

Secondary Prevention After Coronary Bypass: The American Heart Association “Get With the Guidelines” Program

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Invasive coronary procedures such as coronary artery bypass grafting (CABG) and percutaneous transluminal coronary angioplasty (PTCA) have changed the face of cardiac care, providing significant improvements in survival and quality of life for patients with coronary artery disease (CAD). In 1999 there were almost 1 million invasive procedures performed in the United States [1] and their clinical benefit has been demonstrated in a multitude of investigations. The importance of these procedures is clear but they do not exist in isolation—their foundation lies in the medical therapy that should be optimized in all patients with CAD.

Although the importance of optimal medical therapy is self-evident, a large body of literature demonstrates its underutilization in patients with vascular disease [2–5]. This treatment gap indicates we are not providing medical therapy for patients who need it most. In this review we discuss medical therapies known to alter the atherosclerotic process based on the secondary prevention guidelines of the American Heart Association (AHA) and the American College of Cardiology (ACC). We also introduce a nationwide program from the AHA called “Get with the Guidelines,” the goal of which is to assure that all patients with known vascular disease are discharged from the hospital with the secondary prevention guidelines addressed.

Secondary Prevention Guidelines

The AHA and ACC have published detailed secondary prevention guidelines for medical therapy in patients with vascular disease (Table 1) that include specific drug recommendations (antithrombotics, beta blockers, angiotension-converting enzyme [ACE] inhibitors, and lipid agents), disease management (diabetes, hypertension), and lifestyle changes (exercise, smoking cessation, weight management). The most recent guideline iteration addresses new data and recommendations from other national organizations [6]. Changes from previous guidelines include (1) considering ACE inhibitors for all patients with atherosclerotic disease, (2) considering diabetic patients as “vascular disease equivalents” for the purposes of lipid therapy, (3) establishing a new goal for

blood pressure in diabetic patients, 130/80 mm Hg, (4) recommending a more conservative body mass index (lower limit 18.5 kg/m²), and (5) removing estrogen recommendations.

Further, the guidelines now strongly support the concept that these medical therapies should be started in the hospital during a patient’s acute coronary event or vascular procedure. These recommendations are based on compelling data indicating that in-hospital initiation of medical therapy can improve patient compliance and outcomes [7–10].

Adherence to Published Guidelines

The publication of a guideline does not mean that recommendations will automatically be translated into daily practice, a fact clearly demonstrated with the implementation of the atherosclerotic secondary prevention guidelines [2–5]. Table 1 demonstrates that adherence to the AHA/ACC guidelines varies between 10% and 90%. Many reasons are described for this lack of adherence to guidelines [11, 12]. Lack of knowledge, information overload, poor documentation, and forgetfulness, among many others, have all been enumerated as causes for poor adherence. To cite an example, although 95% of a group of physicians were aware of specific guidelines for cholesterol lowering, only 18% of the same physicians’ patients were at NCEP recommended low-density lipoprotein cholesterol goals [2].

The fact remains that implementation of the secondary prevention guidelines can have a huge impact on the outcome of our patients with vascular disease and we are thus obliged to specifically address known deficiencies in medical therapy. The question remains, how—exactly—can we do this?

AHA “Get With the Guidelines” Program

Because of the demonstrated treatment gap in patients with vascular disease and the evidence that hospital-based systems can markedly improve treatment rates and outcomes, the AHA initiated a program entitled “Get with the Guidelines” (GWTG). The goal of GWTG is to assure that all patients with vascular disease in an acute

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Table 1. AHA/ACC Guidelines for Secondary Prevention

Risk/Therapy	Long-Term Goal	GWTG Goal	Compliance Rates
Antithrombotics	Aspirin 75 to 325 mg/day Warfarin INR 2.0–3.0	Drug therapy initiated	56%–84%
Beta blockers	Indefinitely for post-MI and ischemic syndrome patients	Drug therapy initiated	17%–73%
ACE inhibitors	Indefinitely for post-MI and CHF; consider for all vascular patients	Drug therapy initiated	24%
Lipids	Low-density lipoprotein < 100	Drug therapy initiated	31.7%
Diabetes	Hemoglobin A1c < 7%	Drug therapy initiated	45%
Hypertension	Blood pressure (mm Hg) <140/90 for most patients <130/85 for CHF or renal failure <130/80 for diabetes	< 140/90 on discharge	25%
Smoking	Complete cessation	Counseling	48%
Physical activity	30 min, 3–4 times per week	Counseling	19%–42%
Weight management	18.5 ≤ BMI ≤ 24.9	Counseling	10.4%

The first column is the risk factor or therapy to be addressed, the second column is the specific recommended goal, and the third column is the Get With the Guidelines (GWTG) goal prior to hospital discharge. Column four is the rate of compliance from various studies in the medical literature.

