Cost effectiveness of olanzapine in prevention of affective episodes in bipolar disorder in the United Kingdom

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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 assessed the cost-effectiveness of olanzapine compared with lithium for the maintenance management of patients with bipolar I disorder. The authors concluded that, over one year, olanzapine significantly reduced the number of acute mood episodes, when compared with lithium, and was also highly likely to reduce the costs. The methods and data were for the most part well reported and the conclusions reflected the scope of the analysis, which was limited.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study compared the cost-effectiveness of two maintenance treatment options for the management of patients with bipolar I disorder (BP1), who were not resistant to lithium treatment.

Interventions
The two treatment options for the maintenance period were olanzapine at a dose of 10mg per day or lithium at a dose of 750mg per day, both for 30 days.

Location/setting
UK/primary care.

Methods
Analytical approach:
The authors used a Markov transition probability model, with a time horizon of one year, to calculate the time spent in different health states, in order to compare the cost-effectiveness of the two treatments. They reported that the perspective was that of the National Health Service in England and Wales.

Effectiveness data:
The effectiveness data were mainly derived from a published, multi-country, double-blind, randomised, parallel group, recurrence prevention study. The details of this study were briefly reported and there were 217 patients in the olanzapine arm and 214 in the lithium arm. The main clinical parameters were the number of patients without symptomatic relapse or hospitalisation, the number of patients who experienced a mood episode (mania or depression), and the number of patients who quit treatment without experiencing a mood episode.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The number of mood episodes avoided was the measure of benefit and this was derived from the model.

Cost data:
The cost categories included those of drugs, in-patient and out-patient care and home visits. The costs were reported with sufficient detail and they and the quantities were reported separately for the management of mania, depression, and the maintenance period. The care packages per episode were obtained from published studies and unit costs were
obtained from official national publications. The costs of adverse events associated with drug treatment were not included. All costs were reported in UK pounds sterling (£) and the price year was 2003.

analysis of uncertainty:
The uncertainty around the model parameters was investigated using one-way sensitivity analyses, which were explicitly reported. In addition, the influential parameters were investigated, in combination, using stochastic sensitivity analysis.

Results
Over one-year, olanzapine resulted in 0.58 acute mood episodes per patient and lithium in 0.81. This difference was statistically significant (95% confidence interval, CI: -0.34 to -0.12).

Olanzapine decreased the average annual costs per patient for the maintenance treatment of BP1 by £799 compared with lithium, but this reduction was not statistically significant (95% CI: -1,824 to 59).

Olanzapine was dominant, which means it was more effective and cost less than lithium.

One-way sensitivity analysis demonstrated that the findings were sensitive to variation in the cost of hospitalisation, rate and length of hospital admission due to mania, and the time horizon. The stochastic sensitivity analysis demonstrated that the 95% CI for the incremental cost-effectiveness ratio ranged from olanzapine being the dominant strategy to an incremental cost of £367 per mood event prevented, compared with lithium.

Authors' conclusions
The authors concluded that, over one year, olanzapine significantly reduced the number of acute mood episodes, compared with lithium, and was also highly likely to reduce the costs.

CRD commentary
Interventions:
The interventions were reported in detail. Although further available interventions were not analysed, the standard treatment in the authors' setting was used as the comparator.

Effectiveness/benefits:
The effectiveness data were mainly derived from a published multi-country study, but no systematic review of the literature was reported. It is hard to judge the internal validity of the data because the details of this study were only briefly reported, but extensive sensitivity analysis was conducted around the estimates used. This analysis increases the generalisability of the study findings. The authors did not explain how they calculated the monthly transition probabilities from the 12 month event data. The measure of benefit was the number of mood events avoided. It is up to the reader to decide whether this adequately captures the differences in health outcomes between the two treatments. The authors acknowledged that quality of life and life expectancy, given the high lifetime suicide rates, would have been useful, if the data were available.

Costs:
The costs appear to reflect the perspective, but the costs of the adverse effects of drug treatment were not included, and it is unknown whether their omission affected the results. The costing analysis was reported in great detail, allowing the reader to understand which aspects of the costs were included and enabling the analysis to be reproduced in a different setting. The costs appear to have been appropriate for the population and setting. The price year was reported, allowing the revaluing of the results for other time periods. Sensitivity analyses were conducted on the estimates used, which increases the generalisability of the findings.

Analysis and results:
The model structure was presented graphically along with the modelling assumptions. The economic analysis was presented in sufficient detail. Extensive one-way and stochastic sensitivity analysis was conducted, enhancing the generalisability of the findings. All relevant details of the sensitivity analysis and the results were presented. Probabilistic sensitivity analysis could have included all the parameters.
Concluding remarks:
The methods and data were for the most part well reported. The conclusions reflected the scope of the analysis, which was limited.

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