Cost effectiveness analysis of escitalopram compared to venlafaxine and fluvoxamine in treatment of major depressive disorder

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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
The objective was to assess the cost-effectiveness of escitalopram versus venlafaxine and versus fluvoxamine in first-line therapy for patients with major depressive disorder. The authors concluded that escitalopram was a cost-effective option in their setting, when compared with either venlafaxine or fluvoxamine. The methods had some limitations, but it appears that these did not alter the conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study compared the cost-effectiveness of three first-line treatments for major depressive disorder.

Interventions
The interventions were escitalopram at 10mg per day, venlafaxine at 75mg per day, and fluvoxamine at 100mg per day. Two analyses were conducted; escitalopram was compared against fluvoxamine and separately against venlafaxine.

Location/setting
Singapore/primary and secondary care.

Methods
Analytical approach:
A decision analytic model with a six-month time horizon was used. The model was modified from one created by Francois and colleagues for European countries (Francois, et al. 2002, see ‘Other Publications of Related Interest’ below for bibliographic details). The authors reported that a societal perspective was adopted.

Effectiveness data:
The effectiveness data were mainly derived from published literature. The remission rates for escitalopram compared with fluvoxamine were from a meta-analysis. Several assumptions were reported. The primary clinical data included the drug effectiveness, which was reported as the treatment-specific remission rate.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The number of patients attaining remission (remission rate) was the measure of benefit.

Cost data:
The economic analysis included the cost of drugs, consultations with general practitioners (GPs) and psychiatrists, hospitalisation, and productivity losses due to work absence. The unit costs and resource quantities were reported separately. The resource use was based on the opinions of an expert panel of nine GPs and 15 psychiatrists. A face-to-face survey was conducted to determine their resource use. The costs were from local hospitals or official national sources. All costs were reported in Singapore dollars (SGD) for the price year 2007.

Analysis of uncertainty:
The parameter uncertainty was assessed, using one-way sensitivity analysis, varying the resource use data. Probabilistic sensitivity analysis was also carried out on the effectiveness and cost data, using Monte Carlo simulation. Cost-effectiveness acceptability curves, for various willingness-to-pay (WTP) values, were generated.

Results
For escitalopram compared with venlafaxine, over six months, the treatment success rate was 68.1% for escitalopram and 66.0% for venlafaxine. The total costs per patient treated were SGD 2,845 for escitalopram and SGD 3,176 for venlafaxine. Escitalopram had a 95% probability of being the dominant strategy, which means that it was more effective and cheaper, over venlafaxine.

For escitalopram compared with fluvoxamine, over six months, the treatment success rate was 64.7% for escitalopram and 60.0% for fluvoxamine. The total costs per patient treated were SGD 3,133 for escitalopram and SGD 3,297 for fluvoxamine. Escitalopram had a 98% probability of being dominant over fluvoxamine.

One-way sensitivity analysis demonstrated that these results were robust to variation in the resource use data. Probabilistic sensitivity analyses demonstrated that, in both comparisons, escitalopram had a probability greater than 0.95 of being the most cost-effective strategy even at a WTP value of zero.

Authors' conclusions
The authors concluded that escitalopram was a cost-effective first-line treatment for patients with major depressive disorder, when compared with either venlafaxine or fluvoxamine.

CRD commentary
Interventions:
The interventions were chosen as the most commonly prescribed treatments in the authors’ setting. They were appropriately described.

Effectiveness/benefits:
No systematic review of the literature was reported and the sources searched, the inclusion and exclusion criteria, and the details of the selected studies, such as their design and population, were not reported. It is not clear if the best available evidence was used. The use of the clinical evidence was inconsistent: the three drugs were not compared in one analysis because no three-way head-to-head trials were found, but the effectiveness of fluvoxamine was assumed to be the same as that of citalopram because there were no escitalopram versus fluvoxamine trials. The remission rate was a disease-specific measure that did not reflect the impact of the interventions on a patients’ quality of life. It also does not allow cross-disease comparisons and did not take account of adverse events. It was not clear that the treatment period of six months was adequate to capture the differential health effects of the drugs. However, including adverse events in the measure of benefit and extending the time horizon could make escitalopram more cost-effective, based on the data in the model.

Costs:
The costs included in the analysis reflected the perspective stated. The unit costs and resource quantities were reported separately, which enhances the transparency of the analysis. The effect of increasing the time horizon on the cost difference between the drugs is not clear. The resource use was based on experts’ opinion, but extensive sensitivity analysis was conducted on these estimates. The sources for the unit costs were reported and appear to have been appropriate for the study setting. The currency and the price year were reported, which will aid future reflation exercises.

Analysis and results:
A decision analytic model was used to synthesise all the available evidence. The methods used and the modelling assumptions were reported, with a diagram of the model. The parameter uncertainty was investigated thoroughly using a deterministic and a probabilistic approach. The results of the base case, as well as the sensitivity analyses were reported adequately. The authors compared their results with those of previous studies and highlighted the possible reasons for differences. They reported the limitations of their study and the main ones were the use of effectiveness data from studies conducted in European settings and the lack of head-to-head comparisons of escitalopram with fluvoxamine.
Concluding remarks:
The methods had some limitations, but it appears that these should not affect the conclusions.

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