Cost-effectiveness of long-acting risperidone injection versus alternative atypical antipsychotic agents in patients with schizophrenia in China
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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 first-line treatment with long-acting risperidone, olanzapine, or quetiapine for patients with schizophrenia who were aged between 20 and 45 years. The authors concluded that risperidone was cost-effective compared with olanzapine and quetiapine for long-term maintenance treatment of schizophrenia, from the perspective of the health care system in China. There were some methodological limitations, such as the use of an expert panel for the clinical data and a partial sensitivity analysis. Caution is required when assessing the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the cost-effectiveness of first-line treatment with long-acting risperidone, olanzapine, or quetiapine for patients with schizophrenia who were aged between 20 and 45 years.

Interventions
The first-line treatments were long-acting risperidone, olanzapine, and quetiapine. Long-acting risperidone was given at a dose of 25mg every 14 days, olanzapine was given at 15mg per day, and quetiapine was given at 500mg per day. Patients who did not respond to the first drug or who suffered from side-effects could switch three times to another drug.

Location/setting
China/secondary care.

Methods
Analytical approach:
The analysis was based on a decision tree, with a two-year horizon. The authors stated that the perspective of the health care system was adopted.

Effectiveness data:
The clinical data were derived from a Delphi panel of 17 senior psychiatrists in China. Two surveys were carried out and only minor fluctuations in the parameter values were observed with the second survey. The key clinical endpoint was the efficacy, which was defined as the proportion of successfully treated patients, who were those who responded to the initial treatment, had no more than two episodes of clinical deterioration, and did not need a change of treatment over the two years. The rate of extrapyramidal side-effects was another key data input.

Monetary benefit and utility valuations:
Not included.

Measure of benefit:
The summary benefit measure was the proportion of patients successfully treated (efficacy).

Cost data:
The economic analysis included out-patient visits, emergency treatment, emergency observation, hospital day care, and...
hospitalisations. The resource use data were from the Delphi panel and the unit costs were from official country-specific sources. The price year was 2007 and a 3% annual discount rate was applied. All costs were in Chinese yuan (CNY).

Analysis of uncertainty:
A deterministic sensitivity analysis was undertaken on two inputs, the price of long-acting risperidone and the discount rate.

Results
The proportion of successfully treated patients was 46.71% with long-acting risperidone, 39.93% with olanzapine, and 31.28% with quetiapine. The mean cost per patient over two years was CNY 88,483 with long-acting risperidone, CNY 93,055 with olanzapine, and CNY 63,314 with quetiapine.

The average cost-effectiveness ratios were CNY 189,427 with long-acting risperidone, CNY 233,015 with olanzapine, and CNY 202,432 with quetiapine. Long-acting risperidone was dominant compared with olanzapine since it was less costly and more effective.

Variations in the discount rate and the price of olanzapine did not alter the base-case results.

Authors' conclusions
The authors concluded that long-acting risperidone was a cost-effective alternative to olanzapine and quetiapine in the long-term maintenance treatment of schizophrenia.

CRD commentary
Interventions:
The selection of the comparators appears to have been appropriate. The authors pointed out that clozapine was not considered to be relevant as it was an atypical antipsychotic drug and not used as a first-line treatment. Haloperidol depot was not widely used in China.

Effectiveness/benefits:
The clinical data were entirely from expert opinion. Evidence from well-conducted studies is generally considered to be more valid, but a Delphi panel provides some methodological rigour. It was stated that no Chinese studies were found and the Delphi panel was used to adapt data from other countries to the Chinese context. The efficacy data from other countries were based on clinical trials. The benefit measure was specific to the disease and the results can only be compared with those of similar studies.

Costs:
The categories of costs and their sources were consistent with the perspective. Some details on the unit costs and quantities of resources were presented for drugs, but not for other items. The patterns of resource consumption reflected the Chinese setting. The cost estimates were treated deterministically. The price year and the use of discounting were appropriately reported.

Analysis and results:
Both average and incremental analyses were carried out to synthesise the costs and benefits, but the authors stated that incremental ratios were not calculated because risperidone was dominant. This was stated despite the lower costs of quetiapine. The study results were clearly presented and discussed in the appendix. The sensitivity analysis investigated only two inputs to the model and the overall uncertainty underlying the key inputs was not investigated. The authors stated that previous economic evaluations conducted in other countries had shown similar results.

Concluding remarks:
There were some methodological limitations, such as the use of an expert panel for the clinical data and the partial sensitivity analysis. Caution is required when assessing the validity of the authors' conclusions.
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