Cost-effectiveness of amisulpride compared with risperidone in patients with schizophrenia

Nicholls C J, Hale A S, Freemantle N

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.

Health technology
Atypical antipsychotic treatments for patients with schizophrenia were studied.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population consisted of patients with schizophrenia. The inclusion criteria specified patients with a diagnosis of paranoid, disorganised, undifferentiated or residual schizophrenia, as defined by DSM-IV criteria (Diagnostic and Statistical Manual of Mental Disorders, 4th edition). They also specified patients with a recent worsening of symptoms that necessitated modifications to therapeutic management, and an illness duration of at least 2 years.

Setting
The setting was community services. The economic study was carried out in the UK.

Dates to which data relate
The resource utilisation and effectiveness data were collected alongside a multi-centre clinical trial (AMIRIS study), but the dates to which the data related were not reported. The price year was 2000.

Source of effectiveness data
The evidence of the final outcomes was derived from a single study.

Link between effectiveness and cost data
The costing was undertaken retrospectively on a sub-group of patients selected from the same group as that used in the effectiveness study.

Study sample
Power calculations were not reported as having been used to determine the sample size. A total of 310 patients were randomised for the AMIRIS study. There were 152 patients received amisulpride and 158 patients received risperidone.

Study design
The study was a randomised multi-centre clinical trial. The period of observation was 6 months of treatment, with the
possibility of extension to 12 months.

**Analysis of effectiveness**
The basis of the analysis of effectiveness was intention to treat. The primary health outcome was assessed using the PANSS. The secondary health outcomes were assessed using the BPRS and the Clinical Global Impression. Extrapyramidal symptoms were assessed using the Barnes Akathisia scale, the Simpson-Angus Scale and the Abnormal Involuntary Movement Scale. The total PANSS score and total BPRS score were assessed using noninferiority methodology, whereas the other health outcomes were assessed using superiority methodology. In terms of baseline comparison, no statistically significant differences between the patient groups were reported.

**Effectiveness results**
The primary health outcomes (total PANSS score) showed that amisulpride was not inferior to risperidone. The day 0 to day 180 change scores differed by 0.8 (95% CI: -4.62 to 6.22).

Amisulpride was nominally significantly superior to risperidone on three secondary outcomes assessing the proportion of patients who responded to treatment. It also showed a statistically significantly superior subjective response to treatment (not reported).

Neither treatment was associated with increases in the assessment measures for extrapyramidal symptoms.

**Clinical conclusions**
The study showed that amisulpride had equivalent efficacy to risperidone.

**Modelling**
Statistical models were used to estimate the benefits (noninferiority and superiority methodology) and the costs (t-statistic with 95% confidence intervals, CIs). Noninferiority methodology was used for the Positive and Negative Symptom Scale (PANSS) score and total Brief Psychiatric Rating Scale (BPRS) scores, while superiority methodology was used for secondary efficacy parameters.

**Measure of benefits used in the economic analysis**
Since the effectiveness analysis showed no significant differences in clinical benefit between the two groups, the economic analysis was based on the difference in costs only (cost-minimisation analysis).

**Direct costs**
Of the total of 310 patients, 198 (101 amisulpride and 97 risperidone) completed at least 6 months of treatment and provided resource utilisation data. The economic analysis was based on the sub-group of treatment completers. The direct medical costs included drug acquisition for amisulpride and risperidone, concomitant medications, hospital attendance and visits to health care professionals. The costs were calculated from the perspective of the UK NHS, over a 6-month time scale. Thus, no discounting was applied. The drug acquisition costs and concomitant medication costs were calculated from the actual reported drug dose per patient. The unit costs of hospital attendance and visits were obtained from a published source (Netten and Curtis, see Other Publication of Related Interest). Part-time hospital costs were unavailable. Therefore, the cost of a part-time night hospitalisation was estimated to be half that of a full-time inpatient stay, while the cost of a part-time day hospitalisation was estimated as the day attendance rate. The drug prices were taken from published sources (the British National Formulary 2000 and the Monthly Index of Medical Specialities, February 2001).

**Statistical analysis of costs**
The total average direct medical costs were calculated for each treatment group, along with 95% CIs, calculated using
Indirect Costs
No indirect costs were included in the analysis.

