Nonpharmacological strategies for improving heart failure outcomes in the community: a systematic review

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CRD summary
This review concluded that non-pharmacological interventions, in a community setting, could reduce hospital readmission rates and improve quality of life for people with heart failure. Whilst the authors' conclusions appear appropriate, poor reporting made it difficult to assess the effectiveness of specific interventions and to assess differences between the studies.

Authors' objectives
To assess the effects of non-pharmacological interventions in the treatment of heart failure within the community.

Searching
MEDLINE and CINAHL were searched from 1998 to 2003; the search terms were given. Unpublished studies were not eligible for inclusion.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion. However, one of the studies appeared to be a cohort study. Where stated, the duration of follow-up in the included studies ranged from 12 weeks to over 4 years.

Specific interventions included in the review
Studies of non-pharmacological interventions, in a community setting, were eligible for inclusion. The interventions were either multidisciplinary or nurse-led, and were of at least 1 month in duration. In the included studies, education related to drug regimens, diet, exercise, self-monitoring and management. In some studies the intervention was initiated within a hospital setting.

Participants included in the review
Studies on people with heart failure were eligible for inclusion. All participants were on pharmacological treatment. In the included studies, where stated, the proportion of participants with more serious heart failure (New York Heart Association class III or IV) ranged from 35 to 97%, the mean ages from 56 to 77 years, and the proportion of men from 43 to 96%.

Outcomes assessed in the review
The main outcomes of interest were hospital readmissions and quality of life. Other outcomes presented in the individual studies were length of hospital stay, deaths, patient satisfaction, functional status, costs and adherence to treatment plan.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
A 27-point scale was developed to assess the quality of the studies. The scale included items relating to the investigator's experience, study design, definitions, intervention details, data collection and analysis, and validity of the instruments used. Only studies scoring at least 13 out of a maximum of 27 were included in the review.

Two reviewers independently evaluated quality and a third reviewer checked for accuracy. Any discrepancies were resolved by discussion.
Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Details of the interventions in the individual studies were abstracted into a table and the outcomes were summarised in terms of statistical differences between the intervention and control groups.

Methods of synthesis
How were the studies combined?
Details of the studies were listed in tables and discussed in the narrative.

How were differences between studies investigated?
Differences between the studies were described within the tables and text.

Results of the review
Fifteen studies comprising 14 RCTs (4,356 participants) and one cohort study (297 participants) were included. The sample sizes ranged from 58 to 1,966.

The included studies scored 14 to 22 points (mean 16.6) for quality out of a possible 27. The majority of studies found that hospital readmission rates were significantly decreased with the intervention compared with the control, but this was not always sustained during longer term follow-up. Quality of life at 6 months was higher in the intervention groups in some studies but did not differ between groups in others. The results for mortality were inconsistent.

Cost information
Nine studies reported that the costs were similar or lower in the intervention group; one study reported higher costs.

Authors’ conclusions
Multidisciplinary disease management and non-pharmacological nurse-led interventions could provide benefits in terms of quality of life and hospital readmissions in people with heart failure.

CRD commentary
The aims of this review were described and the inclusion criteria broadly defined. The search was limited to two databases and unpublished studies were excluded, consequently some studies might have been missed. Some of the methods of the review were not described (study selection and data extraction), thus it was not possible to assess the likelihood of errors and bias introduced into the review at these stages. The quality of the studies was assessed, with the scores used to exclude lower quality studies. However, the authors used the scoring system they had designed, which appeared to be unvalidated.

Since the results of the included studies were not presented in detail, it was difficult to evaluate the effectiveness of interventions and differences between the studies. The narrative synthesis appeared appropriate in view of the variety of interventions and outcomes, but the authors did not group similar studies or highlight better quality evidence. Despite the methodological and reporting issues identified, the authors’ conclusions on the potential benefits of non-pharmacological interventions appear appropriate, as do their recommendations for further research given the limitations in the evidence identified.

Implications of the review for practice and research
Practice: The authors stated that clinicians should consider non-pharmacological interventions alongside pharmacological interventions when treating heart failure.

Research: The authors stated that further research should include better reporting of the results, increased study sample
size and longer term studies. Theory-based interventions tested in RCTs are needed.

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