A comparative health economic evaluation of the SQstandardised grass allergy immunotherapy tablet and subcutaneous immunotherapy in the treatment of grass pollen induced allergic rhinoconjunctivitis

Ronborg, Steen Meier; Svendsen, Ulrik Gerner; Stjernholm, Jesper; Ytte, Lars; Treloggen, Janne Riss; Andreasen, Jakob Norgaard; Ehlers, Lars Holger

Publication date:
2011

Document Version
Early version, also known as pre-print

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Ronborg, Steen Meier[1]; Svendsen, Ulrik Gerner[2]; Micheelsen, Jesper Stjernholm[3]; Ytte, Lars[4]; Riss Treloggen, Janne[5]; Andreasen, Jakob Norgaard[5]; Ehlers, Lars[6]

[1]The Pulmonology and Allergy Clinic of Copenhagen, Denmark; [2]Bispebjerg Hospital, Copenhagen, Denmark; [3]Private ENT practice, Denmark; [4]General practitioner, Humlebaek, Denmark; [5]ALK, Denmark; [6]Aalborg University, Denmark

Background

Allergic rhinoconjunctivitis (ARC) constitutes a large burden for society. The disease prevalence is increasing and approximately 20-25% of the European population suffers from respiratory allergies including ARC. The majority of patients are treated with symptomatic pharmacotherapy; however a large proportion remain uncontrolled despite the use of such treatments. Specific immunotherapy (SIT) is the only treatment documented to target the underlying allergic disease and activate immunomodulatory mechanisms leading to a sustained effect after completion of treatment. Based on a Danish societal and health care perspective, this analysis shows the economic consequences if adult patients with grass pollen induced ARC uncontrolled on symptomatic medications are treated with a grass allergy immunotherapy tablet (AIT) instead of the currently established clinical practice of subcutaneous immunotherapy (SCIT).

Method

A cost-minimisation analysis (CMA) was performed comparing the SQ-standardised grass AIT (Grazax, *Phleum pratense*, 75,000 SQ-T/2,800 BAU, ALK, Denmark) with SCIT (Alutard, *Phleum pratense*, 100,000 SQ-U, ALK, Denmark) (Figure 1). The choice of CMA was based on a review publication and a meta-analysis, which concluded that the clinical effect of AIT is similar in magnitude to that observed for SCIT in grass pollen induced ARC patients with similar disease severity. Health care utilisation was measured in physical units based on national guidelines, literature reviews and expert opinion. The valuation in unit costs was based on drug tariffs, physician fee structures and wage statistics in 2010. Key model assumptions can be found in Table 1.

