Cost-effectiveness of eszopiclone for the treatment of adults with primary chronic insomnia
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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 evaluated the cost-effectiveness of eszopiclone, compared with no treatment, for adults with chronic primary insomnia. The authors concluded that eszopiclone was cost-effective, especially when including productivity losses. The methods were satisfactory, but the six-month time horizon might not have fully captured the relevant differences in the outcomes.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective was to evaluate the cost-effectiveness of eszopiclone, compared with no treatment, for adults with chronic primary insomnia.

Interventions
The interventions were eszopiclone, which was administered in 3mg doses nightly, and a placebo drug.

Location/setting
USA/primary care.

Methods
Analytical approach:
This study used an economic model to estimate the cost-utility outcomes for eszopiclone treatment and the main data source was a clinical trial. The time horizon was six months and the authors stated that the perspective was that of society.

Effectiveness data:
The effectiveness data were from a single clinical trial that lasted for six months. The patients had chronic primary insomnia that was diagnosed using the Diagnostic and Statistical Manual of mental disorders (DSM) IV and other sleep criteria. The Insomnia Severity Index (ISI) was used to assess the severity and impact of insomnia symptoms on patients, and the Work Limitations Questionnaire (WLQ) was used to measure the percentage of productivity lost by the patient and the patient’s ability to perform their job.

Monetary benefit and utility valuations:
In the clinical trial, the Short Form (SF) 36 Health Survey was used to measure health-related quality of life. A transformation method, from a published study, was used to transform the SF-12 scores, a subset of the SF-36, into European Quality of life (EQ-5D) questionnaire scores. This published study mapped the scores of 13,000 US patients in the National Medical Expenditure Survey between the SF-12 and the EQ-5D.

Measure of benefit:
The measure of benefit was the number of quality-adjusted life-years (QALYs).

Cost data:
The cost categories were the direct medical costs and productivity losses, which included absenteeism and presenteeism, defined as lost productivity while at work. The average wholesale price of eszopiclone was reduced by 18.3%, to reflect the over-estimation of actual pharmacy acquisition costs, and a monthly dispensing fee was added, to
reflect actual practice, for the drug costs. The WLQ was used to calculate the monetary value of lost productivity. The medical resource use was collected during the clinical trial, using the Health Utilisation Questionnaire. To estimate the physician visits in a non-experimental setting, participants were categorised according to their sustained remission from insomnia and those with remission were assumed to have fewer visits than those without; the reduced visits and their costs were based on a retrospective claims database. Absenteeism was assessed in the same way, using the MarketScan Health and Productivity Management Database. The direct costs not covered by a third-party payer, prescription co-payments, and the impact of insomnia on family members and caregivers were not included. The costs were adjusted to 2006 US dollars ($).

Analysis of uncertainty:
Univariate and multivariate sensitivity analyses were conducted. Bootstrapping of the clinical trial data was performed 5,000 times. A scenario analysis was performed to investigate the impact of the exclusion of out-patient or productivity costs or both, on the results.

Results
Compared with placebo, eszopiclone increased the QALYs by 0.0137 per patient, over the six months of the trial. The total costs were $495 with eszopiclone and $428 with placebo, which included savings, due to increased work productivity, of $689 with eszopiclone and $333 with placebo.

Eszopiclone resulted in a cost per QALY gained of $4,919, compared with placebo. When productivity and out-patient visit cost savings were excluded, the incremental cost per QALY was $39,529, which was below the generally accepted US cost-effectiveness threshold of $50,000.

The univariate analysis found that the model was sensitive to the assumptions on productivity and physician costs. The bootstrapping analysis found that 50% of the 5,000 model replications resulted in an incremental cost-utility ratio of $5,418 or less and 95% of them resulted in $34,935 or less.

Authors’ conclusions
The authors concluded that eszopiclone was cost-effective for the management of primary insomnia, especially when including productivity losses.

CRD commentary
Interventions:
The interventions were well described and appear to have been appropriate comparators, but it was unclear if the usual care was included.

Effectiveness/benefits:
The source for the effectiveness data appears to have been of high quality, but it was a single clinical trial and there was no evidence that a systematic review was performed, which means that all the available data might not have been used. The authors chose to use individual patient data to fully account for the correlation between the costs and health outcomes and this might explain the exclusion of other evidence. The clinical trial had a six-month time horizon and it is possible that there were long-term differences in the treatment effects that were missed. The measure of benefit appears to have been appropriate and the data sources were given.

Costs:
A societal perspective was stated, but several cost categories were excluded and these might have been relevant to the perspective and could have affected the results. Some adjustments were made to the wholesale price of eszopiclone and little justification was given for this, which makes it uncertain whether this was the normal practice. The price year was clearly indicated. The costs were not discounted, but this was appropriate for the six-month time horizon.

Analysis and results:
The model was adequately described and the synthesis appears to have been appropriate. The results and sensitivity analysis were adequate, but the short time horizon might not have assessed the long-term effects of the comparators.
Concluding remarks:
The methods were satisfactory, but the six-month time horizon might not have fully captured the relevant differences in the outcomes.

Funding
Supported by Sepracor, Inc. (manufacturer of eszopiclone).

Bibliographic details

PubMedID
19544759

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Absenteeism; Adult; Azabicyclo Compounds /adverse effects /economics /therapeutic use; Controlled Clinical Trials as Topic; Cost-Benefit Analysis; Double-Blind Method; Drug Costs /statistics & numerical data; Eszopiclone; Female; Humans; Hypnotics and Sedatives /adverse effects /economics /therapeutic use; Male; Middle Aged; Models, Economic; Piperazines /adverse effects /economics /therapeutic use; Quality-Adjusted Life Years; Referral and Consultation /economics /utilization; Sleep Initiation and Maintenance Disorders /drug therapy /economics; United States; Utilization Review; Young Adult

AccessionNumber
22009102107

Date bibliographic record published
20/01/2010

Date abstract record published
16/02/2011