American College of Cardiology/American Heart Association 2016 dual antiplatelet therapy (DAPT) focused update: Implications for surgeons

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Patients with acute coronary syndrome (ACS), myocardial infarction (STEMI), percutaneous coronary intervention (PCI), stable ischemic heart disease (SIHD), and non-ST-elevation acute coronary syndrome (NSTEMI-ACS) are often treated with dual antiplatelet therapy (DAPT). The guidelines for the duration of DAPT therapy, specific drugs, and dosing are aimed at reducing ischemic risk and minimizing bleeding episodes.¹⁻⁷

DAPT has significant implications for cardiac surgeons caring for these patients. Several clinical scenarios are common. Should DAPT be stopped preoperatively to minimize postoperative bleeding complications? When should DAPT be restarted postoperatively? Finally, what is the role of DAPT after coronary bypass grafting (CABG) when the patient was not receiving these medications preoperatively?

The 2016 American College of Cardiology (ACC)/American Heart Association (AHA) focused DAPT update is based on the results of numerous recent studies on the duration of therapy, mono versus dual therapy, and specific indications for DAPT.⁸⁻²¹ The dual combination is primarily aspirin (81 mg) and a P2Y₁₂ receptor inhibitor (clopidogrel, prasugrel, or ticagrelor).

The update replaces recommendations made in 6 previous versions of the guidelines and includes recommendations for DAPT after CABG.¹⁻⁷ Six guideline working groups determined the class of recommendation (COR) and level of evidence (LOE) for each recommendation using the 2015 ACC/AHA COR/LOE system.^{1,7,8}

The basic principles are as follows:

- Intensity of therapy is a risk/benefit ratio of decreasing ischemic risk and increasing bleeding risk.
- Shorter duration of DAPT can be considered for patients at lower ischemic risk with a higher bleeding risk.
- Indications for DAPT are similar for NSTEMI-MI, ACS and STEMI (ie, all part of the ACS spectrum).
- DAPT is a COR:I recommendation (“should be given”) for therapy in most clinical settings for at least 6 to 12 months

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Central Message

This is the work product from 6 guideline working groups updating information on dual antiplatelet therapy, percutaneous coronary interventions, stable ischemic heart disease, and acute coronary syndrome. This commentary outlines the relevant information that has been vetted based on new clinical trial evidence.

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and a COR: IIB recommendation (“may be reasonable”) for therapy beyond 6 to 12 months. Duration of prolonged therapy and true optimal duration are unknown.

- Aspirin therapy almost always should be continued indefinitely in patients with CAD. Lower aspirin doses decrease the risk of bleeding complications with comparable ischemic protection. COR: I; LOE: B-NR.

The following factors are considered when evaluating the risk of bleeding: CHA₂DS₂-VASc (congestive heart failure, hypertension, age, diabetes mellitus, prior stroke or transient ischemic attack or thromboembolism) and HAS-BLED (hypertension, abnormal renal and liver function, stroke, bleeding, labile international normalized ratios, elderly, drugs or alcohol) scores.

- The use of triple therapy (ie, DAPT and coumadin). This should be used for as short a time as possible, with a target international normalized ratio of 2.0 to 2.5.

- Aspirin dose. Low-dose aspirin reduces bleeding risk and is as effective as higher doses.
- Clopidogrel as the P2Y₁₂ inhibitor of choice.
- A proton pump inhibitor should be considered in patients at risk for gastrointestinal bleeding.

CABG RECOMMENDATIONS

The use of ASA treatment to improve 1-year vein graft patency and to reduce major adverse cardiovascular events has been a standard of practice since the work of Chesebro and colleagues published in 1984.²² The postoperative use of DAPT in patients with a previously placed patent stent is a common clinical practice. The decision when to discontinue aspirin and/or P2Y₁₂ inhibitor before elective CABG surgery is a clinical judgment based on the risks of ischemia versus postoperative bleeding.^{23,24}

The evidence-based recommendations for the postoperative use of DAPT in patients not taking these drugs preoperatively are not clear based on the literature. The impact of clopidogrel on graft occlusion after on-pump CABG in both randomized and nonrandomized studies has failed to demonstrate a benefit for DAPT over treatment with aspirin alone up to 1 year of follow-up. One randomized controlled trial did show better graft patency with DAPT compared with aspirin monotherapy at 3 months. A meta-analysis from 5 randomized controlled trials have reported mixed results as well. The patients who received DAPT clearly experienced more major bleeding, with no improvement in arterial graft patency.^{23,25-32} DAPT may have its major impact on improved vein graft patency and clinical outcomes in off-pump CABG surgery.^{33,34}

Thus, the recommendations are summarized as follows:

1. In patients undergoing CABG after coronary stent implantation, P2Y₁₂ inhibitor therapy should be resumed for the recommended duration of DAPT. COR: I; LOE: C-EO (consensus expert opinion).
2. In patients with ACS (NSTEMI, ACS, or STEMI) receiving DAPT before CABG, DAPT should be continued to the completion of 12 months of therapy. COR: I; LOE: C-LD (limited data).
3. Aspirin 81 mg/day is recommended in all patients with CABG. COR: I; LOE: B-NR (nonrandomized).
4. In patients undergoing CABG for SIHD, DAPT with aspirin and clopidogrel for 12 months may be reasonable to improve graft patency. COR: IIb; LOE: B-NR.

In conclusion, DAPT therapy continues to evolve in patients with coronary artery disease treated with surgery and/or PCI. The cardiac surgeon has the responsibility to continue preoperative therapy. The evidence for adding a P2Y₁₂ inhibitor to aspirin in patients not receiving these drugs preoperatively will continue to evolve as future trials

aim to provide the best evidence to help reduce ischemic events and bleeding risks.

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