Comparison of outcomes following ultra short course specific immunotherapy (uSCIT) in juvenile and adult patients with asthma

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Introduction

Specific immunotherapy (SIT) effectively prevents or diminishes seasonal allergic rhinitis (SAR) by modifying the immune response to allergenic stimulus, reducing the severity of SAR symptoms and decreasing the use of concomitant allergy medication.[1] However, long-course SIT is associated with low completion rates in children.[2]

Patients with mild asthma and type 1 hypersensitivity are important candidates for SIT given the close relationship between atopy and asthma. These patients stand to gain considerable benefit from effective treatment for allergic disease.

Asthma and SAR are considered to be manifestations of an inflammatory process within a continuous airway, rather than separate pathologies.[3] Asthma burden in later life might be reduced by more aggressive treatment of SAR in childhood.[4] However, there is limited evidence to compare outcomes following SIT in children/adolescent and adult patients with asthma.

Pre-seasonal uSCIT with Pollinex® Quattro (PQ, containing monophosphoryl lipid A, a Th1-inducing adjuvant) can be conveniently completed in four injections over as few as three weeks and offers a short, effective and potentially curative option with no maintenance therapy.[5,6] Short-course therapy may improve acceptance of SIT and support its broader use.

This substudy evaluated the efficacy and safety of uSCIT with PQ over three consecutive years in children/adolescent and adult patients with asthma.

Methods

Study design

This post-marketing study enrolled adult and children/adolescents (aged 6 - 18 years) suffering from pollen allergy with SAR and/or asthma from 963 centres across Germany, as previously described.[7]

Four 1 mL subcutaneous doses of PQ were administered to each patient with increasing amounts of allergoid: 300, 800, 2000 and 2000 SU/mL.

The first three injections were administered with a 1 - 2 week interval between each, and the final injection was administered after an interval of 1 - 4 weeks.

PQ was formulated with various allergoids, including birch, birch/alder/hazel, grass/rye, mugwort, and plantain, according to patients' allergies. The majority of patients received grass allergoids alone or mixtures of grass and tree allergoids.
Treatment was administered before the start of the pollen season for three consecutive years. Data from children/adolescents with asthma during treatment were compared with data from the entire cohort of patients.

Efficacy

Efficacy was evaluated by physicians' assessment of therapy success and by associated use of anti-allergic medication (regularly, often, rarely, none).

Tolerability

Tolerability was evaluated according to the incidence of local and systemic adverse reactions.
Patients' acceptance of treatment (very good, good, not so good, bad) was also recorded.

Results

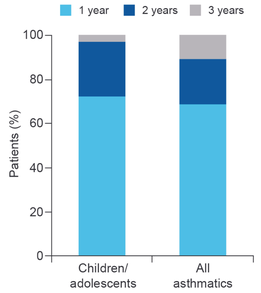
Patient demographics

Data from 906 adults with asthma and 169 children/adolescents aged <18 years with asthma were included in this substudy.
Baseline severity of asthma and use of anti-allergy medication was similar for the cohort of children/adolescents and the entire group of asthmatic patients (Table 1).
The majority of asthmatics received one or two courses of treatment, which was also the case for children/adolescents (Figure 1). Eleven patients with asthma in the children/adolescent group received three courses of treatment.

Table 1. Baseline severity of disease for children/adolescents and the entire cohort of asthmatics

Baseline characteristic	Children/adolescents (%; n=169)	All asthmatics (%; n=1075)
Severity of asthma		
severe	72.2	68.9
moderate	24.9	20.1
mild	3.0	11.0
Use of anti-allergy medication		
regularly	46.2	54.2
often	34.3	28.0
rarely	15.4	18.2
never	0.0	0.8
missing	4.1	0.8

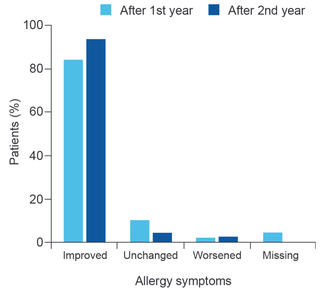
Figure 1. Courses of treatment received by children/adolescents and all asthmatics



Efficacy

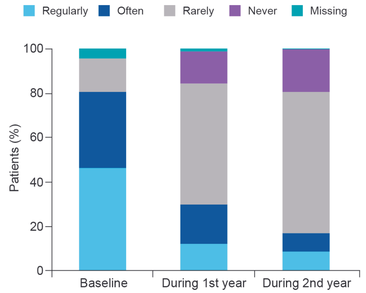
Improvement of allergy symptoms was observed in approximately 84% of children/adolescents during the first season after uSCIT, and this proportion increased during the second year (Figure 2; data not shown for year 3).

Figure 2. Treatment response to uSCIT in children/adolescents during the first two years' therapy



Regular or often use of anti-allergic medications decreased from >80% to <20% in children/adolescents during the first two years following treatment. This pattern was similar to that in the whole cohort of asthmatics (Figure 3; data not shown for year 3).

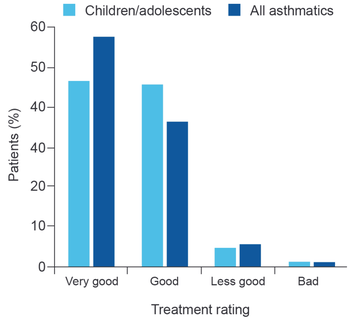
Figure 3. Use of symptomatic anti-allergy medication in children/adolescents during the first two years of treatment



Tolerability

During the first treatment cycle, 58% and 35% of adult patients with asthma rated treatment as 'very good' and 'good', respectively (93% in total; Figure 4). Similarly, the respective response rates ('very good' and 'good') in children/adolescents with asthma were 46% and 47% (93% in total).

Figure 4. Therapy acceptance in patients with asthma during the first year following treatment



Patient acceptance of treatment was >90% in both patient groups following one and two courses of treatment.

Adverse events were limited to local injection site reactions (mainly redness and swelling), with few systemic reactions occurring (commonly mild rhinitis). All reported adverse events were mild or moderate in intensity. No anaphylactic reactions or serious adverse events were reported.

Discussion

The cohort of children and adolescents was very similar to the entire cohort of asthmatics in terms of baseline disease severity and use of symptomatic medication. Similarly, the response to treatment in children and adolescents mirrored that in the entire population of asthmatics.

uSCIT with PQ is highly accepted by children/adolescents and adults with asthma, and offers a convenient regimen which may support overall compliance.

Conclusions

Pollinex Quattro uSCIT for seasonal allergic rhinitis is equally highly effective and well tolerated in children/adolescents and adults with asthma.

The therapeutic benefits of uSCIT with Pollinex Quattro persist after the treatment course has ended and become more pronounced with repeated courses of treatment.

A wider uptake of uSCIT with Pollinex Quattro could be beneficial in children/adolescents and adults with asthma who have seasonal allergic rhinitis.

References

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