Cost-effectiveness of atypical antipsychotics for the management of schizophrenia in the UK

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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 examined the cost-effectiveness of 12 treatment sequences for the management of stable schizophrenia. The authors concluded that aripiprazole followed by risperidone was the most cost-effective treatment sequence for these patients in the UK. Despite limited reporting of the effectiveness data, the methods were valid and the authors’ conclusions appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
This study compared the cost-effectiveness of 12 treatments for the management of patients with stable schizophrenia.

Interventions
The 12 strategies were two of the four atypical antipsychotics, aripiprazole, olanzapine, risperidone, and quetiapine, combined as first- and second-line therapy. All treatments were followed by clozapine, as third-line therapy.

Location/setting
UK/primary care.

Methods
Analytical approach:
A probabilistic Markov model with a 10-year horizon was constructed to model the ongoing risk of adverse events, relapse, and developing diabetes. The authors reported that the perspective of the UK National Health Service (NHS) was adopted.

Effectiveness data:
The clinical data were mainly from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) and these were augmented by data from other randomised controlled trials (RCTs), non-randomised studies, and administrative databases. The main clinical parameters included the treatment discontinuation rates, relapse rates, and adverse events, such as diabetes, extrapyramidal symptoms, weight gain, and hyperprolactinaemia.

Monetary benefit and utility valuations:
The utility values for each health state were from a UK study.

Measure of benefit:
Quality-adjusted life-years were the measure of benefit and benefits were discounted at an annual rate of 3.5%.

Cost data:
The economic analysis included the costs of medications, stable schizophrenia, general practitioner and psychiatrist visits, relapse (including days in hospital), diabetes, and medications for extrapyramidal symptoms, hyperprolactinaemia, and weight gain. The unit costs and resource use data were reported separately and they were derived from published sources. All costs were reported in UK pounds sterling (£) for the price year 2006. They were discounted at an annual rate of 3.5%.

Analysis of uncertainty:
A probabilistic sensitivity analysis was undertaken, by assigning probability distributions to the model inputs. Cost-effectiveness acceptability curves and frontiers were generated, using the net benefit method. Deterministic one-way sensitivity analyses were performed on: the risk of extrapyramidal symptoms, the relapse risk, the discontinuation rate, the risk of weight gain and diabetes, the time horizon, and the length of hospital stay after relapse.

**Results**
Discounted QALYs ranged from 6.573 for olanzapine then quetiapine to 6.618 for aripiprazole then risperidone. Total costs ranged from £43,835 for risperidone then olanzapine to £45,645 for quetiapine then aripiprazole.

When aripiprazole then risperidone was compared with risperidone then olanzapine it resulted in an incremental cost of £9,440 per QALY gained. All other strategies were dominated, as they were more costly and less effective than one of these two strategies.

At a willingness-to-pay threshold of £30,000 per QALY gained, aripiprazole then risperidone had a 0.67 probability of being cost-effective, compared with risperidone then olanzapine. The deterministic sensitivity analyses demonstrated that these results were robust, but when the length of stay after relapse was increased by 50%, risperidone then olanzapine became the most cost-effective strategy, followed by aripiprazole then risperidone.

**Authors’ conclusions**
The authors concluded that the sequence of aripiprazole followed by risperidone was the most cost-effective treatment for patients with stable schizophrenia in the UK.

**CRD commentary**
**Interventions:**
The interventions and the rationale for their choice were reported. Aripiprazole was a newly licensed treatment in the authors’ setting.

**Effectiveness/benefits:**
No systematic search of the literature was reported, but the necessary assumptions were reported. In general, using RCTs to derive the clinical data is appropriate, given the strengths of their design, but little information on the primary sources of evidence was provided, which makes it difficult to judge the validity of the data. Little information was given on the method used to derive the utilities. QALYs are a validated benefit measure and they allow cross-disease comparisons to be made.

**Costs:**
The analysis of costs reflected the perspective adopted and it was clearly reported. The unit costs, resource use, sources of data, the price year, and discounting were explicitly reported, which improves the external validity of the analysis. The cost data were derived from appropriate sources.

**Analysis and results:**
The methods used to synthesise the costs and benefits were appropriate. The issue of uncertainty was investigated thoroughly using validated methods and the findings were clearly presented. The authors discussed some limitations to their study and these mainly related to the sources of the effectiveness data.

**Concluding remarks:**
Despite limited reporting of the effectiveness data, the methods were valid and the authors' conclusions appear to be appropriate.

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