A European perspective on costs and cost effectiveness of ophthalmic combinations in the treatment of open-angle glaucoma

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 examine the clinical and economic impact of various combination treatments, containing brimonidine, timolol, and dorzolamide, for primary open-angle glaucoma in several European countries. The authors concluded that the fixed combination of brimonidine and timolol was a cost-effective treatment. The study was well reported and was based on a valid analytic approach. Some methodological limitations might have reduced the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to examine the clinical and economic impact of various additional combination treatments, containing brimonidine, timolol, and dorzolamide, for primary open-angle glaucoma in several European countries.

Interventions
The intraocular pressure (IOP) treatments were fixed and non-fixed combinations of brimonidine 0.2% and dorzolamide 2% with timolol 0.5% as follows: fixed brimonidine/timolol; non-fixed brimonidine and timolol; fixed dorzolamide/timolol; and non-fixed dorzolamide and timolol. Fixed combinations were provided in single bottles to improve patient compliance.

Location/setting
UK, Spain, France, Switzerland, Finland, and Sweden/secondary care.

Methods
Analytical approach:
The analysis was based on a simple pathway that described the treatment pattern. The two time horizons were three and 12 months. The authors stated that the analysis was carried out from the perspective of the health sector.

Effectiveness data:
The clinical evidence on treatment efficacy and safety was identified through a systematic literature review, which found four randomised controlled trials (RCTs). The specific inclusion and exclusion criteria were not reported, but trials were selected on the basis of their similarity in patient population, time horizon, and clinical endpoint. No head-to-head trials that included all of the four options were available; only pairwise comparisons were found. The key clinical endpoint was the change in IOP.

Monetary benefit and utility valuations:
Not included.

Measure of benefit:
The summary benefit measure was the percentage of patients reaching the target IOP, which was 17mmHg.

Cost data:
The economic analysis focused on medical costs such as drugs and ophthalmologist visits. The costs of adverse events
were not included as they were identical across treatments. Productivity losses were not relevant given the advanced age of the patient population. The unit costs were derived from official national sources and the patterns of resource consumption were assumed in accordance with European guidelines. All costs were in Euros (EUR) for the years 2006 to 2007.

Analysis of uncertainty:
Not assessed.

Results
The review indicated that equal effectiveness and safety could be assumed for three options; fixed brimonidine/timolol, fixed dorzolamide/timolol, and non-fixed brimonidine and timolol, and a cost-minimisation analysis was undertaken for these options.

In all countries, fixed brimonidine/timolol was cheaper than fixed dorzolamide/timolol. In France, Switzerland, Finland, and Sweden, it was also cheaper than non-fixed brimonidine and timolol, but in Spain and the UK the non-fixed brimonidine and timolol was slightly cheaper than fixed brimonidine/timolol. Non-fixed dorzolamide and timolol was more expensive than fixed brimonidine/timolol in most countries with the exception of the UK and Finland.

The cost results were quite similar among all options. For example, in the UK the mean cost per patient over 12 months was EUR 539.67 with non-fixed brimonidine and timolol, EUR 540.20 with fixed brimonidine/timolol, EUR 530.43 with non-fixed dorzolamide and timolol, and EUR 541.09 with fixed dorzolamide/timolol.

The cost-effectiveness analysis showed that the non-fixed combination of brimonidine and timolol was dominant over, which means it was less expensive and more effective than, the non-fixed combination of dorzolamide and timolol in all countries.

Authors’ conclusions
The authors concluded that the fixed combination of brimonidine and timolol was a cost-effective treatment, in all countries examined.

CRD commentary
Interventions:
The authors justified their selection of the comparators, which were widely used treatments in the six countries considered.

Effectiveness/benefits:
The use of a systematic literature review to identify the relevant sources of data was appropriate, but little information was given on the methods and conduct of this review. The authors stated that the review was based on criteria such as the consistency of the study design and the characteristics of the patient cohorts. Due to the lack of head-to-head comparisons, efficacy and safety were based on pairwise comparisons of treatment options, which might have introduced bias due to the use of an indirect comparator and baseline differences between the trials. The similarities among the data sources, such as the time horizon, diagnosis procedures, patient age, and baseline IOP, were pointed out and details, such as sample size, follow-up, and key clinical endpoints, were reported. The selection of RCTs should have ensured the validity of the clinical estimates given the strengths of their design. The benefit measure was disease specific and will not be comparable with the benefits of other health care interventions.

Costs:
The categories of costs were consistent with the perspective. Details of the economic data sources were clearly reported. In general, official prices were used, further reflecting the perspective adopted. The price year was reported. No statistical analyses of costs were carried out.

Analysis and results:
The use of two approaches (i.e., cost-minimisation analysis and cost-effectiveness analysis) was appropriate due to the different results of the efficacy analysis. The costs and benefits were generally well reported. The issue of uncertainty
was not investigated, with no sensitivity analysis being carried out. This was the main limitation of the analysis, especially considering the similarity in the cost results for the four interventions.

Concluding remarks:
The study was well reported and was based on a valid analytic approach. Some methodological limitations might have reduced the validity of the authors’ conclusions.

Funding
Supported by a grant from Allergan R&D Europe.

Bibliographic details

PubMedID
18850558

Original Paper URL

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
Antihypertensive Agents /adverse effects /economics; Brimonidine Tartrate; Cost-Benefit Analysis; Drug Combinations; Drug Costs; Drug Therapy, Combination; Europe; Glaucoma, Open-Angle /drug therapy /economics; Health Care Costs; Humans; Intraocular Pressure /drug effects; Middle Aged; National Health Programs /economics; Ophthalmic Solutions /adverse effects /economics; Quinoxalines /adverse effects /economics; Sulfonamides /adverse effects /economics; Thiophenes /adverse effects /economics; Timolol /adverse effects /economics; Treatment Outcome