EDITORIAL COMMENT

Improving the Outcomes of Heart Failure Care*

Putting Technology Second

Edward P. Havranek, MD, FACC

Denver, Colorado

Heart failure mortality has declined during the past 20 years (1,2), largely as a result of advances in drug treatment. By and large, treatment has been based on the concept that diminishing the neurohormonal activation caused by heart failure prevents long-term deterioration in cardiac function. Thus, patients with heart failure now routinely take beta-blockers, angiotensin-converting enzyme inhibitors or angiotensin receptor blockers, and spironolactone. Recently, however, new treatments based on the neurohormonal concept have failed to show any benefit (3–5), leading some to call for new concepts to guide the treatment of heart failure.

At first glance, disease management would not appear to be a leading candidate as one of these new guiding concepts. It is not based on new insights into the biology of heart failure and, indeed, is not a new concept at all. Yet evidence continues to emerge that reorganizing the delivery of care to patients with heart failure may have the impact on outcomes that new drug treatments have not had.

See page 1654

Disease management, also more descriptively referred to as multidisciplinary chronic care management, has been defined as “a system of coordinated health care interventions and communications for populations with conditions in which patient self-care efforts are significant. [It] supports the physician or practitioner/patient relationship and plan of care, emphasizes prevention of exacerbations and complications utilizing evidence-based practice guidelines and patient empowerment strategies, and evaluates clinical, humanistic, and economic outcomes on an ongoing basis with the goal of improving overall health” (6). When implemented as thusly defined, disease management aligns well with the prescription for the American health care system issued by the Institute of Medicine. Cooperation among clinicians, anticipation of needs, evidence-based decision-making, and the patient as the source of control are among the 10 rules for the redesign of health care processes in its report entitled “Crossing the Quality Chasm” (7).

We have a wealth of data on the effectiveness of disease management for patients with heart failure. Three recent meta-analyses of randomized studies concluded that, despite considerable heterogeneity in the structure of the programs studied, disease-management programs reduce hospital admission rates (8–10). The largest randomized trial reported to date demonstrated a significant reduction in mortality for the intervention group (11). Several other smaller studies have also reported mortality reductions (12–14).

In this issue of the Journal, Cleland et al. (15) report results from a randomized trial of a uniquely structured disease-management program from 12 hospitals in Germany, the Netherlands, and the United Kingdom. The intervention they tested consisted of monthly telephone contact with a nurse, augmented by daily transmission of information on patients’ weight, blood pressure, and cardiac rhythm over phone lines using innovative technology. The study was rigorously conducted and analyzed and contained comparisons both to usual care and to nurse contact without the addition of the telemonitoring technology. The sample size was calculated using an ambitious 40% estimate of benefit from telemonitoring on the primary end point. The study was terminated early because patients in the control arm had statistically higher mortality than patients in the disease-management arms and because benefit was statistically unlikely for the telemonitoring arm. The results were durable over a median of 484 days of follow-up. This relatively long follow-up period is important in light of the findings of the Specialized Primary and Networked Care in Heart Failure (SPAN-CHF) trial (16), in which the benefits of disease management attenuated after three months of follow-up. Despite the fact that the null hypothesis for the study was accepted, this study decidedly should not be viewed as having negative results.

As pointed out by the authors, providers had no experience with the technology before their study participation. Patients showed a remarkable willingness to use the technology, with 81% of patients transmitting more than 80% of data daily despite their relatively advanced age and heart failure severity. As already noted, the sample size for the study was relatively modest. On the basis of these factors alone, I agree with the authors that the results of the study support further research into this novel approach. Questions for future analysis include whether health status and health-related quality-of-life measures more sensitive than New York Heart Association functional class might be affected, whether there is heterogeneity among sites with respect to the impact of the technology, and whether the cost of the technology compares favorably to other heart failure treatments.

Patients in the telemonitoring arm had a greater number of hospitalizations, which implies that the increased surveillance resulted in a greater tendency to admit patients with subclinical illness and that perhaps these anticipatory admissions did not affect outcome. The fact that hospital stays were shorter in the telemonitoring arm is a small comfort,
given that the first days of a hospital stay are associated with higher costs than subsequent days (17). Better admission criteria or better alternatives to admission for telemonitored patients should be sought.

This study extends the results of the previous studies that demonstrated reductions in mortality with multidisciplinary chronic care management for heart failure and of studies that made use of regular telephone contact with patients. The greatest challenge we now face is not how best to design disease-management programs but how to surmount the barriers to implementing them. Successes with disease-management programs are not universal, emphasizing the fact that programs must be evaluated for effectiveness on an ongoing basis after their implementation. The definition of effectiveness should encompass health status and mortality as well as financial end points. Payers should be evaluating commercial disease-management services that have been added onto usual sources of care against this broad definition of effectiveness. As others have pointed out, the health care system in the U.S. is not well organized to deliver care for chronic illness (18,19). In general, providers of ambulatory care, acute care, and long-term care are organizationally separated. No financial incentives exist to deliver integrated care; indeed, the incentives may be perverse (20). Payers, particularly Medicare, should move forcefully in the direction of encouraging integrated care. Professional organizations should take forceful roles in encouraging policy change and in ensuring that policy changes keep patient outcomes ahead of cost reduction.

Finally, this study reinforces what we should have known all along. The greatest gains demonstrated in this study came when patients had regular contact with a well-trained nurse; if any additional gains associated with the addition of telemonitoring were present, they were too small to detect. The heart of the practice of medicine is a relationship between a provider and a patient with the patient as the focal point. When we create systems that encourage patients to have strong relationships with well-equipped providers and when these relationships promote involvement of patients in the treatment of their illnesses, health improves. This study helps us understand that new technologies should be viewed as useful adjuncts and not as the centerpiece of redesigned health care systems. Novel applications of technology almost certainly have a role in improving the outcomes of patients with heart failure. Technology, however, should come second; the patient-centered relationship between patient and provider comes first.

REFERENCES