Efficacy of antidepressant medication among HIV-positive individuals with depression: a systematic review and meta-analysis

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CRD summary
This well-conducted review concluded that antidepressant medication is efficacious in treating depression in out-patient men who are positive for the human immunodeficiency virus (HIV). The authors noted that women and ethnic minorities were under-represented in the included studies, so the findings cannot be generalised to all depressed individuals who are HIV-positive. These conclusions are likely to be reliable.

Authors' objectives
To evaluate the efficacy of antidepressant treatment in human immunodeficiency virus (HIV)-positive individuals who are depressed.

Searching
MEDLINE and the Cochrane Library were searched from 1981 to 2005; the keywords were reported. The reference lists of key reviews were checked and experts in the field were contacted.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) that were double-blind were eligible for inclusion.

Specific interventions included in the review
Studies that used tricyclic antidepressants (TCA), selective serotonin re-uptake inhibitors (SSRIs) or a novel non-TCA, non-SSRI antidepressant were eligible for inclusion. The included studies evaluated the effects of imipramine, paroxetine and fluoxetine, with treatment duration ranging from 6 to 16 weeks. The majority of the included studies were placebo-controlled and one study used psychotherapy as a control intervention. In some studies patients received concurrent psychotherapy.

Participants included in the review
Studies of HIV-positive individuals with depression were eligible for inclusion. The diagnosis of depression had to be made using standard diagnostic criteria as outlined by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (3rd, revised 3rd, or 4th edition). In the included studies, the majority of the participants were male, with mean CD4 counts ranging from 280 to 455 (where reported) and mean baseline depression (as measured on the Hamilton Depression Scale) ranging from 15.1 to 24.3. The mean age ranged from 33 to 41 years and, where reported, the proportion of white participants ranged from 29 to 95%.

Outcomes assessed in the review
Studies that reported any outcomes of depressive symptoms were eligible for inclusion. The primary outcome was depression measured by the Hamilton Depression Scale.

How were decisions on the relevance of primary studies made?
Two reviewers independently screened the studies for inclusion.

Assessment of study quality
Two reviewers independently assessed the validity of each included study; any disagreements were resolved by formal review and then consensus. The validity of the included studies was assessed using a 15-item scale developed by Detsky et al. (see Other Publications of Related Interest).
Data extraction
Two reviewers independently extracted the data from the included studies; any discrepancies were resolved by formal review and then consensus. The standardised difference in means (Cohen's d) was calculated using the means and standard deviations reported in the included studies. Data from intention-to-treat analyses or the most complete data set were used. Study authors were contacted if information was missing.

Methods of synthesis
How were the studies combined?
Pooled estimates of effect size were calculated using analysis of variance models for standardised mean differences. A random-effects model was used and the fixed-effect model estimate was reported for comparison. Publication bias was assessed using a funnel plot, Egger's test and Begg's test.

How were differences between studies investigated?
The Q statistic and I-squared statistic were used to evaluate the presence of heterogeneity. Meta-regression was also performed and the following were considered as moderators in the analyses: placebo response, medication type, concurrent psychotherapy, depression score at baseline, age, CD4 count, race and quality of the study.

Results of the review
Seven RCTs (n=494) were included.

All of the included studies were deemed to be of a reasonably high quality, with quality scores ranging from 11 to 13 (out of 15).

When using the random-effects model, the pooled effect size from all of the included RCTs was 0.57 (95% confidence interval, CI: 0.28, 0.85); this suggested that depression scores were improved with antidepressant treatment compared with control. However, there was significant heterogeneity across the studies (Q=13.22, p=0.07; I-squared 47.1%). Analysis of potential moderators using meta-regression suggested that the only significant moderator was placebo response, which explained 61.6% of the variance (p=0.004). When the studies were stratified according to placebo response, the pooled effect size estimate was 0.80 (95% CI: 0.52, 1.08) for placebo response less than 33% and 0.20 (95% CI: -0.11, 0.52) for placebo response greater than 33%.

No significant publication bias was detected by any of the methods used.

Authors' conclusions
Antidepressant medication is efficacious in treating depression in out-patient men who are HIV-positive. Women and ethnic minorities were under-represented in the included studies, so the conclusions cannot be generalised to all depressed individuals who are HIV-positive.

CRD commentary
This review addressed a clear question with well-defined inclusion criteria pertaining to the participants, interventions, outcomes and study designs. A limited number of appropriate sources were searched, although some attempts were made to identify unpublished studies, and no publication bias was identified. It was not clear whether any language restrictions were applied. The screening of studies for inclusion, the data extraction and the quality assessment were all performed in duplicate, which limits the chances of reviewer error and bias. The quality of the included studies was appropriately assessed, and the results of the assessment were used in context. The meta-analysis appears to have been conducted appropriately and differences between the studies were investigated. The conclusions follow from the evidence presented and are likely to be reliable.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: The authors stated the need for further research investigating the potential efficacy of antidepressants in women and ethnic minority HIV-positive individuals.

Bibliographic details
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Other publications of related interest

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.