Cost-effectiveness of specific immunotherapy with Grazax in allergic rhinitis co-existing with asthma

Nasser S, Vestenbaek U, Beriot-Mathiot A, Poulsen P B

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 Grazax, in the UK, in patients with grass-pollen induced rhinoconjunctivitis and asthma. The authors concluded that immunotherapy using Grazax was a cost-effective strategy compared with the standard management of these patients. The methodology of the study appears to have been appropriate and, on the whole, was clearly and transparently reported. The conclusions reached by the authors appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective was to investigate the costs and effects of Grazax, an allergen-specific immunotherapy, in the UK, for people with rhinoconjunctivitis with co-existing asthma.

Interventions
Grazax was self-administered in tablet form and compared with a placebo. The tablets contained standardised allergen extract of Timothy grass pollen (Phleum pratense). Both groups also took medications for their symptoms at their discretion, and therefore the placebo group was considered to be normal practice. All patients had a clinical history of asthma at the onset of the study.

Location/setting
UK/primary prevention.

Methods
Analytical approach:
Numerous data sources were synthesised, but the analysis was primarily based on a single clinical study. The costs and effects were analysed over a nine-year period from initial immunisation. The authors stated that a societal perspective was adopted.

Effectiveness data:
The effectiveness data were drawn from a multinational, randomised double-blind, placebo-controlled trial conducted across several countries, which were the UK, Germany, the Netherlands, Denmark, Sweden, Spain, Austria, and Italy (Dahl, et al. 2006, see ‘Other Publications of Related Interest’ below for bibliographic details). The trial included a sample of 634 patients with rhinoconjunctivitis with or without asthma, but this study focused on the 151 patients who had a clinical history of asthma at the start of the trial. The readers were referred to Dahl, et al (2006) for further information.

Monetary benefit and utility valuations:
The utility weights were derived using the European Quality of life (EQ-5D) questionnaire administered during the clinical trial (see Dahl, et al. 2006) on a weekly basis. The UK scoring algorithm was used to convert these EQ-5D scores to utility scores.

Measure of benefit:
Quality-adjusted life-years (QALY) gained were the measure of benefit, and these were discounted at 3.5%.

**Cost data:**
The direct costs were those of drugs, emergency doctors’ visits, acute ward visits, and hospitalisations. The resource quantities were based on diary reports and were valued using published UK tariffs. Lost production from the number of working days off and reduced productivity while at work were based on a previous US study (Lamb, et al. 2006, see ‘Other Publications of Related Interest’ below for bibliographic details) and were valued using the average wage rates in the UK. The costs related to the research trial itself were excluded. The resource quantities were reported in year 2005 UK pounds sterling (£). All costs were discounted at 3.5%.

**Analysis of uncertainty:**
One-way sensitivity analyses were undertaken on three parameters, which were the time horizon, the price of Grazax, and the productivity estimates. The results of these analyses were presented as incremental cost-effectiveness ratios.

**Results**
The discounted costs per average patient were £3,429 for Grazax and £2,578 for the placebo group. The use of fewer doctors’ visits and symptomatic medications, and the inclusion of production losses, all favoured the patients receiving Grazax.

The mean QALYs were 0.9391 for the Grazax group and 0.9141 for the placebo group. The discounted incremental QALYs gained were 0.197 in favour of Grazax.

The discounted incremental cost per QALY gained was £4,319.

When productivity costs were excluded from the analysis, the incremental cost-effectiveness ratio doubled and, when the time horizon was also decreased to seven years, the ratio increased further to £11,769. The price of Grazax had to remain below £5.07 (the actual price was £2.25) in order to remain cost-effective.

**Authors’ conclusions**
The authors concluded that immunotherapy using Grazax was a cost-effective strategy compared with the standard management of patients with grass-pollen induced allergic rhinitis and co-existing asthma.

**CRD commentary**
**Interventions:**
The comparison groups were clearly described. They were based on those from a prospective randomised controlled trial and, as both groups had access to the commonly available symptomatic medications, the control group was a close representation of the standard care and a relevant comparator.

**Effectiveness/benefits:**
The full details of the trial were not reported. However, the study appears to have been well conducted and a brief summary of the trial and its main findings was given. The primary outcomes were well reported, and appropriate statistical analyses were conducted to test for significant results.

**Costs:**
The types of costs included were consistent with the perspective. The resource use data and unit costs were well reported. The price year was adequately reported. The level of reporting made the costing extremely transparent, allowing the reader to ascertain fully which resource use and cost data were included.

**Analysis and results:**
The authors conducted an appropriate incremental analysis, and the results for the non-dominated strategies were fully and clearly presented. The sensitivity analyses were basic, and multivariate approaches would have strengthened the confidence in the authors’ interpretation of the findings. Possible study limitations and issues of generalisability were not discussed by the authors.
Concluding remarks:
The methodology of the study appears to have been appropriate and, on the whole, was clearly and transparently reported. The conclusions reached by the authors appear to be appropriate.

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