Currency
UK pounds sterling ()

Sensitivity analysis
A sensitivity analysis was performed, comparing the lower CI of each treatment group with the upper CI of the other group. The sensitivity analysis tested the effect of setting part-time hospital costs to the full-time inpatient costs.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The drug acquisition cost was lower in the amisulpride group (£714) than in the risperidone group (£863). Amisulpride was also associated with a lower average cost of hospitalisation (£10,959) than risperidone (£12,166).

The average cost for consultations and visits was higher in the amisulpride group (£1,882) than in the risperidone group (£1,789).

The average total cost was £12,673 (95% CI: £10,628 - £14,717) in the amisulpride group, compared with £14,818 (95% CI: £12,323 - £17,312) in the risperidone group.

Over 6 months of treatment, the net saving was £2,145 (95% CI: -£5,379 to £1,089) for the amisulpride group in comparison with the risperidone group. The difference was not statistically significant. Over 12 months, the net saving was £4,290.

The sensitivity analysis indicated that the cost differential for the study period ranged between a saving of £6,684 per patient for amisulpride and a saving of £2,394 per patient for risperidone.

Setting the part-time hospital costs to the full-time inpatient costs did not alter the results.

Synthesis of costs and benefits
The authors did not produce a summary measure that combined the costs and effectiveness, as it was likely that there was a therapeutic equivalence of the analgesic protocols. Therefore, the economic analysis only included the costs.

Authors’ conclusions
Amisulpride is a valuable treatment option in patients with schizophrenia, with equivalent clinical effectiveness in comparison with risperidone, but with slightly lower direct medical costs.

CRD COMMENTARY - Selection of comparators
The comparator used, risperidone, was justified on the grounds that it was an alternative atypical antipsychotic. You should consider whether this is a widely used technology in your own setting.
Validity of estimate of measure of effectiveness
The analysis used a randomised multi-centre study, which was appropriate for the study question. The study sample was representative of the study population. Demographic characteristics were reported, but no statistical analysis to assess the comparability of the two groups was reported. The authors reported the methodology used in detail. For example, the inclusion criteria, the number of patients included in the study, and the instrument used to evaluate the effectiveness outcomes. However, few results of the effectiveness analysis were reported, instead the authors referred to an effectiveness analysis on the same study sample that was published in the same year. Although it was not clearly stated, it is likely that the effectiveness outcomes were based on intention to treat, whereas the cost estimates were analysed for treatment completers only. An assessment of quality of life and satisfaction would have increased the relevance of the effectiveness outcomes. The authors addressed this limitation.

Validity of estimate of measure of benefit
The authors conducted a cost-minimisation analysis on the basis of equal effectiveness of the two alternatives. However, some secondary outcomes showed amisulpride to have a superior profile. The assumption of equivalence is therefore restricted to primary outcomes (PANSS).

Validity of estimate of costs
The international study design presented difficulties in estimating some cost variables from the perspective of the UK NHS. Although the indirect costs must be important in any assessment of this disease, their potential impact was not mentioned. The costs and the quantities were reported separately. A sensitivity analysis of quantities was conducted, using the lower CI of each treatment group with the upper of CI of the other group. The management costs for patients dropping out before the 6-month end point were not assessed because the cost analysis was conducted on treatment completers only. The authors acknowledged that such an assessment would need to be the focus of future research.

Other issues
The generalisability of the results was not specifically discussed. Sensitivity analyses on the cost items were conducted to test the robustness of the results from the perspective of the UK NHS. Adequate comparisons were made with studies dealing with the same topic.

Implications of the study
The clinical and economic findings support the use of amisulpride in demonstrating equivalent effectiveness and a trend towards lower costs. Although the results of this paper were supported by other studies, the authors claim that the additional cost of managing patients who drop out before the 6-month end point should be assessed in future economic analyses.

Source of funding
Funded by Sanofi-Synthelabo.

Bibliographic details

Other publications of related interest


**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
Antipsychotic Agents /therapeutic use; Cost-Benefit Analysis; Female; Great Britain; Humans; Male; Risperidone /therapeutic use /economics; Schizophrenia /drug therapy; Sulpiride /therapeutic use /economics; Treatment Outcome

**AccessionNumber**
22003008106

**Date bibliographic record published**
30/09/2003

**Date abstract record published**
30/09/2003