Editorial

The Rewards of Good Behavior

Neal B. Patel, MD; Gary J. Balady, MD

With the debate over American healthcare reform still at a fever pitch, President Obama has submitted his national budget for 2009 with the provocative title “A New Era of Responsibility,” a notion that each individual’s actions can have an effect on the greater good.1 In the healthcare sector, specifically pertaining to coronary heart disease, there is no clearer opportunity for the individual patient to contribute to our country’s reform while also reaping the rewards of improved health than in the area of prevention and behavioral modification. Although primary prevention has taken the forefront as an economic area of focus, secondary prevention should not be overlooked as an equally important target for improvement. In the first year after an initial myocardial infarction (MI), 20% of patients will be rehospitalized, and 18% of men and 23% of women >40 years of age will die.2 The rehospitalization cost after MI averages 30% more than the cost of the index hospitalization.3

Secondary prevention after acute coronary syndrome (ACS) represents a 2-phase process, with efforts to mitigate acute adverse outcomes while working to prevent longer-term events. When patients present with acute coronary events, current medical therapies, including antiplatelet agents, statins, and \( \beta \)-blockers, have proven to be beneficial to both causes, and as such, guidelines have focused on the importance of timely initiation of these therapies during the index hospitalization.4 For Medicare patients, as of 2007, approximately 95% of ACS patients were receiving aspirin and \( \beta \)-blocker therapy at the time of discharge.5

Beyond pharmacological therapy, lifestyle modification, including smoking cessation, diet modification, and exercise, is known as an effective preventive intervention in those with stable coronary heart disease over time. Unlike medications, however, less is known about the impact of behavioral changes on short-term morbidity after an acute coronary event.

In this issue of Circulation, Chow et al6 examine the association of diet, exercise, and smoking modification with the risk of early cardiovascular events after ACS. On the basis of a patient questionnaire, 18 809 patients from the OASIS 5 (Fifth Organization to Assess Strategies in acute Ischemic Syndromes) randomized clinical trial (fondaparinux versus enoxaparin in unstable angina or non–ST-elevation MI) were followed up for adherence to diet, physical activity, and smoking cessation at 30 days after ACS. Cardiovascular events (MI, stroke, and cardiovascular death) were documented at 6 months after the initial event. The authors found that 64.8% of patients reported smoking cessation, and 29.9% of patients reported adherence to both diet and exercise modification at 30 days. Risk-adjusted analysis, including adjustment for percutaneous coronary intervention or coronary artery bypass grafting before 30 days and secondary preventive medication use at 30 days, revealed a significant decrease in risk for MI at 6 months with smoking cessation (OR 0.57) and in risk for overall cardiovascular events at 6 months for the combination of diet and exercise modification (OR 0.46). A 3.8-fold (95% CI 2.5 to 5.9) increased risk of cardiovascular events at 6 months was noted in patients with persistent smoking and nonadherence to diet and exercise compared with never-smokers and those who adhered to both diet and exercise modification. Although significantly limited by the fact that compliance with behavioral change was based on patient self-report, the marked improvement in cardiovascular morbidity and mortality seen with lifestyle modification in the ACS population is a novel and compelling finding. The ability to affect secondary prevention outcomes in the acute setting should raise a new level of focus on the timely initiation of behavioral modification after MI, similar to what is currently done with acute pharmacological intervention. Furthermore, the low rates of smoking cessation and diet/exercise adherence found in this analysis are a glaring demonstration of the current ineffectiveness of our healthcare system to enact these beneficial changes.

The challenge to today’s physician is to efficiently and effectively provide the tools necessary to enable ACS patients to reap the rewards of good behavior. With a captive audience, there is no better time for the educational process toward lifestyle change to begin than during the period before hospital discharge. On the basis of this concept, the American Heart Association has created the Get With the Guidelines initiative,6 a program that assists multidisciplinary hospital teams in enacting systems changes to improve compliance with American College of Cardiology/American Heart Association guidelines, including acute/discharge pharmacological therapy, smoking cessation counseling, dietary counseling, and cardiac rehabilitation referral, before hospital discharge. The core of the program is a World Wide Web–based patient management tool that allows hospitals to track the impact of systems changes and modify programs on the basis of actual results. Improvement in core guideline adherence has been shown consistently by participation in the Get With the Guidelines program, with improvement in adherence rates greater than 2-fold in certain measures.7 Translation of

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From the Department of Medicine and Section of Cardiology, Boston Medical Center, Boston University School of Medicine, Boston, Mass.

