Economic evaluation of paroxetine and imipramine in depressed outpatients
Melton S T, Kirkwood C K, Farrar T W, Brink D D, Carroll N V

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
Imipramine and paroxetine in treating depression in outpatients.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population identified consisted of patients who were prescribed one of the two drugs (paroxetine or imipramine) for the treatment of depression under the care of a psychiatrist.

Setting
The setting was tertiary care (a hospital clinic and a community mental health clinic). The study was conducted in Richmond, Virginia, USA.

Dates to which data relate
Effectiveness data related to the period January 1993 to December 1995. The price dates were not specifically stated.

Source of effectiveness data
Effectiveness data were obtained from a combination of a single study and a review of published studies.

Link between effectiveness and cost data
Costing was undertaken on the same patient sample as that used in the effectiveness study. It is not clear whether costing was carried out retrospectively.

Study sample
Study sample selection was based on identification of a prescription for imipramine or paroxetine during the study period. Sample size calculations were not carried out. Initially, 333 patients prescribed paroxetine were identified. Of these, 12 (all from the hospital clinic) remained after exclusion criteria were applied. Initially, 401 patients prescribed imipramine were identified. Of these, 13 (2 from the hospital clinic, 11 from the community clinic) remained after exclusion criteria were applied.

Study design
The study was a retrospective cohort design, with two centres, one in the Medical College of Virginia Hospitals and another in the Richmond Community Mental Health Center. Follow up was 12 months for each patient.

**Analysis of effectiveness**
The analysis of effectiveness was based on intention to treat, because subjects had to have completed at least 4 months of therapy. The health outcomes used in the analysis were: death; relapse (identified by hospitalizations for depression or suicide attempt, or by switching to an alternative therapy); clinic use and "function" identified by missed or unscheduled clinic visits emergency department visits, or telephone calls to the clinic; adverse effects; and medication compliance assessed by refill rates. The two groups appeared to be similar, but no statistical analysis of demographics was carried out.

**Effectiveness results**
There were no deaths, suicide attempts, or hospitalization due to an adverse event in either group. There were two hospitalizations for depression in the imipramine group, none in the paroxetine group. Eight adverse effects were reported in the paroxetine group, and 9 in the imipramine group. Median values for clinic use and "function" were reported. The median number of clinic visits for dosage titration was greater in the imipramine group. The median number of missed appointments was 4 in the paroxetine group, but 2 in the imipramine group. All other numbers were zero, or were considered to be very similar between groups.

**Clinical conclusions**
The authors suggested the two treatments were similar in effectiveness. Clinical conclusions were not given explicitly.

**Outcomes assessed in the review**
The outcome assessed in the review was the effectiveness of paroxetine and imipramine in treating depression.

**Study designs and other criteria for inclusion in the review**
All the trials included six-week clinical trials. Other details were not given.

**Sources searched to identify primary studies**
The sources searched for this review were not stated.

**Criteria used to ensure the validity of primary studies**
The criteria used to ensure validity were not reported.

**Methods used to judge relevance and validity, and for extracting data**
The methods were not stated.

**Number of primary studies included**
Seven primary studies were included.

**Methods of combining primary studies**
The results of these studies were combined in a narrative format, without weighting.

**Investigation of differences between primary studies**
Investigation of differences was not reported.

**Results of the review**
Imipramine and paroxetine were considered to be equal in effectiveness in terms of treating depression.

**Measure of benefits used in the economic analysis**
Since the effectiveness analysis showed no difference in effectiveness between the intervention and the comparator, the economic analysis was based on the differences of costs only.

**Direct costs**
The direct costs included were drug costs, hospitalization costs, psychiatrist's visits, and imipramine concentrations. Costs and quantities were reported separately, with the exception of drug costs. The boundary is assumed to be that of a health service. Estimation of quantities was based on actual data obtained through chart review. Estimation of costs for treatment was based on data from standard prices. Drug costs were derived from the average wholesale price plus an unspecified dispensing fee. The source of other costs was not clear, except that the cost of hospitalization for the community clinic patients was specified to be the state reimbursement rate. The quantity of resources was measured between January 1993 and December 1995. The price dates were not stated.

**Statistical analysis of costs**
The cost data were treated stochastically, with median and mean values reported. Statistical analysis of cost data was carried out using the Mann-Whitney U test.

**Currency**
US dollars ($).

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
The total median costs in the paroxetine group was $1,432.50 (range: 412.50-2,765.35), and in the imipramine group was $1,425.81 (range: 485.21-2,590.23). The total mean cost in the paroxetine group was $1,537.48, and in the imipramine group it was $1,395.87. In subgroup analysis of those patients completing 12 months of therapy, median cost in the paroxetine group was $1,479.90 (range: 1,217.35-2,068.05), and in the imipramine group it was $1,503.61 (range: 485.21-2,590.23). Mean values in the subgroup analysis were $1,614.82 for paroxetine and $1,501.53 for imipramine. These differences were not found to be statistically significant.

**Synthesis of costs and benefits**
Cost and benefits were not combined, because it was assumed that the outcome was identical (a cost-minimization exercise).

**Authors’ conclusions**
There was no significant difference between the total costs per patient per year in depressed outpatients treated with imipramine or paroxetine using a cost-minimization analysis.

**CRD COMMENTARY - Selection of comparators**
A justification for comparing one of the older tricyclic antidepressants (TCA) to one of the newer selective serotonin reuptake inhibitors (SSRI) was given. Justification for choosing paroxetine as the representative SSRI was given (increased potency and selectivity). Justification for the choice of imipramine as the representative TCA was not given, however it is one of the second generation TCAs and has fewer side effects and thus seems to be an appropriate comparator.

Validity of estimate of measure of benefit
The estimate of benefit was derived from a review of published studies and a single retrospective cohort study. The review was used to establish that the effectiveness of the two drugs is equivalent. Specific details of the results of these studies were not presented. The review was not systematic, and may be biased. The retrospective study depended on chart review to measure benefits, which may also be biased. A more reliable assessment of the relative benefits would come from a randomized, controlled trial.

Validity of estimate of costs
Inadequate details were given on the source and dates of cost data.

Other issues
An important limitation of the study, affecting its validity, is the small sample size. All of the patients taking paroxetine were seen at the hospital clinic, while all but one of those on imipramine were seen at the community mental health clinic. This may introduce bias, and was not addressed by the authors.

Implications of the study
Paroxetine and imipramine should be considered equal with respect to effectiveness and cost in the treatment of outpatient depression. A randomised controlled trial with a larger sample size should be conducted to determine the cost-effectiveness of these antidepressant treatments.

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