Pharmacists’ role in preventing stent thrombosis

In this issue, Nawarskas and Osborn1 review the paclitaxel drug-eluting stent (DES). The sirolimus and paclitaxel stents have virtually eliminated in-stent restenosis—a common problem with bare-metal stents (BMSs). The average use of DESs during summer 2004 reached approximately 80%.2 This is only one year after marketing of the sirolimus DES was approved by FDA. It is likely that many of these stents are being placed in patients with more complex lesions than those in the trials that gained approval for each DES.

Stents, in general, have a risk of stent thrombosis, which may result in myocardial infarction (MI) or death. Pathologically, stent thrombosis is very different from in-stent restenosis. In-stent restenosis is due to neointimal hyperplasia, the process inhibited by the drugs in DESs. Stent thrombosis involves activation of platelets, leading to a thrombotic occlusion. Long-term use of antiplatelet therapy with aspirin and a thienopyridine such as clopidogrel or ticlopidine is imperative to prevent stent thrombosis. The frequency of stent thrombosis during the SIRIUS and Taxus-IV trials was 0.4% and 0.6%, respectively.3,4 However, these trials and most of the studies of DESs to date were done in patients with single de novo lesions.

A recent meta-analysis of paclitaxel and sirolimus DES trials found that DESs do not increase the risk of stent thrombosis as long as the patient is receiving adequate therapy with a thienopyridine and aspirin.5 Of the patients who had stent thrombosis, many did not receive a thienopyridine or stopped receiving the agent early. Jeremias et al.6 reported their experience with 910 sirolimus DESs in 652 patients, only 28% of whom would have met criteria for the SIRIUS trial.7 Of the 7 patients who developed stent thrombosis, 4 had failed to take aspirin and clopidogrel consistently. Iakovou et al.7 reported that of 17 DES recipients who prematurely discontinued antiplatelet therapy, 5 developed stent thrombosis, and that among all patients who developed stent thrombosis, 45% died.

Stent thrombosis may also occur more than six months after stent implantation. McFadden et al.8 reported four cases of late stent thrombosis occurring soon after discontinuation of antiplatelet therapy in patients with DESs. Three of these patients developed MI.

The product labeling for the sirolimus and paclitaxel stents recommends at least three and six months, respectively, of clopidogrel therapy, in addition to aspirin indefinitely. Most clinicians are prescribing clopidogrel for at least six months, regardless of the brand of DES, because of delayed healing with both DESs.

Pharmacists can help prevent stent thrombosis. They can identify patients likely to be noncompliant or unable to afford their medications; such patients might be appropriate candidates for a BMS instead of a DES. They can help enroll patients in medication assistance programs that may supply or help pay for antiplatelet drugs. And they can educate patients on the importance of taking their antiplatelet therapy.


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