LETTERS TO THE EDITOR

Coronary Stenting or Percutaneous Transluminal Coronary Angioplasty Prior to Noncardiac Surgery Increases Adverse Perioperative Cardiac Events: The Evidence Is Mounting

The findings of Kalusa et al. (1) support previous evidence that coronary manipulation <90 days before noncardiac surgery (NCS) does not benefit, and may actually harm, patients with coronary disease. In 1997, the American College of Physicians concluded that prophylactic coronary revascularization before NCS had not been shown to decrease short-term mortality (2). They stated that the need for revascularization in such patients should be determined on the same clinical grounds as it would be if they were not undergoing NCS, and that without such indications, patients should proceed directly to surgery. Based on lack of reasonable data supporting preoperative angioplasty, they made similar recommendations regarding prophylactic percutaneous transluminal coronary angioplasty (PTCA), echoing previously published findings of the American College of Cardiology (3).

We retrospectively studied 686 patients who underwent PTCA before NCS, 686 matched surgery patients with uncorrected coronary artery disease (CAD) and 2,155 matched normal control subjects (4). Patients undergoing PTCA had twice the rate of adverse cardiac outcomes as normal subjects, seven times the rate of angina, almost four times the rate of myocardial infarction (MI) and twice the rate of congestive heart failure (CHF). Twenty-six percent of the patients who underwent PTCA <90 days before NCS had adverse cardiac outcomes. The odds ratio of adverse cardiac outcome, angina, CHF and MI in patients with PTCA <90 days before NCS, compared to normal subjects, were 2.8, 26.0, 2.4 and 34.0, respectively. Patients who underwent PTCA within 90 days of NCS suffered twice the rate of perioperative MI compared with patients with uncorrected CAD. Mason et al. (5) and Fleisher et al. (6) found that patients with CAD undergoing vascular surgery without coronary intervention had better outcomes than patients who were revascularized. For nonvascular surgery patients, the risk-to-benefit ratio of coronary revascularization is probably even poorer than these studies suggest, due to lower baseline risks of adverse cardiac outcomes.

Elmore et al. (7) and Huber et al. (8) are often cited as support that PTCA before NCS is “safe.” But Elmore et al. (7) reviewed only 14 patients who had PTCA before NCS, and Huber et al. (8) studied only 50. Neither study is of sufficient size or design to warrant conclusions regarding outcomes in patients who had PTCA versus those who did not. Neither study examined timing of PTCA and NCS.

Systemic autoimmune and inflammatory responses occur after PTCA and stenting, with elevations in C-reactive protein, serum amyloid type A, antinuclear factor and platelet adhesive molecule expression (9–11). Changes persist up to three weeks following PTCA (12). Activation of coagulation and fibrinolysis also occur (13). Restimulation of the autoimmune, inflammatory, coagulation and fibrinolytic systems during NCS may amplify both bleeding and thrombotic complications when surgery occurs soon after coronary intervention.

Several reports suggest that PTCA or stenting increases risks of adverse cardiac outcomes for some patients who undergo subsequent NCS. Until we know more, prophylactic PTCA and stenting prior to NCS should be undertaken with extreme caution if surgery will occur within 90 days. Elective surgery should be postponed whenever possible for a 40–90-day waiting period after coronary intervention.

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REFERENCES