Figure 1: Treatment sequences for the two products compared in the CMA

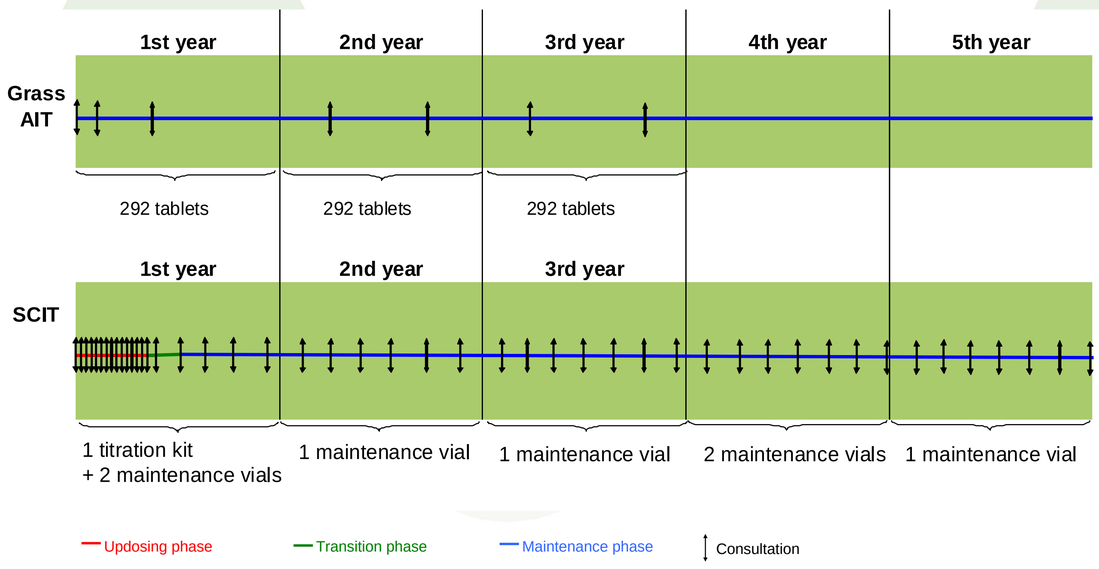


Table 1: Key model assumptions used for the CMA

Model assumptions	Grass AIT	SCIT
Treatment length	Patients are treated for 3 years according to current treatment guidelines	Difference in treatment length (3 or 5 years): 80% are treated for 3 years; 20% of patients are treated for 5 years
Treatment/ consultations	Year 1: Treatment initiated by two consultations: a) administration of first treatment dose b) Investigation of desired treatment effect approx. 1 month later. Initial consultations are followed by an additional check-up consultation Year 2 and 3: 2 check-up consultations every year All check-up consultations take place at a GPs office	Updosing phase: Weekly injections in a period of 15 weeks Transition phase: 1 injection after 2 weeks; a second injection 4 weeks later Maintenance phase: Approx. 8 weeks between injections Vials are personal and cannot be shared between patients
Compliance	Compliance: 80%	Compliance (updosing phase): 100% Compliance (remaining treatment period): 90%

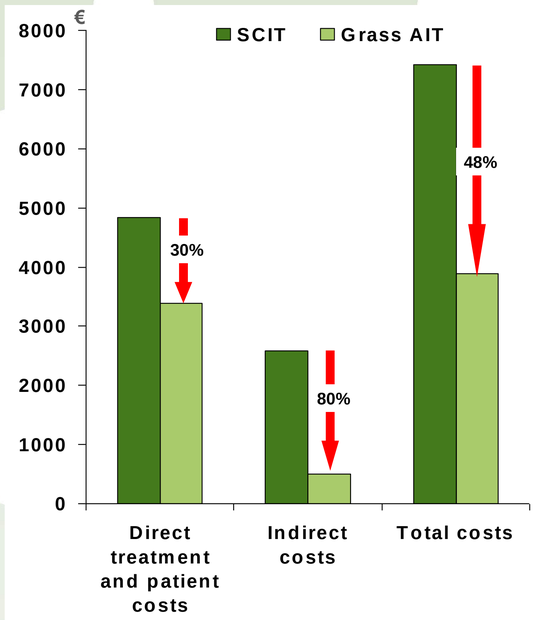
Results

Treating ARC patients with grass AIT instead of SCIT is cost-saving due to a significantly reduced number of physician visits needed, leading to a reduction in direct treatment costs, direct patient costs and indirect costs (Table 2 and Figure 2).

Table 2: Costs (in €) in relation to treatment with Grass AIT and SCIT

Cost category	Grass AIT	SCIT	Cost reduction (Grass AIT-SCIT)
Medication	3043	1266	1777
Physician visits	312	3394	-3082
Direct treatment costs	**3355**	**4660**	**-1306**
Direct patient costs (travel expense)	33	171	-138
Direct treatment costs + patient costs	**3388**	**4831**	**-1443**
Indirect costs (patient productivity)	506	2589	-2083
Total costs	**3894**	**7420**	**-3526**

Figure 2: Direct treatment and patient costs, indirect costs and total costs (in €) in relation to treatment with Grass AIT and SCIT



A sensitivity analysis confirmed the robustness of the results in Table 2 and Figure 2.

Conclusion

In patients with grass pollen induced ARC, this cost-minimisation analysis shows that treatment with the SQ-standardised grass AIT reduces both direct and in-direct treatment costs compared with SCIT. Thus, the SQ-standardised grass AIT is a cost-saving alternative to SCIT both from a societal and health care perspective

Anne Okkels Birk provided medical writing services on behalf of ALK