

is conflicting evidence whether aspirin can prevent ischemic stroke (Class IIb recommendation).

Future trials of primary and secondary prevention strategies in CVD should enroll diverse populations of female patients. With additional evidence, guidelines can be refined further to meet the specific needs of women who are at risk for adverse cardiovascular outcomes.

Further reading: Masca L et al. *Circulation* 2011.

## New Revascularization Guidelines Focus on Collaborative Care

Written by Anne Jacobson

On November 7, 2011, the American College of Cardiology Foundation (ACCF), the American Heart Association (AHA), and the Society for Cardiovascular Angiography and Interventions (SCAI) published updated guidelines for the management of percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG) [Levine G et al. *JACC* 2001; Hillis D et al. *JACC* 2011]. Peter K. Smith, MD, Duke University Medical Center, Durham, North Carolina, USA, moderated a session that reviewed key updates. Selected recommendations from the guidelines are summarized in this article. The online version of the complete report, along with updated information and services, can be found at: <http://circ.ahajournals.org/content/early/2011/11/07/CIR.0b013e31823ba622.citation>.

The updated ACCF/AHA/SCAI guidelines for PCI and CABG emphasize the role of multidisciplinary heart teams that work together to develop a cardiac care plan for patients with coronary artery disease (CAD). Within this multidisciplinary model, cardiac surgeons and interventional cardiologists collaborate to review the patient's coronary anatomy and presenting symptoms to determine the appropriateness of PCI and/or CABG. The heart team concept is included as a Class I recommendation for patients with unprotected left main or complex CAD.

The new revascularization guidelines also recommend using the Synergy between PCI with TAXUS and Cardiac Surgery (SYNTAX) score [[www.syntaxscore.com](http://www.syntaxscore.com)] in conjunction with the Society of Thoracic Surgeons (STS) surgical risk score [<http://209.220.160.181/STWebRiskCalc261/de.aspx>] when planning treatment for patients with multivessel disease (Class IIa; Level of Evidence [LOE]: B). By incorporating angiography results to estimate the extent and complexity of arterial

disease, the SYNTAX scoring system provides an objective approach to guide the selection of revascularization strategies. By also utilizing the STS risk score, the risk/benefit comparison of the two procedures is placed in perspective for the heart team.

Based on recent clinical trial evidence, PCI to improve survival is reasonable as an alternative to CABG in selected stable patients with significant ( $\geq 50\%$  diameter stenosis) unprotected left main CAD with: 1) anatomical conditions that are associated with a low risk of PCI procedural complications and a high likelihood of good long-term outcome (eg, a low SYNTAX score [ $\leq 22$ ], ostial or trunk left main CAD); and 2) clinical characteristics that predict a significantly increased risk of adverse surgical outcomes (eg, STS predicted risk of operative mortality  $\geq 5\%$ ) (Class IIa; LOE: B).

PCI to improve survival may be a reasonable alternative to CABG in selected stable patients with significant ( $\geq 50\%$  diameter stenosis) unprotected left main CAD with: 1) anatomical conditions that are associated with a low to intermediate risk of PCI procedural complications and an intermediate to high likelihood of good long-term outcome (eg, low-intermediate SYNTAX score of  $< 33$ , bifurcation left main CAD) [Genereux P et al. *Circ Cardiovasc Interv* 2011]; and 2) clinical characteristics that predict an increased risk of adverse surgical outcomes (eg, moderate-severe chronic obstructive pulmonary disease, disability from previous stroke, or previous cardiac surgery; STS [[www.sts.org](http://www.sts.org)]-predicted risk of operative mortality  $> 2\%$ ) (Class IIb; LOE: B). However, for patients with three-vessel disease, the updated guidelines reaffirm the superiority of CABG compared with both PCI and medical therapy (Class IIa; LOE: B).

The updated PCI guideline includes new guidance on optimal antiplatelet therapy (APT). Ticagrelor treatment for at least 12 months following insertion of a drug-eluting or bare metal stent is now included as a Class I recommendation. The guideline also recommends a simplified aspirin regimen (81 mg daily for all patients) following PCI, rather than higher maintenance doses, based on type of stent that is used, that could be reduced in the long term (Class IIa; LOE: B).

Recommendations for APT before and after CABG have also been updated. All patients who undergo CABG should be given aspirin preoperatively. For patients who are undergoing elective CABG, treatment with clopidogrel and ticagrelor should be discontinued 5 days prior to surgery. In cases of emergency CABG, these agents should be discontinued for at least 24 hours before surgery when possible. After surgery, aspirin should be restarted within

the first 6 hours, if it was not already initiated before the procedure. For those patients who are allergic to aspirin, clopidogrel is a reasonable alternative for postoperative APT. After CABG, patients should be restarted on aspirin therapy prior to discharge as well as prescribed other evidence-based cardioprotective therapies, such as statins, ACE inhibitors, and  $\beta$ -blockers 33, if they do not have contraindications.

The new 2011 guideline also expands on and adds to recommendations on numerous other topics including recommendations on statin therapy, the use of vascular closure devices, PCI in hospitals without on-site surgical backup, and coronary stenting.

PCI might be considered in hospitals without onsite cardiac surgery facilities, provided that appropriate planning for program development has been accomplished and that rigorous clinical and angiographic criteria are used for proper patient selection (Class IIb; LOE: B).

The use of radial artery access can be useful in decreasing access site complications. Radial artery access is particularly appealing in patients with coagulopathy, elevated international normalized ratio due to warfarin, or morbid obesity (Class IIa; LOE: A).

Drug-eluting stents are useful as an alternative to bare metal stents to reduce the risk of restenosis in cases in which the risk of restenosis is increased and the patient is likely to be able to tolerate and comply with prolonged dual APT (Class I; LOE: A for elective PCI; LOE: C for UA/NSTEMI; LOE: A for STEMI).

Implementing new guideline recommendations into daily practice is challenging for many clinicians, said David Faxon, MD, Brigham and Women's Hospital, Boston, Massachusetts, USA. The 2011 ACCF/AHA/SCAI guideline updates for PCI and CABG include 163 and 156 individual recommendations, respectively. Several tools are available to help health care professionals implement new standards of cardiac care, such as the AHA Get with the Guidelines initiative ([http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelines-Resuscitation/Get-With-The-Guidelines-Resuscitation\\_UCM\\_314496\\_SubHomePage.jsp](http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelines-Resuscitation/Get-With-The-Guidelines-Resuscitation_UCM_314496_SubHomePage.jsp)), national registry programs that track patient outcomes and define new benchmarks, and electronic medical records that provide real-time feedback and documentation. Putting the 2011 ACCF/AHA/SCAI PCI and CABG guidelines into practice will require multidisciplinary approaches and collaboration among all members of the heart care team.



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