'Top Ten' Forecast for Interventional Cardiology

BY RICHARD M. KIRKNER

EXPERT ANALYSIS FROM THE MT. SINAI LIVE SYMPOSIUM OF COMPLEX CORONARY AND VASCULAR CASES

NEW YORK — Findings in 10 key investigative areas, from platelet inhibition and left main coronary artery disease to the use of fractional flow reserves and the "kissing" stent could have a profound impact on interventional cardiology in the next year or so.

Dr. Samin K. Sharma, co-director of the Cardiovascular Institute at Mt. Sinai Medical Center in New York, provided his take on these findings:

► **Clopidogrel resistance and proton pump inhibitor interaction studies.** In March, the FDA issued a warning that clopidogrel, widely prescribed to patients who have had an MI or stroke, is not as effective in people who cannot metabolize the drug. Dr. Sharma cited numerous reports that have shown that PPI drugs inhibit the activity of clopidogrel. In the clinic, physicians can test patients for platelet inhibition and use those data accordingly to modify dosing of the PPI.

"Avoid routine use of PPI with clopidogrel," Dr. Sharma said. "If proton pump inhibition is needed, use H_2 receptor blockers instead. If you need to use a PPI, many studies have shown it to be safer to use clopidogrel in the morning and the PPI in evening." In high-risk patients, he advised using a 600-mg loading dose of PPI, then 150 mg daily. While genetic testing may help identify vulnerable groups, he added, it's "a very complex issue cost wise."

► **BARI 2D trial.** The Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) found that prompt revascularization offered no significant advantages over medical therapy in terms of mortality and cardiovascular events for diabetes patients (N. Engl. J. Med. 2009;260:2503-15). The BARI 2D findings replicated those of the COURAGE trial (Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation; N. Engl. J. Med. 2007;356:1503-16), Dr. Sharma noted.

"As long as the patient is on excellent medical therapy, percutaneous coronary intervention [PCI] or revascularization is not essential for management of these patients," Dr. Sharma said. Results of the FREEDOM trial (Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease) are due in 2012, he said, and could either corroborate or contradict the BARI 2D findings.

► **Bifurcation lesion trials.** At Mt. Sinai, Dr. Sharma and his team have investigated the "kissing" stent—the simultaneous placement of two stents in the main and side branch vessels of a bifurcated lesion. This technique was validated in the Nordic Bifurcation Study (Circulation 2006;114:1955-61). More recent trials have determined the two-stent approach is "definitely not inferior, and maybe even better than the one-stent approach," he said.

► **Trials on timing of intervention.** Dr. Sharma cited two trials—TIMACS (Timing of Intervention in Patients With Acute Coronary Syndromes; N. Engl. J. Med. 2009;360:2165-75) and ABOARD (Angioplasty to Blunt the Rise of Troponin in Acute Coronary Syndromes Randomized for an Immediate or Delayed Intervention; JAMA 2009;302:947-54)—that looked at timing of intervention in patients with acute coronary syndrome. The studies found similar results in patients who had intervention within 2 hours and those who waited 16-24 hours. "Clearly, it seems that to wait for 24 hours is the right approach in treatment of systemic lesions when the patient is hemodynamically stable," Dr. Sharma said.

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► **Percutaneous heart valve trials.** The PARTNER (Placement of Aortic Transcatheter Valve) trial, estimated to be completed in 2014, is comparing transcatheter valvuloplasty with conventional heart valve replacement. Outcomes have improved since the study began enrolling patients in 2007, Dr. Sharma said. "The percutaneous valve field will continue to evolve," he said.

► **HORIZONS-AMI trial.** The HORIZONS-AMI (Harmonizing Outcomes with Revascularization and Stents in Acute Myocardial Infarction) trial investigators concluded that paclitaxel-eluting stents significantly reduced the risk of restenosis in patients with STEMI when compared with bare-metal stents (N. Engl. J. Med. 2009;360:1946-59). "This shows that drug-eluting stents are acceptable in systemic patients," Dr. Sharma said.

► **FAME trial.** The Fractional Flow Reserve vs. Angiography for Guiding PCI in Patients with Multivessel Coronary Artery Disease trial (N. Engl. J. Med. 2009; 360:213-24) looked at using fractional flow reserve (FFR) as an alternative to angiography for stent placement. It found that routinely measuring FFR in patients with multivessel disease for PCI with drug-eluting stents reduced the rate of death, MI, and repeat revascularization at 1 year. "At 1 year, fractional flow reserve is beneficial," he said.