Correspondence to Gary J. Balady, MD, Section of Cardiology, Boston Medical Center, 88 East Newton St, Boston, MA 02118. E-mail gary.balady@bmc.org

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focused guideline adherence to improvement of in-hospital outcomes has similarly been shown; however, improvement in postdischarge outcomes has yet to be determined.

The difficulty of lifestyle modification after hospital discharge resides in the daunting task of conversion of counseling into actual behavior change. In today’s healthcare system, in which direct outpatient physician contact is limited, patients can often feel isolated in their efforts to modify behavior, which leads to poor results. As such, the role of the cardiac rehabilitation program has become central to bridging the gap from successful guideline-focused in-hospital care to lifelong sustained behavioral change. The modern cardiac rehabilitation program has evolved tremendously from simply an exercise training program alone and has now taken on the extended title of secondary prevention program. Current American Heart Association recommendations call for the core components of a cardiac rehabilitation/secondary prevention (CRSP) program to include nutritional counseling, risk factor management (lipids, blood pressure, weight, diabetes mellitus, and smoking), psychosocial interventions, physical activity counseling, and exercise training. With this multifaceted approach, CRSP programs have been associated with up to a 56% improvement in survival after MI and a 28% reduction in risk of recurrent MI, benefits that persist despite age, gender, and ethnic background. Furthermore, the benefit of CRSP has been found to be “dose dependent,” with patients who attend all 36 of the Medicare-covered sessions having a 14%, 22%, and 47% lower risk of mortality than those who attended 24 sessions, 12 sessions, and 1 session, respectively.

Despite the clear benefits of cardiac rehabilitation, use of such programs remains dismal low. In the Medicare population, Suaya et al found that only 13.9% of patients hospitalized for acute MI enrolled in a CRSP program and that older individuals, women, nonwhites, and patients with comorbidities were significantly less likely to enroll. A prerequisite to CRSP program enrollment is patient referral to such a program, and in the managed care setting, referral rates have been found to be as low as 24% after hospitalization for ACS. With initiation of the Get With the Guidelines program, referral rates have improved tremendously, with reports of up to a 73% referral rate; however, referral to the CRSP program does not appear to be the panacea to the enrollment problem. Mazzini et al found in a single-center study that although a Get With the Guidelines approach improved CRSP program referral to 55% of acute MI patients, only 33% of those referred actually enrolled in the program after discharge. Multivariate analysis revealed ethnicity to be the only variable associated with lower enrollment (Hispanic and black patients had 92% and 57%, respectively, lower odds of enrollment than white patients). Reasons for nonenrollment based on the questionnaire included need to return to work, lack of interest in the program, and patient perception that they were never referred.

The question looms as to how to improve CRSP enrollment, and the answer remains elusive. Clearly, the inherent bias against elderly adults, women, and ethnic groups must be mitigated, although the driving force behind this partiality is not clear because standardized referral does not appear to solve the problem. Patient-driven factors, including perception of need, accessibility, and time commitment, are clear areas for improvement, and randomized trials are under way to investigate the impact of direct physician counseling before hospital discharge on the benefits of rehabilitation, home/Internet-based rehabilitation programs, and psychosocial sessions to alter patient perceptions regarding control over their disease process.

The present report by Chow et al serves to highlight the novel importance of lifestyle modification to the ACS patient. Although a successful CRSP program can lay the foundation for beneficial change, the process of behavior modification is lifelong and requires a concerted and cohesive effort from the patient, cardiologist, and primary care provider. Central is the patient’s acceptance of responsibility for their own care, a mental process without which successful change cannot be implemented. In conjunction, the primary care provider and cardiologist are crucial for the continued reinforcement and education necessary for maintenance of healthy behavior in the long term. With the notion of a new era of responsibility as motivation, this team approach holds great promise to allow patients to truly reap the rewards of good behavior.

Disclosures
None.

References


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