Pharmacoeconomics of antidepressants in moderate-to-severe depressive disorder in Colombia

Machado M, Lopera MM, Diaz-Rojas J, Jaramillo LE, Einarson TR, Universidad Nacional de Colombia Pharmacoeconomics Group

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 three drugs, amitriptyline, fluoxetine, and venlafaxine, for the treatment of moderate-to-severe depressive disorder. The authors concluded that, in Colombia, amitriptyline was more cost-effective than fluoxetine or venlafaxine. Overall, the methods were appropriate, but the result tables and graphs did not match the text. The authors’ conclusions still appear to be appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to compare the cost-effectiveness of three drugs from different classes for the treatment of moderate-to-severe depressive disorder (MSDD) in Colombian adults (aged over 18 years).

Interventions
The three drugs were amitriptyline, a tricyclic antidepressant; fluoxetine, a selective serotonin re-uptake inhibitor; and venlafaxine, a selective serotonin and norepinephrine re-uptake inhibitor. All three drugs were used at standard therapeutic doses, but this was not explicitly stated.

Location/setting
Colombia/secondary care.

Methods
Analytical approach:
A decision tree was used to model the cost-effectiveness of the treatment options. The model was based, with modifications, on a previous model (Einarson, et al. 1997, see ‘Other Publications of Related Interest’ below for bibliographic details). The time horizon of the analysis was six months. The authors reported that the perspective was that of the Colombian government (health care system).

Effectiveness data:
The effectiveness data were derived from a published meta-analysis that included head-to-head comparisons between different antidepressant classes for the treatment of patients with MSDD. The main clinical parameters included remission rate and rate of dropout from treatment due to adverse effects or insufficient treatment efficacy. Some assumptions were made by the authors and were reported.

Monetary benefit and utility valuations:
None.

Measure of benefit:
Remission of symptoms was the measure of benefit. This was defined as a score of seven or less on the Hamilton Rating Scale for Depression or 12 or less on the Montgomery and Asberg Depression Rating Scale, after eight weeks of treatment.

Cost data:
The economic analysis included the costs of medication, hospitalisation and physician visits, laboratory tests, electroconvulsive therapy, and psychotherapy. The cost items were reported, but resource quantities and unit costs were not given separately. All costs were derived from official national sources, except the cost of drugs, which was based on actual prices from a local supplier. They were converted from Colombian pesos to US dollars ($) using a 2007 exchange rate ($1=2,155 Colombian pesos). The price year was 2007.

Analysis of uncertainty:
The parameter uncertainty was investigated using one-way sensitivity analysis on medication costs, success rates, and dropout rates. Probabilistic sensitivity analysis, using Monte Carlo simulation, was also performed, but the distributions assigned to the model parameters were not explicitly reported. Pairwise cost-effectiveness acceptability curves were generated.

Results
The cost per remission was $2,215 for venlafaxine, $1,882 for fluoxetine, and $1,498 for amitriptyline. The remission rate reached 73.1% with venlafaxine, 64.1% with fluoxetine, and 71.3% with amitriptyline.

Fluoxetine was dominated by amitriptyline, as it was more costly and less effective, and was not included in the incremental analysis. When venlafaxine was compared with amitriptyline, the incremental cost-effectiveness ratio was $31,595 per additional remission.

One-way and probabilistic sensitivity analyses showed that these results were robust.

Authors' conclusions
The authors concluded that amitriptyline was the most cost-effective option compared with fluoxetine and venlafaxine for the treatment of MSDD in Colombia.

CRD commentary
Interventions:
The rationale of the choice of comparators was stated by the authors. They compared three commonly used drugs from three drug classes for the treatment of MSDD.

Effectiveness/benefits:
The effectiveness data were derived from a meta-analysis, which potentially has high internal validity, but no details were reported of the systematic review identifying the data for this meta-analysis. The authors also did not justify their choice of this meta-analysis, and no systematic review of the literature was reported, so it is not clear if the best available evidence was used. The remission rate is a disease-specific measure and does not allow cross-disease comparisons to be made. You should consider if this measure of benefit and the time horizon adequately assess the health outcomes for these treatments.

Costs:
The cost analysis reflected the perspective. A breakdown of cost items was provided, but no information on the resource consumption was given, which makes it difficult to adapt the analysis for other settings. The sources used to derive the unit costs, the price year, and the currency conversions were reported.

Analysis and results:
The model structure was presented with a diagram. The costs and benefits were clearly reported and their synthesis was based on an incremental approach which was appropriate. Table 2 incorrectly identified venlafaxine as dominated and did not clearly report the incremental cost-effectiveness analysis. The issue of uncertainty was appropriately addressed, but the parameter distributions for the probabilistic sensitivity analysis were not described. The cost-effectiveness acceptability curves appeared to show that venlafaxine was the treatment most likely to be cost-effective, but the authors concluded that amitriptyline was most cost-effective. They compared their results with those from previous studies and discussed the reasons for some differences. Several limitations, such as the short time horizon and the fact that treatment adherence was not accounted for, were discussed.
Concluding remarks:
Overall, the methods were appropriate, but the result tables and graphs did not match the written text. However, the authors’ conclusions appear to be appropriate.

Funding
Not stated.

Bibliographic details

PubMedID
19133171

Original Paper URL
http://www.ingentaconnect.com/content/paho/pajph/2008/00000024/00000004/art00002?token=004d15764bdc539412f415d487434707b2a2b2f7a5a3838253048296a7c2849266d656cdea760

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Amitriptyline /economics /therapeutic use; Antidepressive Agents /economics /therapeutic use; Colombia /epidemiology; Convulsive Therapy /economics; Cost-Benefit Analysis; Cyclohexanols /economics /therapeutic use; Decision Trees; Depressive Disorder /drug therapy /economics /epidemiology /therapy; Developing Countries; Drug Costs; Female; Fluoxetine /economics /therapeutic use; Health Expenditures /statistics & numerical data; Hospitalization /economics /statistics & numerical data; Humans; Male; Models, Theoretical; Monte Carlo Method; National Health Programs /economics; Office Visits /economics; Psychotherapy /economics; Venlafaxine Hydrochloride

AccessionNumber
22009101001

Date bibliographic record published
02/09/2009

Date abstract record published
04/11/2009