

Short-term preseasonal pollen allergoid immunotherapy in the causal therapy of allergic asthma in children: a prospective, randomized controlled trial

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BACKGROUND

Allergen-Specific Immunotherapy (SIT) is recommended for the causal therapy of allergic diseases. Little is known about the effects of short-term SIT with allergoids on allergic asthma in children.

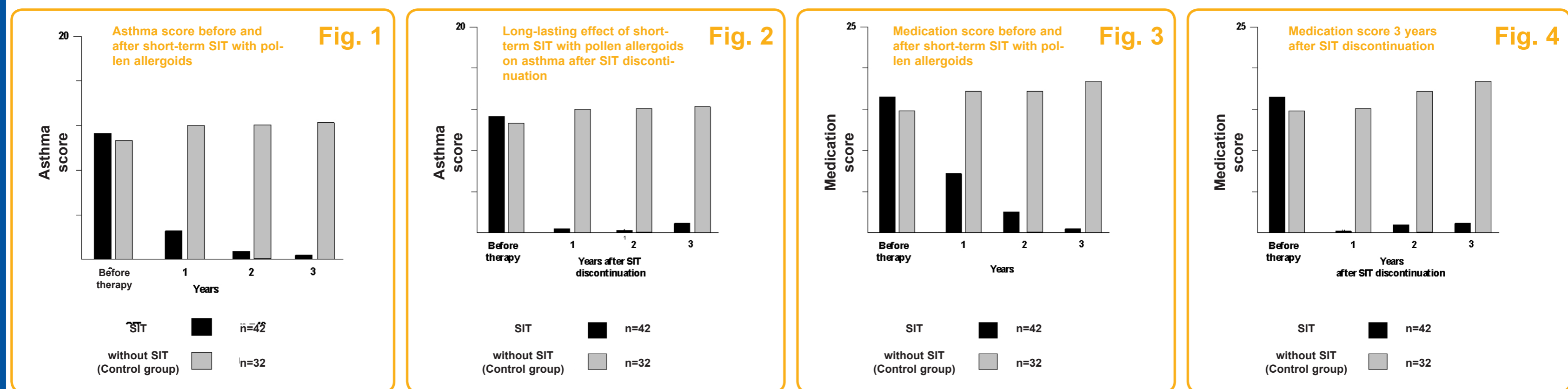
METHODS

We recruited 87 children with only pollen induced seasonal asthma between the age of 6-14 years and divided the patients randomly in 2 groups. Group A (n=47) was treated yearly preseasonally with seven s.c. injections of a depot-allergoid extract for 3 years plus standard medications. Group B (n=40) was treated only with standard medications. Immunoglobulins, allergen-specific IgE and IgG, IL-4 and IFN-gamma in serum were measured and titrated skin prick tests and spirometry were performed before and after SIT and during pollen season for 3 years. All patients were examined before and after SIT, during pollen season and at two extraseasonal visits. We clinically assessed all patients three years after discontinuation of SIT during pollen season and performed spirometry.

