A disease management program reduced hospital readmission days after myocardial infarction

QUESTION

In patients recovering from myocardial infarction (MI), is a disease management program (DMP) more effective than usual care for reducing hospital readmission days for angina, congestive heart failure (CHF), and chronic obstructive pulmonary disease (COPD)?

DESIGN

Randomized (allocation concealed*), unblinded,* controlled trial with mean 444 days of follow-up.

SETTING

A university-affiliated hospital in Toronto, Ontario, Canada.

PATIENTS

162 patients (mean age 69 y, 60% men) with a confirmed diagnosis of MI who resided in the study area and were eligible for a visit from a home health nurse. Follow-up was 90%.

INTERVENTION

Patients were allocated to a DMP (a standardized nurses' checklist; referral criteria for specialty care management; communication with the family physician; discharge summary, nurse visit report, and patient education; and ≥ 6 home visits by a cardiac-trained nurse) (n = 79); or usual care (referral to a noninvasive cardiac laboratory for diagnostic testing, follow-up by a cardiologist, informa-

tion on hospital's cardiac teaching class, and cardiac rehabilitation) (n = 83).

MAIN OUTCOME MEASURES

Number of hospital readmission days per 1000 follow-up days for angina, CHF, and COPD. Secondary outcomes included number of all-cause readmission days per 1000 follow-up days; emergency department (ED) visits; and claims for physician office visits, diagnostic or therapeutic services, and laboratory services.

MAIN RESULTS

Analysis was by intention to treat. Patients who received the DMP had fewer hospital readmission days for angina, CHF, and COPD than those who received usual care (Table). Patients in the DMP group also had fewer total readmission days and ED visits (Table); and fewer claims for ED visits (P = 0.007), diagnostic or therapeutic services

(P = 0.012), and laboratory services (P = 0.007) than patients in the usual care group. The groups did not differ for physician office visits (P = 0.24) or hospital claims (P = 0.24).

CONCLUSION

In patients recovering from myocardial infarction, a disease management program reduced hospital readmission days for angina, congestive heart failure, and chronic obstructive pulmonary disease; reduced emergency department visits; and had fewer claims for diagnostic, therapeutic, or laboratory services.

*See Glossary.

Disease management program (DMP) vs usual care (UC) for patients recovering from myocardial infarction†

Outcomes during 30 823 follow-up d (DMP) or 34 021 follow-up d (UC)	DMP	UC	IDR (95% CI)	P value
Readmission d for angina, CHF, and COPD	114	200	1.59 (1.27 to 2.00)	< 0.001
Total readmission d	483	814	1.53 (1.37 to 1.71)	< 0.001
Number of emergency department visits	64	147	2.08 (1.56 to 2.77)	< 0.001

†IDR = incidence density ratio (number of readmission days for angina, congestive heart failure [CHF], and chronic obstructive pulmonary disease [COPD] in the UC group divided by the number of readmission days in the DMP group [per 1000 follow-up d]). CI defined in Glossary and calculated from data in article. IDR > 1 indicates the intervention has a protective effect.

COMMENTARY

The study by Young and colleagues adds to the growing literature showing the effectiveness of DMPs for cardiovascular disease. In this study, "inner-city" patients were presumably disadvantaged with regard to both finances and the adequacy of follow-up care. This cohort of patients may be even more common in the United States, which has no nationalized system to minimize health insurance obstacles. As with other DMPs, the findings in this study support their use by reducing hospital readmission days. This and previous studies have been underpowered to detect a difference in such hard endpoints as reinfarction and mortality.

Any physician who has worked with a well-constructed and finely honed DMP is aware that large trials are not necessary to prove the efficacy of these programs. The difficulty seems to be defining the program and identifying the key participants and which crucial elements are necessary for success. For example, physicians who are unaccustomed to specialized nurses who make frequent and ongoing visits may be uncomfortable with prewritten diuretic titration orders. However, such a simple function may well be a critical measure for keeping CHF patients well and at home.

Why are DMPs not more widespread? One reason may be that Medicare and other insurance programs usually define benefits on a limited scope of services, while chronic illnesses (i.e., CHF and diabetes) require ongoing management. A second reason is that no universal model or well-defined set of key features exists, and programs by definition differ from study to study. Third, existing studies are small, diffuse, and not widely or prominently published. As such, it is not clear from the literature which conditions are best suited for DMPs and how best they are constructed. Cost-effectiveness is another issue that is not fully established, although reduced hospital days intuitively offer the opportunity to offset some of the cost per patient.

Every DMP is different and should be evaluated by a clinician on its own merits. However, it should be recognized that a good program has tremendous potential to keep sick patients well managed and out of the hospital.

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