► **Drug-eluting stent comparison trials.** As trials move into second-generation drug-eluting stents, outcomes are comparing more favorably with those of bare-metal stents, Dr. Sharma said. A breakthrough comparative study of drug-eluting stents concluded that newer designs had advantages over then Food and Drug Administration–approved devices in terms of arterial healing and recovery (J. Am. Coll. Cardiol. 2008;52:333-42). He also cited the ENDEAVOR-IV trial, which showed that the zotarolimus-eluting stent had significantly lower rates of cardiac death and heart attack than did the paclitaxel-eluting Taxus stent after 3 years. Other trials are comparing other drug-eluting stents, he said. "The real issue is late stent thrombosis after 1 year," he said.

► **The PLATO trial.** The Study of Platelet Inhibition and Patient Outcomes (N. Engl. J. Med. 2009;361:1045-57) trial found that ticagrelor had a significantly lower rate of death from vascular causes, heart attack, or stroke when compared with clopidogrel, with no increase in the overall bleeding rate. "It looks like we have a home run once this drug gets approved," Dr. Sharma said.

► **Unprotected left main coronary artery studies.** The SYNTAX trial (N. Engl. J. Med. 2009;360:961-72) compared the paclitaxel-eluting Taxus stent with coronary artery bypass grafting (CABG) for atherosclerosis. While the findings confirmed CABG as the standard of care for three-vessel or left main coronary artery disease, Dr. Sharma said that PCI for left main coronary artery disease has shown steadily improving outcomes.

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DR. SHARMA

Updated American College of Cardiology/American Heart Association guidelines have elevated PCI for left main coronary artery disease to a class IIb indication from class III for patients at high risk of surgery, Dr. Sharma said. "But I am disappointed they did not take it into consideration for ostial left main disease," he added. The EXCEL (Evaluation of Xience Prime Versus Coronary Artery Bypass Surgery for Effectiveness of Left Main Revascularization) trial, which began enrolling patients this year, will provide what Dr. Sharma called "the final answer" on the use of PCI in left main coronary artery disease.

Dr. Sharma has received honoraria from Boston Scientific Corp., Abbott Laboratories, and the Medicines Company. ■

Antiplatelets Needed After Aneurysm Stenting

BY AMY ROTHMAN SCHONFELD

CARLSBAD, CALIF. — Delayed thromboses have been observed after the cessation of double antiplatelet therapy in patients who have received an Enterprise stent for an intracranial aneurysm.

Seven of 213 patients in the Interstate Collaboration of the Enterprise Stent Coiling (ICES) Multicenter Registry experienced a thrombotic event 2-24 weeks after placement of the stent and stopping aspirin and clopidogrel, Dr. J. Mocco reported at the annual meeting of the Society of Neurointerventional Surgery. Another two patients experienced acute cases of stent thrombosis.

Ten U.S. sites participate in the registry to rapidly provide large-volume, real-world results regarding experience in using the Enterprise Vascular Reconstruction Device and Delivery System (J. Neurosurg. 2009;110:35-9) for the treatment of intracranial aneurysms. The stent system is designed to assist in the embolic coiling of wide-neck aneurysms.

In the seven cases, the patients either did not comply with the drug regimen or stopped taking the antiplatelets on the order of the physician.

The data suggest that early cessation of double antiplatelet therapy is not ideal; but it is currently unclear what the optimum time course should be, said Dr. Mocco, an endovascular neurosurgeon at the University of Florida, Gainesville.

Use of the Enterprise stent was linked with 90% or greater occlusion in 88% of aneurysms. Permanent morbidity (all minor) occurred in 1.4% of patients.

None of the thrombotic events were associated with coil prolapse or parent vessel tortuosity, said Dr. Mocco. Three events had no angiographic corollary, and two were diagnosed based on symptoms.

Dr. Mocco gave his presentation at a session sponsored by Codman Neurovascular, maker of the Enterprise stent. He said that he received no direct financial support from Codman, and the data were generated independent of commercial influence, although the University of Florida receives an educational grant and consulting fees from Codman. ■

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