Cost-effectiveness of specific subcutaneous immunotherapy in patients with allergic rhinitis and allergic asthma


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
The objective was to assess the cost-effectiveness of symptom treatment alone or combined with specific subcutaneous immunotherapy for the management of patients with allergic rhinitis and allergic asthma. The authors concluded that the addition of immunotherapy was cost-effective compared with symptom treatment alone. The study was not reported in detail and the issue of uncertainty was only partially addressed, which makes it hard to assess the authors’ conclusions.

Type of economic evaluation
Cost-utility analysis

Study objective
This study compared the cost-effectiveness of two treatments for allergic rhinitis and allergic asthma. Three age groups were studied: children 6 to 12 years, adolescents 13 to 18 years, and adults 19 to 65 years.

Interventions
The interventions were specific subcutaneous immunotherapy combined with symptom treatment and symptom treatment alone.

Location/setting
Germany/primary care.

Methods
Analytical approach:
A Markov model with a 15-year time horizon was used and the authors stated that a societal perspective and a third-party payer’s perspective were taken.

Effectiveness data:
The effectiveness data were derived from published studies.

Monetary benefit and utility valuations:
The utilities were from a large German pilot study on acupuncture. The methods used to derive the utilities were not reported.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the measure of benefit and they were discounted at an annual rate of 3%.

Cost data:
The direct costs associated with disability, early retirement, and loss of work by patients and caregivers were included. The costs differed by severity of the disease: mild allergic rhinitis; moderate or severe allergic rhinitis; moderate or severe allergic rhinitis and mild allergic asthma; and moderate or severe allergic rhinitis and moderate or severe allergic asthma. All costs were from a published German study. They were reported in Euros (EUR) and they were discounted at an annual rate of 3%.

Analysis of uncertainty:
The uncertainty was investigated using one-way sensitivity analysis on the following model parameters: average subcutaneous immunotherapy treatment duration (from three years at baseline to two years), price of subcutaneous immunotherapy varying the treatment and medication costs, and the discount rate. In the base case, subcutaneous immunotherapy was only administered after having contact with a physician, and an alternative scenario was investigated in which the immunotherapy was administered to all patients with allergic rhinitis or asthma and this excluded the costs associated with physician contact, such as prescription medicines or rehabilitation.

Results
Over the 15-year period from a societal perspective, the total costs per patient were EUR 26,100 for symptom treatment and EUR 24,000 for immunotherapy and symptom treatment, resulting in an annual cost difference of EUR 144.47. From the third-party payer perspective, immunotherapy was more expensive resulting in an annual cost difference of EUR 60.65 per patient.

The QALYs were not reported and only the differences in QALYs were reported. Immunotherapy plus symptom treatment resulted in 0.0073 additional QALYs annually compared with symptom treatment alone.

From a societal perspective, immunotherapy was the dominant strategy, as it was more effective and less costly than no immunotherapy. These results were better for the adult age group. From the third-party payer perspective, immunotherapy resulted in an incremental cost-effectiveness ratio of EUR 8,308 per QALY gained.

The sensitivity analyses demonstrated that the results were sensitive to the duration of immunotherapy, the discount rate, and the exclusion of the physician contact. When the immunotherapy price was reduced, it became the dominant strategy from the third-party payer perspective as well.

Authors' conclusions
The authors concluded that, from a societal perspective, the addition of immunotherapy improved the effectiveness at reduced costs and, from a third-party payer perspective, it improved effectiveness, but at a slightly higher costs compared with symptom treatment alone. They acknowledged the sensitivity of their results to the costs of immunotherapy and the target population receiving the treatment.

CRD commentary
Interventions:
The interventions were not reported in detail. For example, the medications used and their doses were not presented.

Effectiveness/benefits:
No systematic review of the literature was reported and the methods used to identify the primary sources were not reported. No details of the studies used for the effectiveness estimates were provided, such as the study population, study design etc. With this limited information, it is not possible to make an objective assessment of the validity of the estimates used. Little information was provided on the methods used to evaluate the utilities. As these utilities were evaluated for a different intervention, it is unclear whether these reflected the true utilities for the current population and interventions. QALYs are in general a validated measure of benefit and they allow cross-disease comparisons to be drawn.

Costs:
The reporting of the cost analysis was inadequate. The cost items included in the analysis, the resources use, and the unit costs were not reported in detail, making it difficult to assess whether these costs reflected the perspective stated. This means that the transparency of the analysis was limited. The price year was not reported, which will hinder future reflation exercises. The discounting was appropriate.

Analysis and results:
The synthesis of the costs and benefits was carried out appropriately, using incremental analysis. In general, the total costs and QALYs were not reported and only the differences between the two interventions were given. The sensitivity analysis was restricted to a deterministic approach and was limited to certain model parameters. The authors briefly discussed some limitations to their study.
Concluding remarks:
The study was not reported in detail, and the issue of uncertainty was only partially addressed. This makes it hard to assess the authors’ conclusions.

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