Impact of depression treatment on mental and physical health-related quality of life of cardiac patients: a meta-analysis

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CRD summary
The authors concluded that the impact of post-myocardial infarction depression interventions on physical health-related quality of life (HRQOL) was modest, but treatment can improve mental HRQOL in a significant way. The authors’ conclusions reflect the evidence presented, but the small number of included studies, small samples and variation between studies mean the conclusions should be viewed with caution.

Authors' objectives
To evaluate the effectiveness of depression treatment on the mental and physical health-related quality of life (HRQoL) of cardiac patients.

Searching
PubMed and Cochrane Central Register of Controlled Trials, ProQuest, CINAHL plus, SCOPUS and Web of Knowledge were searched to September 2009. Search terms were reported. Google Scholar and other websites were searched for grey literature. Reference lists of reviews were handsearched for additional articles. Only publications in English were included.

Study selection
Randomised controlled trials (RCTs) that evaluated depression treatment in patients who had a myocardial infarction or acute coronary syndrome and recorded positive on a depression screener were eligible for inclusion. Depression treatment could include pharmaceuticals and/or psychotherapy. Outcomes of interest were health-related quality of life or self-rated health. Studies had to include at least six months follow-up.

Interventions included sertraline (50mg to 200mg), stress management, counselling, cognitive-behavioural therapy and phone counselling. Comparator groups were usual care or placebo. Most of the participants in the included studies were defined as being diagnosed with myocardial infarction or unstable angina. Some studies included participants who underwent bypass surgery. Measurement of depression was conducted using various instruments or through self report. HRQoL was measured using Short-form (SF) 12 or 36, Clinical Global Impression Improvement Scale (CGI-I) or Ladder of Life scale and were measured at baseline (except for one study) and at six months follow-up. Time of depression screening varied widely between studies (details reported in the review). Studies were published between 2003 and 2009. Most of the studies were conducted in North America.

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

Assessment of study quality
Quality was assessed with criteria for randomisation, allocation concealment, blinding, completeness of follow-up and intention-to-treat analysis.

The authors did not report how many reviewers performed the validity assessment, but reported that decisions on quality were reached through discussion between authors.

Data extraction
Data were extracted for continuous outcomes and used to calculate standardised mean differences (SMDs) and corresponding confidence intervals (CIs).

Data were extracted by one reviewer and checked for accuracy by a second reviewer.

Methods of synthesis
Data were used to calculated pooled standardised mean differences using a random-effect model. Hedges adjusted g
was used to adjust for small sample bias. Heterogeneity was explored using the I² statistic.

Sensitivity analyses excluded low-quality studies (low quality was not defined). Subgroup analysis explored effects of treatment on HRQoL by instrument, comparator groups and cardiac condition as well as the effects of different methods of treatment of depression on HRQoL.

**Results of the review**

Five RCTs (2,105 participants) were included in the review. All five studies reported adequate randomisation. Outcome assessors were blinded in three RCTs. Losses to follow-up ranged from 10% to 21%.

Treatment for depression of cardiac patients resulted in a statistically significant improvement compared to comparison groups at six months for mental HRQoL scores (SMD -0.29, 95% CI -0.38 to -0.20, I²=0%; five RCTs). Sensitivity analyses and subgroup analyses did not significantly alter the results.

Treatment for depression had a small but significant impact on physical HRQoL scores (SMD -0.14, 95% CI -0.24 to -0.04, I²=15%). However, when analyses were conducted adjusting for surgical intervention, treatment appeared to have little impact on HRQoL (data not reported). Analyses that removed one study with a placebo group resulted in the overall result showing no significant effect between groups. Subgroup analysis found that combined (two RCTs) and psychological (two RCTs) approaches to depression treatment had no significant impact on physical health.

**Authors' conclusions**

While the impact of post-myocardial infarction depression interventions on physical HRQoL is modest, treatment can improve mental HRQoL in a significant way.

**CRD commentary**

The review question was clear with broadly defined inclusion criteria. Some relevant sources were searched and efforts were made to reduce publication bias by searching for unpublished studies. Inclusion was limited to studies published in English, which risked language bias. A validity assessment was conducted and results were reported. The authors did not report on whether appropriate methods were used to select studies and assess validity. Appropriate methods were used to extract data.

Studies were combined in a meta-analysis and statistical heterogeneity was assessed appropriately. Sensitivity analyses and subgroup analyses were conducted appropriately to explore the effects of various moderators on the overall results. The authors appropriately advised caution in relation to the results given the differences between studies in terms of depression assessment and baseline characteristics.

The authors’ conclusions reflect the evidence presented, but should be viewed with caution given the small number of included studies, small sample sizes and differences in assessment methods and baseline characteristics.

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

**Practice:** The authors stated that results suggested that depression treatment had a clinically meaningful impact on mental HRQoL of cardiac patients. Depression treatment programmes needed to include broader attention to outcomes.

**Research:** The authors stated a need for further research to develop and evaluate programmes to achieve improvements in overall HRQoL and potentially cardiovascular outcomes for cardiac patients. Future studies needed to include larger sample sizes and determine how depression acted as a moderator.

**Funding**

National Heart Foundation of Australia; Australian Research Council.

**Bibliographic details**

PubMedID
21150634

DOI
10.1097/HCR.0b013e3181fc0985

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Activities of Daily Living /psychology; Antidepressive Agents /therapeutic use; Depression /diagnosis /drug therapy /etiology; Diagnostic and Statistical Manual of Mental Disorders; Health Status; Humans; Mental Health; Myocardial Infarction /complications /psychology /rehabilitation; Patient Selection; Psychiatric Status Rating Scales; Psychotherapy; Quality of Life /psychology; Self Concept; Time Factors; Treatment Outcome

AccessionNumber
12011004402

Date bibliographic record published
12/10/2011

Date abstract record published
27/03/2012

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.