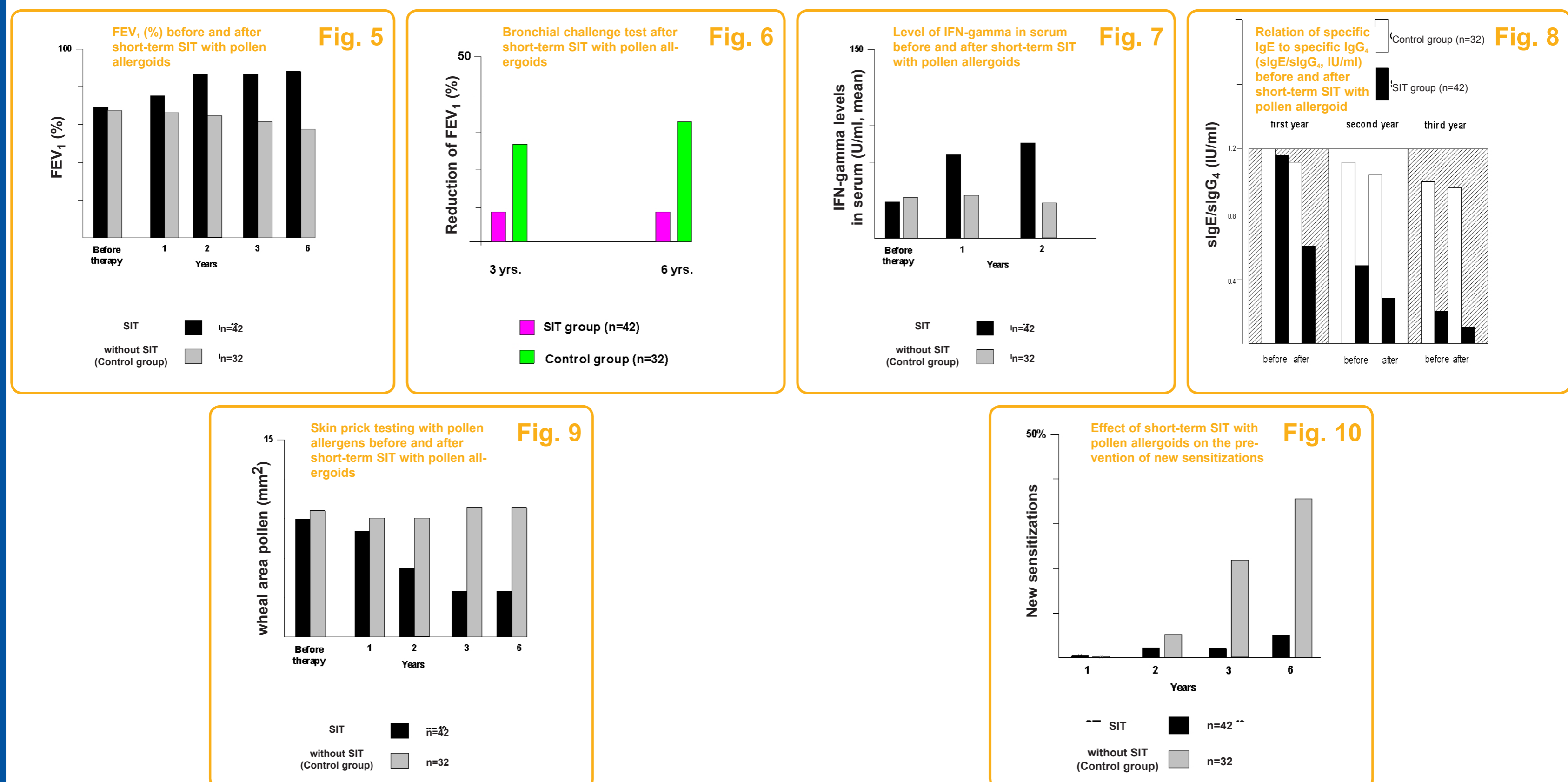
RESULTS

It was possible to evaluate 42 patients in group A and 32 patients in group B.

In group A clinical symptoms and drug requirement decreased significantly in the first year, compared to group B ($p < 0.01$) (Fig. 1-4). In the third year all patients in group A were symptom free and did not use any medications for asthma, whereas the clinical symptoms and medication intake in group B had increased, compared to the base line (Fig. 1-4).



FEV₁ in group A increased significantly during SIT, whereas in group B decreased, compared to the base line (Fig. 5). Spirometry showed normal findings before and after challenge test in the third year of SIT and until three years after discontinuation of SIT, whereas in group B we found pathological findings ($p < 0.01$) (Fig. 6). Parallel to the clinical improvement we measured an elevation of IFN-gamma in serum in group A ($p < 0.01$) (Fig. 7), a reduction of sIgE/sIgG₄ in serum ($p < 0.01$) (Fig. 8) and a decrease of skin reaction on pollens by skin prick tests ($p < 0.01$) (Fig. 9), compared to group B. We observed new sensitizations in one patient of group A vs. 7 patients of group B three years after SIT (Fig. 10). Three years after discontinuation of SIT two patients of group A vs. 11 patients of group B showed new sensitizations (Fig. 10). SIT with depot-allergoid extract was well tolerated and did not show any notable side effects.



CONCLUSION

In our study we could demonstrate the causal effect of short-term preseasonal SIT with depot-allergoid extract on pollen induced seasonal asthma in children. The effect lasted until the end of our study over 3 years after discontinuation of SIT. The occurrence of new sensitizations could be prevented.