Effects of interventions on depression in heart failure: a systematic review

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CRD summary
There was no sufficient or consistent evidence to support development of clinical guidelines for treatment of depression in people with heart failure. The conclusions generally reflected the evidence and are likely to be reliable.

Authors' objectives
To evaluate the effects of interventions on depressive symptoms in adults with mild to moderate heart failure.

Searching
MEDLINE, CINAHL, PsycINFO and The Cochrane Library were searched from 1986 to August 2011. Bibliographies of selected full-text articles were consulted.

Study selection
Eligible studies included adults with New York Heart Association functional class II and III heart failure. Studies used experimental or quasi experimental designs with measures of depression before and after intervention. Depression was defined as either a diagnosis of major depressive disorder or a measure of depressive symptoms. Only peer-reviewed studies in English were eligible.

Non-pharmacological studies with fewer than 50 patients and drug studies without a comparison group were excluded. Studies with patients who were acutely decompensated or receiving palliative care or with interventions focused on cardiac resynchronisation therapy, implantable cardiac defibrillator placement, left ventricular assist device placement, heart transplantation or invasive procedures were excluded.

Mean patient age was above 60 in most studies. Most patients were male, had reduced systolic function and had few comorbidities. Various pharmacological and non-pharmacological interventions were included. Interventions lasted between six and 52 weeks. Studies with selective serotonin reuptake inhibitors examined effects of sertraline, paroxetine and citalopram. Complementary and alternative medicine interventions included Tai Chi, progressive muscle relaxation therapy and mindfulness-based stress reduction.

Two reviewers independently selected the studies. Disagreements were resolved through discussion.

Assessment of study quality
Study quality was assessed with the Qualitative Assessment Tool for Quantitative Studies to address sample selection, study design, confounding, blinding, data collection methods, withdrawals and drop-outs, intervention integrity and analysis. Overall study quality was ranked as strong, moderate or weak. Funding sources were extracted. The overall strength of evidence was also classed according to the GRADE tool.

Two reviewers independently rated study quality. Disagreements were resolved through discussion.

Data extraction
Two reviewers independently extracted outcomes data on depression in duplicate to calculate standardised mean differences.

Methods of synthesis
Results were reported in a narrative synthesis structured by intervention type.

Results of the review
Twenty-three experimental and quasi-experimental studies (3,564 participants) were included.

Two of four RCTs that evaluated the effect of selective serotonin reuptake inhibitors (SSRI) found reduced depression with paroxetine (η²=0.6) and sertraline (d=0.36) compared to placebo over 12 weeks and two studies found no
difference with sertraline (d=0.06) and citalopram (d=0.09) versus placebo. No differences in adverse events were found between treatment and control. Strength of evidence was classed as high.

One study showed an improvement in depression for patients who received an erythropoiesis stimulating agent (darbepoetin-alpha) compared to placebo in 41 anaemic patients receiving optimal medical care (d=1.4). Only two of seven studies that evaluated exercise interventions found a significant difference between intervention and control which favoured exercise. No serious adverse events due to exercise were reported across all studies.

Seven RCTs found no significant effect on depression of disease management programmes regardless of the components, timing, duration and country (all d<0.2; RR success rates 1.06 to 1.40). Three of the four studies that evaluated the effect of complementary and alternative medicine (CAM) found a significant effect on depression (d range from 0.4 to 1.6). The overall body of evidence was considered weak.

A single study used a multimodal approach that combined cognitive-behavioural therapy (CBT) with exercise to treat outpatients found a sustained reduction in depression (d=1.0) and those who received only CBT (d=0.4), exercise (d <0.1) or attention control did not.

**Authors’ conclusions**

There was no sufficient or consistent evidence to support development of clinical guidelines for treatment of depression in people with heart failure.

**CRD commentary**

The review question and inclusion criteria were clearly reported. Several bibliographic sources were searched. Appropriate measures were taken to minimise error and bias throughout the stages of the review. Study quality was assessed and overall results were reported. The choice of a narrative synthesis appeared appropriate due to the diversity of interventions assessed.

The conclusions generally reflected the evidence and are likely to be reliable.

**Implications of the review for practice and research**

**Practice**: The authors stated that this review did not support development of guidelines for treatment of depression in persons with heart failure due to insufficient and at times contradictory evidence.

**Research**: The authors stated that more research was recommended to bolster confidence in estimates of effect for all the interventions examined in the review. They stated that RCTs and controlled clinical trials, when indicated, using dose-response and with interventions lasting at least eight weeks were needed to provide clinicians and patients with enough evidence for decision making. They also mentioned that behavioural studies should implement rigorous treatment fidelity measures, analyse and report estimates of adherence and percentages of treatment actually received and that all studies should report baseline prevalence and effect sizes with confidence intervals.

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