ACE = angiotensin-converting enzyme; AHA/ACC = American Heart Association/American College of Cardiology; BMI = body mass index; CHF = congestive heart failure; INR = international normalized ratio; MI = myocardial infarction.

care hospital are discharged with the nine guidelines addressed and well-documented.

It is important to emphasize that GWTG at present focuses on assuring that patients being discharged from the hospital have the guidelines addressed. That is, the goals of GWTG are (1) initiating drug therapy, (2) counseling regarding lifestyle changes, and (3) achieving a blood pressure of less than 140/90 mm Hg—all before discharge. The third column of Table 1 gives the specific goals of the GWTG program with respect to each of the nine measures. In the future GWTG may become more involved in outpatient care and achieving all of the specific secondary prevention goals but for now the primary focus is the time of hospital discharge.

In May 2000 a pilot program of GWTG was initiated with the New England Affiliate of the AHA. In Massachusetts 24 multidisciplinary teams participated in a conference that was divided into a didactic session consisting of a review of guidelines and potential implementation methods and a goal-oriented interactive session in which small groups were organized to allow the participants to develop implementation plans for their particular settings. Since then the New England group has held two additional meetings and the number of participating hospitals has grown to 52.

Many hospitals have demonstrated significant improvements in guideline implementation in a variety of areas of cardiovascular care. As an example one rural Massachusetts teaching hospital attained a 100% success rate in applying all of the nine guidelines to its patients with coronary artery disease. Because of the success of the New England pilot program the AHA national organization approved GWTG to be rolled out across the United States and is now being initiated in all regions of the country.

Implementation in Cardiac Surgery

Cardiovascular surgical programs are ideal locations for GWTG. Post-CABG patients (or any vascular surgery patient) are in a controlled environment in which patient and family education is easier and both patient and family are motivated to make changes in their lives given the procedure that they have just undergone. Most post-CABG patients also have a “standard” postoperative course that is easily modifiable by a series of clinician reminders, standard orders, and other systems that assure all patients with vascular disease are discharged with the nine guidelines addressed.

To cite a specific example the Division of Cardiothoracic Surgery at Cedars-Sinai Medical Center has been successful in achieving significant improvements in medical therapy after CABG. Through educational programs (physicians, physician assistants, nurses, residents, and cardiology fellows), reminders, changes in standard orders, and a computerized discharge system they have been able to increase their appropriate treatment rate to exceed 90% (Fig 1). Clearly some of the deficiencies were poor documentation but GWTG addresses these issues. We believe that this type of progress is possible in all cardiovascular surgery programs of all sizes.

The Future

Implementation of optimal medical care in vascular disease patients can provide significant survival and quality of life benefits, and through GWTG the AHA is attempting to mobilize medical communities throughout the country to join the effort. A variety of national, regional, and local organizations have joined the GWTG program to achieve these goals. Lipid organizations, governmental public health divisions, state medical organizations, and

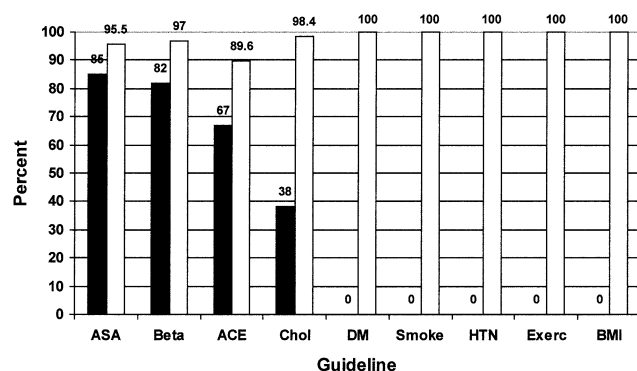


Fig 1. Proportion of patients discharged on the nine guidelines after coronary artery bypass graft surgery, before (black bar, $n = 93$) and after (white bar, $n = 67$) the "Get With the Guidelines" program was implemented in the Cedars-Sinai Medical Center Division of Cardiothoracic Surgery. (ACE = angiotensin-inhibiting enzyme inhibitor; ASA = aspirin; Beta = beta blocker; BMI = body mass index; Chol = cholesterol-lowering agent; DM = diabetes mellitus; Exerc = exercise; HTN = hypertension; Smoke = smoking cessation.)

