Disease management programmes for older people with heart failure: crucial characteristics which improve post-discharge outcomes

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CRD summary
The authors concluded that effective disease management programmes in old people with heart failure should be multi-faceted, with an in-hospital phase, intensive patient education, self-care supportive strategy, medical regimen optimisation, ongoing surveillance and clinical deterioration management, active involvement of cardiac nurses and cardiologists, and flexible follow-up care. The conclusions should be regarded with caution given the methodological weaknesses of the review.

Authors' objectives
To identify the features of disease management programmes (DMPs) which are crucial to reduce the rate of hospital readmission and/or mortality among old people with heart failure.

Searching
MEDLINE (1995 to 2005), EMBASE (1995 to 2005) and the Cochrane Controlled Trials Register; the search terms were reported. Only publications in the English language were considered. The bibliographies of retrieved articles were checked for additional articles.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for the review.

Specific interventions included in the review
Studies of DMPs using multiple interventions in a systematic manner to manage heart failure across different health care delivery systems were eligible for inclusion. Single-component interventions were excluded. In the included studies, DMPs adopted multidisciplinary care, case-management strategies, or interventions handled by nurses, physicians, and/or pharmacists. Post-discharge interventions were conducted through home or clinic visits, and/or telephone contacts.

Participants included in the review
Studies including patients with heart failure, aged 60 years or older, were eligible. In the included studies, the participants had a mean age of 73.3 years and the majority had advanced stage heart failure.

Outcomes assessed in the review
Studies evaluating hospital admission and/or mortality were considered.

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
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Relative risks were calculated for the individual studies and tabulated. Statistically significant changes in outcome variables such as number of hospital readmissions, mortality rate, or event rate, were used to classify the DMPs as effective or ineffective; no further details on the process were reported.

Methods of synthesis
How were the studies combined?
The percentage of characteristics present (structure of the care team, in-hospital care with or without discharge planning, education, exercise counselling, psychosocial counselling, self-care promotion strategies, optimised medical therapy, attention to deteriorated signs and symptoms, follow-up care and access to health care professionals) were compared between effective and ineffective studies.

How were differences between studies investigated?
Differences in the study design, interventions and outcomes were discussed in the text and presented in the tables, focusing on the difference between studies classified as effective or ineffective.

Results of the review
Twenty-one RCTs (n=4355) were included in the review.

Eleven of the 21 identified trials reported improvements in the discharge outcomes of older people with heart failure (effective DMPs).

The authors stated that effective DMPs were multi-faceted, e.g. included multiple interventions such as education of the patient (100% of studies), exercise programmes (33%), psychosocial counselling (33%), patient self-care (67%), optimisation of medication regimen (100%), and medical referrals for clinical deterioration (75%). Most of the effective DMPs (n=7) followed the European Society of Cardiology guidelines, while ineffective DMPs were less likely to conform to them (n=4). The majority of ineffective DMPs (89%) did not provide patients with exercise and psychosocial counselling.

Effective DMPs provided a wider range of in-hospital care (e.g. counselling by allied health) in comparison with ineffective DMPs; effective as well as ineffective DMPs included an in-hospital care phase. All effective and all ineffective DMPs had an educational element. The authors stated that effective DMPs provided more intensive patient education. The same number of effective and ineffective DMPs provided self-care supportive strategies.

More effective DMPs (83%) than ineffective DMPs (56%) included the optimisation of medication. Seventy-five per cent of effective programmes compared with 44% of ineffective programmes provided ongoing surveillance and management of clinical deterioration. Fifty-eight per cent of effective programmes and 33% of ineffective programmes that did not involve multiple health care providers in the teams were conducted by cardiac nurses and involved more active participation of cardiologists.

Follow-up care models varied greatly between the studies. Forty-two of effective programmes provided home-visits, telephone access and telephone follow-up compared with 11% of ineffective programmes.

Cost information
A per-patient cost reduction was found in seven of the 8 effective programmes that undertook a cost analysis.

Authors' conclusions
An effective DMP should be multi-faceted and comprise an in-hospital phase, intensive patient education, self-care supportive strategy, medical regimen optimisation, ongoing surveillance and clinical deterioration management, active involvement of cardiac nurse and cardiologist, and flexible follow-up care.

CRD commentary
This review addressed a well-defined question in terms of the study design, participants, intervention and outcomes. The authors searched two relevant databases and a trials register, but only studies published in English were included; this might have introduced language bias. Publication bias was not assessed. It was not stated if the study selection and data extraction were performed in duplicate, therefore reviewer error and bias might have been introduced into the review process. Since study quality was not formally assessed, it is difficult to evaluate the validity of the evidence this review is based on. The authors listed features of effective and ineffective studies but gave little information on the categorisation process. No formal meta-regression was undertaken. Many aspects of management programmes were differentiated and several related aspects showed a diverse distribution amongst programmes, making it difficult to
reach clear conclusions. Given the outlined weaknesses, the authors’ conclusions have to be considered with caution.

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

Practice: The authors stated that the identified features in this review should be adopted by health care professionals with consideration given to the geographic factors and nature of the health care system.

Research: The authors stated that moderator analyses are needed to assess the relative importance of process variables in DMPs for heart failure patients.

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