Depression screening and patient outcomes in cardiovascular care: a systematic review

CRD summary
This review evaluated the impact of depression screening instruments and depression treatment in patients with cardiovascular disease, concluding that depression treatment is associated with a modest improvement in depressive symptoms but not cardiac outcomes. It found no trials on the effects of depression screening on depressive symptoms or cardiac outcomes. Given the evidence presented, the authors’ conclusions appear appropriate.

Authors' objectives
To assess: (1) the accuracy of depression screening instruments in patients with cardiovascular disease; (2) the effect of depression treatment on depression and cardiac outcomes; and (3) the effect of screening on depression and cardiac outcomes in cardiovascular care settings.

Searching
MEDLINE, PsycINFO, CINAHL, EMBASE, ISI, SCOPUS and Cochrane databases were searched for relevant articles published in any language from inception to 1st May 2008. Search terms were provided. Also, the reference lists of retrieved studies, cardiovascular care guidelines, systematic reviews and 33 key journals were handsearched from July 2007 to May 2008. Experts were contacted and attempts made to identify relevant unpublished studies.

Study selection
Studies that selected patients on the basis of clinical characteristics of cardiovascular disease and identified major depressive disorder (MDD) using internationally recognised criteria were eligible for inclusion in the review. Studies evaluating the accuracy of screening instruments were included if they compared the instrument to a valid standard and reported data that allowed calculation of sensitivity, specificity and positive and negative predictive values. Instruments evaluated in the included studies were versions of the Beck Depression Inventory (BDI), Hospital Anxiety and Depression Scale (HADS), Symptom Checklist 90 depression subscale (SCL-90-D), Centre for Epidemiological Studies Depression scale (CES-D), Patient Health Questionnaire (PHQ), Symptoms of Anxiety-Depression index (SAD4) and Geriatric Depression Scale (GDS).

Studies evaluating the effect of depression treatment on depression and cardiac outcomes were eligible if they were randomised controlled trials (RCTs) comparing pharmacological, psychotherapeutic or other interventions for MDD with placebo or usual care in patients in cardiovascular care settings. Evaluated treatments included fluoxetine, sertraline, mirtazapine, citalopram, interpersonal psychotherapy and clinical management, ‘active treatment’ and cognitive behavioural therapy.

Studies evaluating the effect of screening on depression and cardiac outcomes were eligible if they were RCTs or prospective studies comparing depression identification, depression treatment rates or depressive or cardiac outcomes between cardiovascular disease patients who did or did not undergo screening.

Study selection was independently undertaken by two reviewers, with disagreements resolved by consensus.

Assessment of study quality
Studies were evaluated according to criteria described by the US Preventive Services Task Force, with specific studies evaluated on the basis of their quality in relation to the key question being addressed. Two reviewers independently assessed validity, with disagreements resolved by consensus.

Data extraction
Two reviewers independently extracted data from included studies. Disagreements were resolved by consensus. For studies of the accuracy of screening instruments, data were extracted on sensitivity, specificity and positive and negative predictive values with 95% confidence intervals (CIs). For depression treatment studies, effects were
calculated with both Hedges g and $r^2$.

**Methods of synthesis**
After observing substantial clinical heterogeneity, included studies were combined in a narrative synthesis.

**Results of the review**
1. Diagnostic accuracy of depression screening tools in cardiovascular care settings (11 studies, n=3,828): four studies were rated good quality, five were rated fair and two were rated poor. For tests reporting a priori screening thresholds, sensitivity ranged from 39% to 100% (median 84%) and specificity from 58% to 94% (median 79%). Few instruments or thresholds were evaluated in more than one sample of cardiovascular care patients.

2. Effects of depression treatment in cardiovascular care patients (6 RCTs, n=3,247): three studies were rated as good quality and three were rated as fair-good. Treatment with antidepressant agents or cognitive behavioural therapy resulted in modest reductions in depressive symptoms (effect size 0.20 to 0.38; $r^2$ 1% to 4%). No studies had sufficiently long follow-up to establish the effects of antidepressant use on depression relapse or recurrence following acute response. There was no evidence to suggest that depression treatment improved cardiac outcomes (2 studies).

3. Effect of depression screening on outcomes in cardiovascular care patients: no studies addressing this question met the review inclusion criteria.

**Authors’ conclusions**
The authors concluded that in patients with cardiovascular disease a modest improvement in depressive symptoms is associated with medical treatment or cognitive behavioural therapy; there was no such association with improvement in cardiac outcomes. No trials have evaluated the effects of screening on depressive symptoms or cardiac outcomes in patients with cardiovascular disease.

**CRD commentary**
The review question was clearly defined in terms of participants, interventions and outcomes of relevance. The authors attempted to identify both published and unpublished studies from a range of sources, so are likely to have identified most of the relevant evidence. Attempts were made to identify relevant non-English language studies. Throughout the review, the authors attempted to minimise bias and errors by having two reviewers independently select, quality assess and extract studies. The decision to combine the studies in a narrative synthesis appears appropriate given their observed heterogeneity. Given the evidence presented, the authors’ conclusions appear appropriate.

**Implications of the review for practice and research**
Practice: The authors state that clinicians should be aware that life-threatening depression can occur in patients with cardiovascular disease and these patients should be appropriately referred and/or treated. The authors also state that the adoption of depression screening in cardiovascular care settings would probably be overly resource intensive and would be unlikely to benefit patients in the absence of significant changes in current models of care.

Research: The authors state that more research on the impact of depression screening in the context of different care models (e.g. collaborative care models) is needed.

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**Bibliographic details**

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19001627
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.