testing, methacholine bronchial provocation testing, evaluation for asthma, and recording of rhinitis and conjunctivitis visual analog scores. Asthma was defined as recurrence of at least 2 of the 3 following symptoms within the last 12 months that were not only triggered by infection and responded to treatment with β agonists: cough, wheeze, and shortness of breath.

RESULTS. Of the 183 patients evaluated after 5 years, 142 had no asthma at inclusion, and 8 children dropped out of the study. Patients without asthma before the start of SIT (n = 142) were analyzed for the development of asthma, which was the primary end point of this study, after the 5-year period. Of the 75 patients who received SIT, 15 developed asthma, whereas 29 of the 76 control patients developed asthma (P < .01). On the basis of the visual analog scores of conjunctivitis and rhinitis, the SIT-treated group had a significant improvement from baseline to 5 years compared with the controls (P < .001). The conjunctival sensitivity measured by provocation tests were significantly reduced in the active group compared with the control group (P < .001).

CONCLUSIONS. This study showed that the benefits of SIT (ie, the reduction of symptoms and prevention of asthma) persisted 2 years after termination of treatment of children with allergic rhinoconjunctivitis caused by grass and/or birch.

REVIEWER COMMENTS. Although the results that allergen immunotherapy may reduce the symptoms of allergic disease and the onset of asthma are encouraging, the manner in which asthma was defined in this study, based primarily on subjective findings, limited the significance of the results. Furthermore, in the United States, we generally perform SIT with more than just timothy grass (*Phleum pratense*) and birch pollen (*Betula verrucosa*) because of multiple aeroallergen sensitization; therefore, it is difficult to generalize the findings of this study to our typical patient population.

Allergy Immunotherapy as an Early Intervention in Patients With Child-Onset Atopic Asthma
Nagaya H, Maren S, Nagaya N. *Int Arch Allergy Immunol*. 2006;139:9–15

PURPOSE OF THE STUDY. In patients with bronchial asthma, an effective treatment is required at early stages of the disease to prevent irreversible structural changes of the airways. The objective of this study was to evaluate the beneficial effects of routine immunotherapy as an early intervention on forced expiratory volume in 1 second (FEV₁) in patients with childhood-onset atopic asthma.

STUDY POPULATION. Forty-three patients with child-onset atopic asthma who had received regular immunotherapy injections and periodic FEV₁ measurements.

METHODS. Beneficial effects of successful immunotherapy on FEV₁ were analyzed retrospectively in 43 unselected patients who received standard subcutaneous immunotherapy with periodic FEV₁ measurements and became asymptomatic.

RESULTS. Although there was no significant correlation between the duration of asthma symptoms before immunotherapy and the changes in FEV₁ before and after immunotherapy in the 43 unselected patients, there was a significant inverse correlation between these 2 parameters in 23 patients whose asthma duration was <20 years. Because the FEV₁ increased after immunotherapy in all 14 patients whose asthma duration was <5 years, the 43 patients were divided into group 1 including these 14 patients, and group 2, including 29 patients whose asthma duration was >5 years. The FEV₁ decreased in 7 of the 29 asymptomatic patients in group 2. There was no difference in the initial FEV₁ between the
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