Efficacy of electroconvulsive therapy in bipolar versus unipolar major depression: a meta-analysis

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CRD summary
The authors concluded that electroconvulsive therapy had equal efficacy in patients with unipolar and bipolar depression, despite bipolar patients generally presenting with a more severe history of illness. The review was poorly reported, which may have introduced bias, and the evidence base was limited, which suggests that the authors conclusions may not be reliable.

Authors' objectives
To assess the efficacy of electroconvulsive therapy in bipolar versus unipolar major depression.

Searching
PubMed was searched from 1980 to June 2010; search terms were reported. Reference lists of included studies were searched manually.

Study selection
Eligible studies were prospective and retrospective cohort studies that compared the efficacy of electroconvulsive therapy in patients with unipolar major depression versus patients with bipolar major depression. Major depression had to be diagnosed using accepted criteria (Diagnostic and Statistical Manual of Mental Disorders version III or IV or Research Diagnostic Criteria) and had to report the outcome according to a valid depression rating scale (Hamilton Rating Scale for Depression or the Montgomery-Asberg Depression Rating Scale). The primary outcome was remission rate defined as a score of ≤7 on the 17-item Hamilton Rating Scale for Depression or a score of ≤10 on the 24-item Hamilton Rating Scale for Depression; one study defined remission rate as a score of ≤11 on the 24-item Hamilton Rating Scale for Depression.

All included studies showed that severity of depression at baseline was similar in patients with unipolar and bipolar depression. There were no differences in the occurrence of psychotic symptoms. Some studies reported a more severe course of illness in patients with bipolar depression, as evidenced by an increased number of episodes or a higher number of hospital admissions prior to the study. Concurrent use of antidepressants was not permitted in some studies.

The authors did not state how many reviewers screened studies for inclusion.

Assessment of study quality
Two reviewers independently assessed study quality using criteria from the Dutch Institute for Healthcare Improvement. Criteria included adequacy of the definition of cohort, selection bias, blinding of outcome assessors, confounders, prognostic factors and clinical outcomes.

Data extraction
Data were extracted to calculate odds ratios and 95% confidence intervals. Where outcomes were reported separately for bipolar I and II disorder patients, data were combined to form one bipolar major depression group.

The authors did not state how many reviewers extracted data.

Methods of synthesis
Fixed-effect and random-effects models were used to combine odds ratios (ORs) and 95% confidence intervals (CIs). Statistical heterogeneity was assessed using the $\chi^2$ test.

Sensitivity analysis was performed by removing retrospective studies.

Results of the review
Six studies were included in the review (1,106 patients; 790 patients with unipolar depression and 316 patients with bipolar depression). Five studies were prospective cohorts and one was a chart review.

There was evidence of statistical heterogeneity (p=0.1) and results from the random-effects model were reported.

Electroconvulsive therapy resulted in similar rates of efficacy in patients with unipolar and bipolar depression (OR 1.08, 95% CI 0.75 to 1.57; six studies). Sensitivity analysis did not significantly alter the findings.

**Authors' conclusions**
Electroconvulsive therapy had equal efficacy in patients with unipolar and bipolar depression despite bipolar patients generally presenting with a more severe history of illness.

**CRD commentary**
The review question and inclusion criteria were clearly stated. A suboptimal literature search used only one database and one other source so potentially relevant data may have been missed. Study quality was assessed in duplicate; it was unclear whether this was true for study selection and data extraction so reviewer error and bias could not be ruled out. The authors stated that study quality was performed but reported no further details or results and the quality of the studies remains uncertain.

Very limited patient details were reported and limited information on the electroconvulsive therapy regimens and treatment history were provided so it was unclear whether pooling of the studies was appropriate. There was some evidence of statistical heterogeneity, the causal factors for which were not identified. Sample sizes were generally small and confidence intervals were wide, which reduced the robustness of the findings. Remission rates were based on a self-report questionnaire measured using different cut-off levels, which may have introduced bias. Adverse effects of electroconvulsive therapy were not reported.

Given the poor methodological reporting in the review, potential for bias and the limited evidence base the authors' conclusions should be interpreted with caution as they may not be reliable.

**Implications of the review for practice and research**
The authors did not state any implications for practice or research.

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