many others are participating in the GWTG program. We believe that the cardiovascular surgery community in general and the Society of Thoracic Surgeons (STS) in particular would be a formidable addition to GWTG.

Participation might occur at various levels. First, the STS might encourage all members to participate directly in the regional and national GWTG efforts. That would include STS participation in the national and regional meetings in addition to serving as local experts on optimizing medical care. Second, the STS as an organization might consider modifying the national database to include the nine guidelines as measures of in-hospital quality of care—to be tracked and reported, just like mortality and morbidity. Furthermore all cardiovascular surgeons—irrespective of their direct involvement in the GWTG program—could provide even more patient benefit by assuring that when a patient leaves their care, the patient has received every beneficial therapy, both surgical and medical.

Historically cardiovascular surgeons have always been at the forefront of care—in developing new technology, in moving that technology to the bedside, and in proving

that a new technology can provide significant benefit. The cardiovascular surgical community would be a major addition to the GWTG effort locally, regionally, nationally, and on the individual patient level. Please join us.

References

1. Popvic JR. 1999 National hospital discharge survey: annual summary with detailed diagnosis and procedure data. *Vital Health Stat* 2001;13.
2. Pearson TA, Laurora I, Chu H, Kafonek S. The lipid treatment assessment project (L-TAP): a multicenter survey to evaluate the percentages of dyslipidemic patients receiving lipid-lowering therapy and achieving low-density lipoprotein cholesterol goals. *Arch Intern Med* 2000;160:459–67.
3. Pearson TA, Peters TD. The treatment gap in coronary artery disease and heart failure: community standards and the post-discharge patient. *Am J Cardiol* 1997;80:45H–52H.
4. Abookire SA, Karson AS, Fiskio J, et al. Use and monitoring of "statin" lipid-lowering drugs compared with guidelines. *Arch Intern Med* 2001;161:53–8.
5. Muhlestein JB, Horne BD, Bair TL, et al. Usefulness of in-hospital prescription of statin agents after angiographic diagnosis of coronary artery disease in improving compliance and reduced mortality. *Am J Cardiol* 2001;87:256–61.
6. Smith SC, Blair SN, Bonow RO, et al. AHA/ACC guidelines for preventing heart attack and death in patients with atherosclerotic cardiovascular disease: 2001 update. *Circulation* 2001;104:1577–9.
7. Grundy SM, Balady GJ, Criqui MH, et al. When to start cholesterol-lowering therapy in patients with coronary heart disease. A statement for healthcare professionals from the American Heart Association task force on risk reduction. *Circulation* 1997;95:1683–5.
8. Fonarow GC, Gawlinski A, Moughrabi S, Tillisch JH. Improved treatment of coronary heart disease by implementation of a cardiac hospitalization atherosclerosis management program (CHAMP). *Am J Cardiol* 2001;87:819–22.
9. Roberts CS. Postoperative drug therapy to extend survival after coronary artery bypass grafting. *Ann Thorac Surg* 2000;69:1315–6.
10. Schwartz GG, Olsson AG, Ezekowitz MD, et al, the Myocardial Ischemia Reduction with Aggressive Cholesterol Lowering (MIRACL) Study Investigators. Effects of atorvastatin on early recurrent ischemic events in acute coronary syndromes. The MIRACL study: a randomized controlled trial. *JAMA* 2001;285:1711–8.
11. Larne AC, Pugh JA. Attitudes of primary care providers toward diabetes: barriers to guideline implementation. *Diabetes Care* 1998;21:1391–6.
12. Smith WR. Evidence for the effectiveness of techniques to change physician behavior. *Chest* 2000;118:8S–17S.