Economic analysis of alternative treatments for persistent gastro-oesophageal reflux disease

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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.

Health technology
Omeprazole or ranitidine

Type of intervention
Treatment

Economic study type
Cost-effectiveness analysis

Study population
Hypothetical study of otherwise healthy patients with a history of persistent gastro-oesophageal reflux disease (GORD) symptoms for 1-5 years (mean duration 3 years) of grade II or more (Savary-Miller classification). It was assumed that patients with mild disease (endoscopic grade I) responded successfully to prior therapy (antacids alone or in collaboration with H2-blockers) and so were excluded from analysis. The mean age of patients was 55 years, with a range of 20-80 years.

Setting
Primary care. The economic study was carried out in USA

Dates to which data relate
Effectiveness data were collected from previous studies published in 1982-92 and cost data related to 1989. The price date was not specified.

Source of effectiveness data
Review of previously published studies.

Modelling
A decision tree model was used to estimate the clinical and economic effects.

Outcomes assessed in the review
The main outcome measures were the probability of response to therapy and the number of symptomatic months.

Study designs and other criteria for inclusion in the review
Published clinical trials. No other details were given.
Sources searched to identify primary studies
Not stated.

Criteria used to ensure the validity of primary studies
Not stated.

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
Not stated.

Methods of combining primary studies
An expert panel of gastroenterologists interpreted the clinical trial results and estimated the probabilities of different procedures and outcomes.

Investigation of differences between primary studies
Not stated.

Results of the review
Using omeprazole, 73% and 85% of patients were asymptomatic after 4 weeks and 8 weeks of therapy respectively. Using ranitidine, the probabilities decreased to 45% and 51%. Patients treated with omeprazole experienced symptoms during 1.2 months of the 7 month analysis, compared with 2.2 months for those given ranitidine and 2.6 months for those receiving only phase I therapy.

Measure of benefits used in the economic analysis
Number of symptom-free months (i.e. therapy with shortest duration).

Direct costs
Quantities and costs were not analyzed separately. The cost boundary was the health service and insurance payments. The estimation of quantities was based on estimation from the study protocol. The estimation of cost of payments for medications were obtained from a survey of pharmacies. Payment for initial diagnostic evaluations, evaluations after relapse, medical service, surgery and major complications were obtained from the mean of actual payments made in 1989 by private insurer, Independence Blue Cross of Pennsylvania and Pennsylvania Blue Shield. Price date was not stated.

Currency
US dollars

Sensitivity analysis
Patients who fail to respond to medical treatment may progress to surgery, which is very expensive in USA, and accounts for most of the costs assigned to patients who failed to respond to drug therapy - thus some of the sensitivity analysis was conducted to vary the assumed costs associated with major complications.
Estimated benefits used in the economic analysis
Patients treated with omeprazole have symptoms for 1.2 months compared with 2.2 months for those given ranitidine and 2.6 months for those receiving antacids only over a 7 month period of follow up.

Cost results
Irrespective of the initial diagnostic approach, omeprazole resulted in the lowest cost per patient over the 7 month period. Omeprazole therapy (total cost per patient $4830) resulted in a saving of more than $1800 (28%) per patient when compared with ranitidine therapy (total cost per patient $6680), and approximately $2700 (36%) when compared with antacids (total costs per patient $7580). The cost of initial diagnosis using endoscopy and 24 hour pH monitoring to exclude patients without GORD was approximately balanced by the additional costs of treating these patients.

Synthesis of costs and benefits
The cost per symptom-free month was $1017 for omeprazole, 43% lower than for ranitidine ($1772) and 54% lower than for antacids therapy.

Authors’ conclusions
Omeprazole is the dominant therapy that is lower in cost and gives a better outcome than ranitidine or antacid treatment of the patient population with persistent, symptomatic GORD. The savings made by treating only those patients with confirmed GORD were balanced by the costs of diagnostic evaluations, suggesting that an empirical trial of omeprazole in patients with classical persistent symptoms of GORD is a reasonable and cost-effective approach.

CRD Commentary
This study drew on a literature search of published studies, but did not give details as to how the search was performed. Therefore, it is not a systematic review and the trial methodology is not specified. Details about the expert panel methods used to make judgements and interpret the validity of effectiveness data were lacking. Internal and external validity are only as good as the effectiveness data.

Little detail is given of quantities, although we are told the drug prescriptions. Apart from pharmacy costs, the costs were historic and based on insurance payments. Estimation methods were not appropriate for international comparisons.

The author only subjected the costs of major complications to sensitivity analysis and assumed that there were no serious side-effects. The author’s conclusions that an empirical trial (treatment of all symptomatic patients) of omeprazole is cost-effective with respect to a non-empirical approach (treatment of those with lesional GORD only) may need to be supported by a more appropriate long-term investigation.

Bibliographic details

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Comparative Study; Cost-Benefit Analysis; Decision Trees; Drug Costs /statistics & numerical data; Gastroesophageal Reflux /drug therapy /economics; Humans; Omeprazole /economics /administration & dosage; Ranitidine /economics