



# Coronary Artery Bypass Grafting - Are We Getting With The Program?



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## Abstract

### Background

In 1995 the American Heart Association (AHA) published guidelines (updated in 2001) for treatment of patients with coronary artery disease to minimize the recurrence of future cardiac events. The article recommended that all patients should be discharged on appropriate medications, to include a beta-blocker, ACE inhibitor, aspirin or other anti-platelet medication and cholesterol-lowering medication when appropriate. This study examines the medicines prescribed at discharge for patients hospitalized for coronary artery bypass grafting (CABG).

### Methods

Using our STS certified research database, data was exported on 6914 patients undergoing CABG between Jan 2000 and July 2003. Data was analyzed for the use of beta-blockers, ACE inhibitors, aspirin (or other anti-platelet drug) and cholesterol lowering agent measured at discharge after surgery.

### Results

At discharge 10.3% of these patients were prescribed all four classes of drugs and a further 34.2% received 3 of the drugs (4.3% had no drugs prescribed). Table 1 shows the data stratified by various parameters.

Of all patients receiving only 1 drug at discharge, 86% were given an aspirin (including other antiplatelet) medication. For those being prescribed 2 drugs, 96.0% received aspirin, while beta-blockers were prescribed to 56.9% and cholesterol lowering agents to 32.3% of the patients. In 3 drug regimens, aspirin was used 99.1% of the time, cholesterol lowering agents for 87.1% of patients and beta-blockers for 84.4%. Only 29.4% received a prescription for an ACE-inhibitor.

### Conclusions

Despite published recommendations of the AHA regarding appropriate medication guidelines only 44.5% of patients being discharged after CABG received prescriptions for the recommended drug regimen.

## Background

Invasive coronary procedures should not exist in isolation, but need to be combined with appropriate medical therapy. Despite this, the literature demonstrates underutilization of medical therapies in patients with vascular disease. Since studies show that the in-hospital initiation of medical therapy improves patient compliance, the AHA and ACC have published guidelines recommending medication and lifestyle changes that should be initiated before discharge. We studied a large group of our patients to see how well we were "Getting with the Guidelines".

## AHA/ACC Guidelines for Secondary Prevention

- AHA/ACC Guidelines published in 1995
- Updated 2001
- Publication of the guidelines does not translate into clinical practice
- Compliance occurs slowly
- Review of literature for compliance with Guidelines - results for individual therapies in Table 1.

## Table 1

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

T.A. Denton, MD, G.C. Fonarow, MD, K.A. LaBresh, MD and A. Trento, MD.: "Secondary Prevention After Coronary Bypass: The American Heart Association 'Get With the Guidelines' Program." Ann Thorac Surg 2003; 75; 758-60 (editorial)

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

## The Study

- Study group: 6914 patients undergoing CABG
- Data from 22 surgeons practicing at 18 different hospitals
- STS approved database used for clinical research data
- Jan 2000 to July 2003
- Analyze for medication at discharge after surgery, including beta-blockers, ACE inhibitors, Aspirin (or other anti-platelet drug) and cholesterol lowering agent
- Study use of therapies for multiple risks rather than individual compliance

## Findings (Results)

Group	% with 4 drugs	% with 3 drugs
2000	5.9	29.3
2001	10.9	34.1
2002	15.0	37.7
2003	11.4	42.4
Females / Males	9.0 / 10.8	31.9 / 35.0
Caucasian	9.6	34.2
African-American	18.6	31.8
Hispanic	15.1	32.0
Other	17.3	38.9
On-pump / Off-pump	10.2 / 10.6	32.7 / 36.3

## Conclusions

Compliance with the Guidelines is under 40% for a three drug regimen and falls to under 20% looking at the four recommended drug classes.

A slow but steady increase in compliance is evident over the study period.

Compliance with published guidelines for prescribed discharge medications is similar for the various demographic groupings studied.

Since these guidelines are evidence based, improved compliance should be the goal of all clinical practices.

## Compliance Issues

Lack of adherence to guidelines has many causes: lack of knowledge, information overload, poor documentation, forgetfulness, and other factors have been cited for poor compliance.

Post-CABG patients are in a controlled environment in which patient and family education is easier and motivation is high to make changes in their lives given what they have just gone through.

CV surgery programs are ideal locations for "Getting with the Guidelines".