A cost-effectiveness analysis of immunotherapy with SQ allergen extract for patients with seasonal allergic rhinoconjunctivitis in selected European countries

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study estimated the cost-effectiveness of immunotherapy with SQ Alutard for patients with seasonal allergic rhinoconjunctivitis in seven European countries. The authors concluded that immunotherapy with SQ Alutard allergen was a cost-effective treatment and cost-saving for some countries, in some scenarios. Despite some limitations, the authors provided a reasonably transparent account of the study methods. The conclusions reflect the scope of the analysis and should be considered with its limitations in mind.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The aim was to investigate the cost-effectiveness of immunotherapy with Alutard SQ allergen for patients with seasonal allergic rhinoconjunctivitis (SAR) across several countries where the therapy was currently used. The population was adults aged 18 to 60 years, with a clinical history of grass pollen-induced SAR, living in Austria, Germany, Finland, Sweden, Netherlands, and Denmark.

Interventions
The intervention assessed was a specific allergen vaccination Alutard SQ, administered by sub-cutaneous injections into the arm. Both the initial doses and the maintenance phases were assessed. Treatment involved one or two injections weekly for approximately 11 to 15 weeks before and during the pollen season, with the dose gradually increased to a maintenance dose, or maximum tolerated dose, of Alutard SQ.

The comparator was emergency medication, which consisted of all medications used by individuals during the pollen season.

Location/setting
Europe/outpatient care.

Methods
Analytical approach:
The evaluation was based on data from a single clinical trial. The costs and effects were analysed over a nine-year period from initial immunisation. The authors did not explicitly state the perspective.

Effectiveness data:
The UK Immunotherapy Study Group trial, a multi-centre, double-blind, randomised, parallel-group trial comparing Alutard SQ with placebo (Frew, et al. 2006, see ‘Other Publications of Related Interest’ below for bibliographic details), was used to obtain the effectiveness estimates. The clinical outcome measures were symptom and medication scores. Symptom scores were generated using self-reported allergic nose, eye, and lung symptoms rated from zero (no symptoms) to three (severe symptoms). The medication score was derived by pre-assigning each emergency medication a score, then monitoring the quantities used to calculate a total score. Secondary effectiveness measures included a weekly subjective evaluation of severity, and the overall score from the Rhinocconjunctivitis Quality of Life (RQLQ) questionnaire.
Monetary benefit and utility valuations:
The utility weights were derived by converting scores, averaged from selected domains of the RQLQ, to EuroQol (EQ-5D) scores. Quality-adjusted life-year (QALY) values corresponding to the EQ-5D scores for each of the countries were taken from a previously published study. As national QALY tables were available for Denmark these were used in preference.

Measure of benefit:
The three measures of benefit were symptom-free days, well days, and QALYs.

Cost data:
Direct costs were those of the drug Alutard SQ (or comparable products available in each country), initial dosing and maintenance visits, emergency medications, and "other" direct costs. Productivity gained, by reducing the number of working days lost through illness, was considered and valued using the daily wage rates in each country. The resource quantities were valued in the currency of each country and converted using September 2005 exchange rates to 2005 Euros (EUR). The costs were discounted at 3%.

Analysis of uncertainty:
Sensitivity analyses were not reported.

Results
An incremental analysis was performed.

The incremental direct costs for Alutard SQ compared with emergency medication ranged from EUR 1,166 in Austria to EUR 2,942 in the Netherlands. The total costs, taking into account productivity savings, ranged from negative amounts or cost-savings in Austria, Denmark, Finland and Germany to EUR 775 in the Netherlands, over nine years.

The incremental QALYs ranged from 0.088 in Denmark to 0.12 in all other countries. The symptom-free days and well days were not separately reported from their cost-effectiveness ratios.

When only direct costs were included, the incremental cost-effectiveness ratios ranged from EUR 9,716 to EUR 25,863 and ranked in order from lowest to highest in Austria, Germany, Finland, Sweden, the Netherlands, and Denmark.

When both direct and indirect costs were included Alutard SQ dominated emergency medication in Denmark, Austria, Germany, and Finland and produced incremental cost-effectiveness ratios of EUR 5,024 per QALY gained in Sweden and EUR 6,458 per QALY gained in the Netherlands.

Authors’ conclusions
The authors concluded that immunotherapy using Alutard SQ showed favourable cost-effectiveness results whether or not productivity gains were taken into account.

CRD commentary
Interventions:
The intervention was clearly reported and appeared to reflect the current practice in the participating countries. However, the comparator emergency medication was not clearly documented, although the authors clearly stated that this related to all medication use during the pollen season.

Effectiveness/benefits:
The effectiveness data were based on a single multi-centre randomised controlled trial, which is likely to produce valid estimates of efficacy. A full assessment of the internal validity of the trial was not possible based on the detail reported in this paper. The measurement of the utilities involved mapping RQLQ scores to the EQ-5D, the details of this were clearly reported and justified. Country specific QALY values were taken from published literature when national tables were not available. The use of country specific data allows an accurate comparison to be made. The study limitations were acknowledged by the authors and outlined clearly.
Costs:
The types of costs appeared appropriate for both a hospital and a societal perspective, but the perspective was not explicitly stated. All the sources of cost data were clearly reported. The resource use was taken from the clinical trial and combined with national price data from each country. Productivity costs for all countries were derived from a study conducted in Denmark. All the relevant adjustments to cost data appear to have been made and reported.

Analysis and results:
The analyses were clearly and transparently reported, although no sensitivity analysis was presented. The use of sensitivity analyses to deal with uncertainty would have strengthened the authors’ interpretation of their findings. Sensitivity analyses were especially relevant given that the authors highlighted several sources of data where uncertainty may have substantially impacted on their results. These included, cross-country clinical practice differentials and resources used, mapped utility values from a quality of life questionnaire, and productivity estimates.

Concluding remarks:
Despite some limitations the authors provided a reasonably transparent account of the study methods. The conclusions reflect the scope of the analysis and should be considered bearing the limitations outlined above in mind.

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Other publications of related interest

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