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EDITORIAL COMMENT

Performance Feedback

A Common Thread in the Process to Provide Optimal Heart Failure Care*

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> *Habit is habit and not to be flung out of the window by any man but coaxed down-stairs a step at a time.*
> Mark Twain, from *Pudd'nhead Wilson's calendar* (1)

The clinical syndrome of heart failure (HF) is associated with a high morbidity and mortality and accounts for a huge and increasing health care burden (2). Fortunately, many therapeutic advances have become available for treatment of this disorder, particularly for those with left ventricular systolic dysfunction. Unfortunately, the discovery of new and efficacious HF treatments has not been swiftly followed by universal adoption in the population at large (3). In an attempt to provide benchmarks for HF treatment, recommendations for the management of patients with HF were published as early as 1994 (4). Soon afterward, it became apparent that treatment of HF did not change as a result of publication of these guidelines (5–7). These results are consistent with data showing that health care practitioners tend to overestimate the degree to which they adhere to guideline-based therapy (8).

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In addition to publication, guidelines must be relevant, informative, clear, and implementable. There must be a dissemination and implementation plan that follows basic principles of adult learning and quality control (9). Interventions might include elements of but are not limited to academic detailing, interactive workshop or learning programs, practical aids for clinical practice such as pocket or web-based reference guides, and individual practice chart audits. Common to these interventions is the requirement that there be an understanding of end-user needs and transparent performance feedback for individuals and institutions (10).

Evaluation of the impact of these interventions has also been problematic. Studies of guideline implementation have suffered from design flaws such as lack of randomized control groups and nonuniform distribution of clinical characteristics in the cohort groups. This has prompted critics to suggest that subsequent improvements in clinical care would have occurred anyway and are not due to the intervention in question.

Despite these difficulties many professional organizations continue to develop programs of which a central component is the regular provision of feedback to health care practitioners. The Canadian Cardiovascular Society has embarked on a 5-year HF guidelines update and implementation strategy, which includes an Access to Cardiac Care and National Workshop Initiative (11,12), conducting user needs assessment, and a grassroots dissemination strategy. The measurement phase is to follow. The American Heart Association Get With The Guidelines (GWTG) program, begun in 2000, is a voluntary, national, prospective, observational data collection and quality control initiative relating to ischemic heart disease (13). Performance measures were based upon the Joint Commission and Centers for Medicare and Medicaid (CMS) criteria and, for the most part, are widely validated (14). In 2005, participating hospitals began to collect data relative to HF and this year began to report these data publicly. This program has benefited from the fact that hospitals must report many of these performance measures for reimbursement by CMS for care provided to patients.

Findings from GTWG illustrate it is possible to achieve high rates of evidence-based therapy, although unexplained disparity still exists between practices for many therapies, including implantable cardioverter-defibrillator (ICD) and biventricular pacemaker therapy (15).

Recent reports describe a relatively low rate of ICD usage for primary prevention of sudden death in eligible patients with HF, including large differences in application of ICD therapy in Europe versus North America (16). Early data suggest that differences in patient characteristics such as region of residence, race, insurance coverage, and age exist between those implanted with ICD and those not (15). Although patient characteristics in part explain therapeutic disparity, we do not, for the most part, understand why they exist. Perhaps then, factors outside of the individual patient profile, such as provider, institution, and system factors play an important role.

In this issue of the *Journal*, Shah et al. (17) shed much-needed light into this aspect of treatment disparity by reporting data from 134 U.S. hospitals participating in the GWTG Heart Failure registry. Similar to previous investigators, they report a low overall rate of application of ICD in 10,148 a priori defined eligible patients (20%), with rates ranging from 1% to over 35% in the highest tertile. They go further to describe "hospital characteristics" associated with application of ICD therapy and note that hospitals with higher ICD usage rates were more likely to offer other advanced therapies such as percutaneous coronary interven-

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tion, coronary artery bypass grafting, and heart transplant, had larger bed sizes, and were more likely to have an academic affiliation. They also noted that higher ICD-rate hospitals were more likely to be adherent to "newer" performance measures of beta-blocker, aldosterone antagonist, and hydralazine-nitrate therapy. Both high- and low-ICD tertile hospitals had similarly high performance in "older" measures such as angiotensin-converting enzyme or angiotensin receptor blocker therapy use as well as discharge instructions and smoking cessation advice. Finally, the authors note that the variation in older, simpler performance measures, such as drug therapy, was much smaller than the >30-fold variation in the newer, more complex intervention of ICD implantation.

For the first time, we get a glimpse into the characteristic hospital more likely to adopt newer evidence-based HF therapies. These data are important and relevant to health care, because the method of data collection is well-validated and can be used for comparison purposes with any U.S. hospital reporting similar data (14). The authors targeted only those cases that, according to documented clinical criteria, would be clearly eligible for ICD therapy (14). They excluded those with existing ICDs and those with contraindications, including any documented physician or patient reason or refusal. Hospitals without reported procedures and those with <10 ICD eligible patients were excluded. Only data with a high level of completeness were used in the analyses. Data quality was reviewed on a regular basis, and patient case-mix adjustment was performed in attempts to limit the effect of differential patient characteristics on the results.

This study is not without limitations. Participating hospitals in the GWTG program might be more likely to be "early adopters" and might not be representative of all hospitals. The chart auditors had to rely on the quality of documentation, and therefore undocumented reasons for non-ICD implantation were not collected, serving to reduce the level of performance measure adherence (18). Many centers might prefer to avoid the unstable hospitalized patient or even avoid referring to implanting centers (if they do not have that capability themselves). These issues might not have been documented. And, as the authors point out, increasing levels of detail regarding hospital characteristics such as procedure space and availability of adequately trained medical personnel (especially referring and implanting physicians) and other infrastructure were not available.

From a practical point of view, we would expect application of newer therapies for any condition to lag behind that of older proven therapies. Variability in the perceived value of intervention, even when recommended, will affect application rate. However, as Shah et al. (17) allude to, application of "high end" device therapy might differ in several ways from that of medical therapy. For example, in addition to the resources and infrastructure required to implant ICDs, follow-up of the patient with an ICD requires specially trained medical personnel and equipment, and processes must be in place for the possibility for device recalls and generator replacements. If these resources are not also available, application rates might not increase. Furthermore, newer devices possess hemodynamic monitoring capabilities that will likely have impact on the management of HF patients (whose primary condition is HF, not arrhythmia). This will require even more careful coordination and teamwork from health care providers, with clearly defined roles. Indeed, the European Society of Cardiology and Heart Rhythm Society have recently published guidelines for follow-up of patients with implantable monitoring devices, a section of which includes the roles and responsibilities for providers (19).

Issues such as these and cost/benefit must be addressed as part of future implementation process, including those sponsored by national organizations (20). This might lead to representation of stakeholders such as patients and health care administrators on guideline committees. Many unanswered questions remain. What other system and health care provider characteristics, such as physician bias, infrastructure, and cost, are associated with reduced application of ICD therapy? How should we otherwise best identify barriers to and support of applications of evidence-based care in HF patients? Should we encourage only certain health care institutions to provide ICD implantation, as is the case in heart transplantation? Who should provide these supports, and who should monitor or enforce new initiatives? How well do our performance measures stack up in respect to real-world patient outcomes? What is the best method for reporting care and outcomes?

Despite many unanswered questions, it is clear that collection of performance data with feedback to health care practitioners is essential to provide a basis for further study and intervention. Shah et al. (17) have provided a valuable piece of the puzzle that will enable us to take 1 more step toward optimal application of evidence-based HF therapy.

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Key Words: heart failure ■ hospital ■ ICD ■ registry.