CAUTION: MAINTAIN ANTI-PLATELET THERAPY IN PATIENTS WITH CORONARY ARTERY STENTS

A recent science advisory from the American Heart Association, American College of Cardiology, Society for Cardiovascular Angiography and Interventions, American College of Surgeons, and the American Dental Association with representation of the American College of Physicians states that coronary artery stent thrombosis is a very serious problem.* Their new advisory states that dual antiplatelet therapy consisting of aspirin and a thienopyridine drug such as clopidogrel (Plavix) or ticlopidine (Ticlid) should be given for at least a full year and perhaps even longer following certain types of stent placements for patients without major risk for bleeding. The leading adverse event associated with early discontinuation of dual antiplatelet therapy is stent thrombosis, leading to an acute myocardial infarction with a 25 to 40% mortality rate. Premature discontinuation of the dual therapy is the single greatest predictor of stent thrombosis. Patients at even higher risk for stent thrombosis such as those with acute coronary syndromes, long stents, overlapping stents, diabetes, low ejection fraction, advanced age, and renal failure may need antiplatelet therapy for even longer, perhaps indefinitely.

There are two basic types of stents. Bare metal stents tend to allow growth of endothelial tissue to line the metal lumen in about 1 to 3 months. Until that occurs, the stent would thrombose were it not for dual antiplatelet therapy to keep it patent. Once the bare metal is covered, there is a decreased potential for stent thrombosis and hence, antiplatelet therapy was thought to be less important after the 1- to 3-month healing period. Some believe that it may actually take longer, as late stent thrombosis sometimes occurs after discontinuation of antiplatelet therapy. Another problem with bare metal stents is that the tissue may continue to overgrow and eventually occlude the stent. To overcome that problem, drugs are imbedded in the stents to slow the growth of the endothelial lining, but of course that also slows down the rate of healing. These second generation "drug-eluting stents" (DES)

therefore require longer periods of dual antiplatelet therapy, up to a year or more. They are more likely to be involved in stent thrombosis if antiplatelet therapy is interrupted during the first year. In a study of 652 patients with a DES, premature discontinuation of clopidogrel was associated with a 30-fold increased risk of stent thrombosis. Greater than 25% of patients who stopped clopidogrel in the first month suffered stent thrombosis. In another study of 500 patients who had DES placed after having an acute myocardial infarction, 7.5% died in the first 11 months if they stopped therapy compared with 0.7% who did not stop. While there are some differences in the drugs placed in different manufacturer's stents (sirolimus, paclitaxel), DES have a longer period where late-stent thrombosis is likely to occur compared with bare metal stents.

Many anesthesiologists and surgeons prefer to postpone purely elective surgery for 3 months for patients with bare metal stents and for 12 months with DES. However, for urgent procedures during the critical healing period, they never discontinue aspirin and often have their patients remain on clopidogrel or ticlopidine as well. Also, if noncardiac surgery is anticipated to be performed soon after stent placement, the bare metal stent is preferred because the critical healing period is shorter.

Substituting warfarin (Coumadin) plus aspirin for clopidogrel plus aspirin appears not to be a good choice, because there is a 5-fold increase in stent thrombosis with the warfarin-aspirin combination. Although there are no sound data to recommend "bridging therapy" with short-acting intravenous glycoprotein II b/III a inhibitors, hospitalization for this antiplatelet substitute may be reasonable if the surgeon refuses to operate on a patient taking clopidogrel. When antiplatelet therapy was discontinued for patients with stents during the critical healing period, almost all adverse case reports involved ST-elevation myocardial infarctions postoperatively, most of which were in the postanesthesia recovery area. Therefore, if for whatever reason the antiplatelet drugs for these patients are not maintained, the surgery should probably take place in a hospital where a coronary artery catheter lab is immediately available in case stent thrombosis occurs.

For those who provide surgery and anesthesia in dental offices, this report has many very important implications. First of all, the dentist must know what type of stent was placed, when it was placed, and whether the patient has been compliant with the antiplatelet therapy in order for the operating dentist or the dentist anesthesiologist to make an accurate assessment of the patient's risk: benefit ratio for the planned procedures. Of course, all of these data must be carefully documented in the patient's past medical history in

*Grines, CL, Bonow RO, Casey DE Jr, et al. Prevention of premature discontinuation of dual antiplatelet therapy in patients with coronary artery stents: a science advisory from the American Heart Association, American College of Cardiology, Society for Cardiovascular Angiography and Interventions, American College of Surgeons, and American Dental Association, with representation from the American College of Physicians.

case a medical-legal issue develops. In general, for the vast majority of dental procedures performed in the office including extractions, maintaining these patients on their antiplatelet medications seems reasonable, especially during the critical stent-healing period. Since their medication compliance is so important for patients with stents, the dentist must reinforce the importance of the patients taking their medications without interruption during the perioperative period. If they have not been compliant with their medications for several days and are still asymptomatic, it would seem reasonable to reinstitute the medications and to postpone the procedure for 3 to 5 days to allow the effects of the drugs to attain steady-state. If the patient has merely skipped the morning dose because of a misunderstanding about “nothing by mouth” directions, the dentist should give the drugs with a sip of water and proceed or perhaps delay the procedure for a few hours. The dentist may expect more bleeding and therefore should consider using multiple local measures, such as sutures, absorbable gelatin sponges, purified bovine collagen, to help decrease blood loss following extraction of teeth and perhaps give periodontal ligament or intraosseous local anesthetic injections in the mandible rather than deep nerve blocks. Patients should be cautioned

preoperatively that excessive bleeding may occur and that they may require hospitalization and even blood transfusions, but that this is preferable to suffering an acute myocardial infarction and sudden death in the office or at home if the medications are stopped. Written informed consent of the patient concerning all of these adverse outcomes is highly desirable.

Finally, we need to educate medical and dental practitioners who have for years recommended that patients stop taking antiplatelet drugs and warfarin for several days or more before dental surgery and afterwards. Despite these outdated recommendations given to some of our patients, particularly those with stents and prosthetic heart valves, we must realize that it is we who are responsible for proper decision-making to provide the best care for our patients using the most up-to-date scientific information. It seems reasonable to predict that further recommendations will evolve in the future as more outcome studies on patients with stents are reported. That is what continuing education is all about.

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