The treatment of challenging behaviour in intellectual disabilities: cost-effectiveness analysis
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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 risperidone, haloperidol, and placebo in adults with intellectual disabilities and aggressive challenging behaviour. The authors concluded that drug treatment was not cost-effective. There were a few limitations to the study and the authors' conclusions should be considered with caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to evaluate the cost-effectiveness of risperidone, haloperidol, and placebo in adults with intellectual disabilities and aggressive challenging behaviour.

Interventions
This study compared 1mg of risperidone, 2.5mg of haloperidol, and placebo daily, increasing to 2mg of risperidone, and 5mg of haloperidol, if necessary, over four weeks, then maintained for a further eight weeks, with an additional six months of maintenance therapy, if necessary. Some variation in doses was allowed, but the only accepted emergency 'rescue' medication was lorazepam up to 2mg daily.

Location/setting
UK and Australia/out-patient and community.

Methods
Analytical approach:
This economic evaluation was based on a single study, with 26 weeks of follow-up. The authors stated that a societal perspective was taken.

Effectiveness data:
The evidence came from a multi-centre randomised controlled trial that included 86 patients in the three arms and collected resource use data from 58 of them. The main trial outcome was the Modified Overt Aggression Scale (MOAS) score (Tyrer, et al. 2008, see 'Other Publications of Related Interest' below for bibliographic details).

Monetary benefit and utility valuations:
The utilities were derived using the Quality of Life Questionnaire (QOL.Q).

Measure of benefit:
The two benefit measures at 26-week follow-up were the total MOAS score and the total QOL.Q score.

Cost data:
Australia was excluded from the cost analysis. In the UK, the individual retrospective data were collected for two periods of 26 weeks before and after randomisation. The cost categories included treatment-medication costs, health and social care and informal care. The price year was 2006 to 2007 and the currency was UK pounds sterling (£). National UK unit cost sources were used. After evaluating the patient differences in those with and without resource use data, the degree of missing values was assessed and value imputed for those without data.

Analysis of uncertainty:
One-way sensitivity analyses were performed to assess whether the findings were robust. To explore the effects of unobserved differences at baseline between the treatment groups, regression analysis, adjusting for the baseline covariates using bootstrapping, was conducted. Cost-effectiveness acceptability curves were created using bootstrapping of 5,000 iterations. Willingness-to-pay values ranged from £0 to £3,000 per unit improvement in MOAS or QOL.Q score.

Results
No significant differences between treatments at 26 weeks on the MOAS and in the QOL.Q scores were observed. The mean MOAS scores were 7.5 (SD 9.9) for risperidone; 3.9 (SD 8.4) for haloperidol; and 6.0 (SD 8.1) for placebo. The mean QOL.Q scores were 74.4 (SD 11.7) for risperidone; 69.7 (SD 11.0) for haloperidol; and 71.9 (SD 12.9) for placebo.

There were no significant differences in total cost at 26 weeks, either including or excluding informal care. The mean total costs were £18,954 (SD 13,502) for risperidone, £17,626 (SD 12,883) for haloperidol, and £16,336 (SD 8,918) for placebo.

Using an extended dominance approach, risperidone was eliminated from the cost-effectiveness analysis that used the MOAS and haloperidol was eliminated from the QOL.Q analysis.

The incremental cost-effectiveness per MOAS unit for haloperidol over placebo was £614. If society were willing to pay £3,000 for each point improvement in MOAS, haloperidol would have a probability of around 89% of being cost-effective. The incremental cost-effectiveness per QOL.Q unit for risperidone over placebo was £996. If society were willing to pay £0 for each point improvement in QOL.Q, risperidone would have a probability of 52% of being more cost-effective than placebo. This did not change when higher willingness-to-pay values were explored.

Authors' conclusions
The authors concluded that the treatment of challenging behaviour in adults with intellectual disabilities using antipsychotic drugs was not cost-effective when service implications, costs and effects on aggression and quality of life associated with treatment were considered. They stated that a clinically meaningful improvement in MOAS of four points would cost £12,000 and this was an inefficient use of resources.

CRD commentary
Interventions:
The interventions were reasonably well reported and appeared to be relevant to the objective. Some changes to the protocol were incorporated, but were not described in detail. Further details should be available in Tyrer, et al. 2008.

Effectiveness/benefits:
The data were based on a theoretically sound source (a randomised controlled trial), but this had a small sample and was probably underpowered to demonstrate clinically meaningful differences between treatment arms. It is not clear if an intention-to-treat approach was used. The authors acknowledged that they recruited fewer patients than they initially planned. The full trial details were not reported in this paper and the reader is referred to Tyrer, et al. 2008.

Costs:
An appropriate and extensive cost analysis was conducted. Due to a lack of data for about one third of the sample, the authors appropriately imputed these, after finding no significant baseline differences between those with and without data. Details of the cost sources and adjustments were fully presented.

Analysis and results:
Given the small sample and inadequate power, probabilistic techniques were used to assess the parameter uncertainty and its impact on the results. The authors appropriately conducted an incremental analysis, excluding risperidone from the cost-effectiveness analysis that used the MOAS as an outcome and haloperidol from the analysis that used QOL.Q as an outcome. Whilst appropriate, the selection of one primary outcome for the economic analysis may have provided the decision maker with a clearer message with which to inform any decision about cost-effectiveness. The authors highlighted a number of limitations to their study and drew appropriate conclusions given these limitations and the
Concluding remarks:
There were a few limitations to the study and the authors’ conclusions should be considered with caution.

Funding
Not stated.

Bibliographic details

PubMedID
19460067

DOI
10.1111/j.1365-2788.2009.01180.x

Original Paper URL
http://onlinelibrary.wiley.com/journal/122399031/abstract

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aggression /drug effects /psychology; Antipsychotic Agents /adverse effects /economics /therapeutic use; Combined Modality Therapy /economics; Cost-Benefit Analysis /statistics & numerical data; Double-Blind Method; Drug Costs /statistics & numerical data; England; Female; Follow-Up Studies; Haloperidol /adverse effects /economics /therapeutic use; Humans; Intellectual Disability /drug therapy /economics /psychology; Male; Mental Disorders /drug therapy /economics /psychology; Middle Aged; Quality of Life /psychology; Risperidone /adverse effects /economics /therapeutic use; Wales

AccessionNumber
22009102337

Date bibliographic record published
12/08/2009

Date abstract record published
03/03/2010