Complex Coronary Disease Poses Trade-Offs

BY MITCHEL L. ZOLER
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MUNICH — Will patients who need coronary revascularization rather face a small increased risk of a stroke or a larger risk for a repeat procedure within a few months?

That is the decision facing patients with complex coronary disease, based on results from the largest and most tightly controlled study to ever compare percutaneous coronary stenting and coronary surgery.

"The risk of death, stroke, and MI is identical" between coronary stenting and surgery during the first year following intervention, "but the risk for more reintervention with PCI [percutaneous coronary intervention] is real," Dr. Patrick W. Serruys said at the annual congress of the European Society of Cardiology.

Many other patients who need revascularization won't have a choice, based on findings from the Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery (SYNTAX) study. Out of 3,075 enrolled patients with either left main disease or triple vessel disease, 1,275 (41%) were judged by a team of cardiologists and cardiac surgeons to have no alternative in their revascularization treatment because of the complexity of their disease (including chronic total occlusion), comorbidities, or other factors that ruled out either surgery or stenting. For 1,077 of the nonrandomized patients (84%), bypass surgery was the only recourse; for the other 198 nonrandomized patients (16%), surgery was not feasible and so they had to be treated by PCI.

The other 1,800 patients (59%) in the study were deemed equally amenable to stenting or surgery and were randomized.

Although the results from both the randomized and registry arms highlighted recent progress toward better outcomes by both interventionalists and surgeons, the findings "probably will not change the number" of patients in routine practice who undergo stenting or have surgery, commented Dr. Spencer B. King III, an interventional cardiologist and executive director of academic affairs at Saint Joseph's Health System in Atlanta.

"About 80% of the types of patients in SYNTAX now go to surgery in the United States, and my guess is that this will stay the same," Dr. King said in an interview. "The majority of these patients are seen by interventional cardiologists, and they are the biggest referrers of patients to surgeons. Surgeons do patients like these"—patients with left main or triple vessel disease—"all the time. It's bread-and-butter surgery," said Dr. King. But "these are hard cases for interventionalists. They take hours, and most interventionalist cardiologists don't want to do them," commented Dr. W. Douglas Weaver, chief of cardiology at Henry Ford Hospital in Detroit.

Another limitation of the new findings is that patients were followed for just 1 year. The new data "add to the discussion of using PCI for left main disease, but 1 year of follow-up is not very long to say that survival in patients with left main disease" is as good as in patients treated with surgery, Dr. King said.

SYNTAX was done at 62 centers in Europe and 23 centers in the United States. Patients who entered the randomized part of the study had an average age of 65, and about 28% had diabetes. About two-thirds of patients had triple vessel disease, and about a third had a significant left main stenosis (patients with left main disease could also have additional stenoses in one, two, or three other coronary arteries). All of the lesions were previously untreated, none of the patients had an acute MI, and none of the bypass-surgery patients received concomitant cardiac surgery. The patients treated with stents received an average of 4.6 stents each. All of the coronary stents used in the study were paclitaxel-eluting models. Although the study used exclusively Taxus stents, Dr. Serruys and the study cochair, Dr. Friedrich W. Mohr, reported no conflicts of interest.

After 1 year, the combined rate of death, nonfatal cerebrovascular accident (stroke), or nonfatal MI was virtually identical: 7.6% in 903 PCI patients, compared with a 7.7% rate in the 897 patients treated with coronary artery bypass grafting (CABG). The breakdown by individual event types showed that the only statistically significant difference between the two groups was a 2.2% rate of stroke in the CABG patients, compared with a 0.6% rate in the PCI patients (see box).

The study's primary end point combined the rate of these three "irreversible" events with the fourth major outcome, need for revascularization. The total for all four types of outcomes after 1 year was 12.1% in the CABG patients and 17.8% in the PCI patients, a statistically significant difference. This rate was also used to judge whether PCI was noninferior to CABG. The prespecified, noninferiority limit was a difference of less than 6.6% between the two treatments. Because the 95% confidence range for the quadruple end point was an excess as high as 8.3% in patients having PCI, the test for noninferiority was not met and so technically the results did not prove that PCI is not inferior to CABG. But Dr. Serruys acknowledged that having a combined end point that included revascularization was a controversial decision.

"We often talk about the hard, irreversible end points of death, stroke, and MI. These end points do not have the same value as the nuisance of going back for repeat revascularization," said Dr. Serruys, professor of interventional cardiology at the Thorax Center at Erasmus University in Rotterdam, the Netherlands.

"Reinterventions still limit PCI, but we're doing better with drug-eluting stents," commented Dr. Christian W. Hamm, a cardiologist at the Kerckoff Heart Center in Bad Nauheim, Germany.

The 1-year rate of stent thrombosis or graft occlusion was also virtually identical, 3.3% with PCI and 3.4% with CABG.

Future analyses from SYNTAX will examine the relative safety and efficacy of PCI and CABG based on the diabetes status of patients, and based on illness severity, Dr. Serruys said. ■

Event Rates 1 Year After Coronary Stenting and Surgery

Outcome	CABG (n = 897)	PCI (n = 903)
Death	3.5%	4.3%
Nonfatal stroke	2.2%	0.6%*
Nonfatal myocardial infarction	3.2%	4.8%
Combined rate of death, stroke, and MI	7.7%	7.6%
Repeat revascularization	5.9%	13.7%*
Combined rate of death, stroke, MI, and repeat revascularization	12.1%	17.8%*

*Statistically significant difference between groups
Source: Dr. Serruys

ELSEVIER GLOBAL MEDICAL NEWS

Diabetic Patients May Fare as Well From Stents as From CABG

BY MITCHEL L. ZOLER
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MUNICH — Patients with diabetes who received coronary stents fared just as well as similar patients who underwent coronary bypass surgery in a randomized study.

The results seemed to disprove the conventional wisdom that percutaneous coronary intervention (PCI) is not a good option for patients with diabetes because of their greater risk of restenosis, compared with nondiabetic patients, Dr. Akhil Kapur said at the annual congress of the European Society of Cardiology.

The results challenged the notion that PCI isn't a good option for diabetics because of their risk for restenosis.

DR. KAPUR

But some experts were skeptical of the finding, saying that the study of 510 patients with 1 year of follow-up wasn't large enough to definitively address the issue.

"Five hundred patients is small for any comparison" of PCI and coronary surgery in patients with diabetes, commented Dr. Spencer B. King III, executive director of Academic Affairs at the Saint Joseph Health System in Atlanta.

He recommended physicians await results from the Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease (FREEDOM) study that is planned to enroll 2,400 patients and have results reported in 2012.

"The 1-year follow-up is short, the study was very underpowered, and the results are inconclusive," said Dr. Valentin Fuster, professor of medicine and director of the cardiovascular institute at Mount Sinai Hospital in New York, who also advised waiting for the FREEDOM results.

The Coronary Artery Revascularization in Diabetes (CARDIA) trial was done at 24 hospitals in the United Kingdom and Ireland. It randomized patients with diabetes and either multivessel coronary disease or complex single-vessel disease who were suitable for either PCI or coronary artery bypass grafting (CABG). When the study began in 2002, bare-metal stents were used, but this changed after sirolimus-eluting coronary stents (Cypher) came on the market. The patients' average age was 64 years, and about 31% were on insulin treatment.

The primary end point was the combined rate of death, nonfatal myocardial infarction, or nonfatal stroke after 1 year. The rate was 10.2% in 245 patients treated with CABG and 11.6% in the 251 patients treated with PCI, a difference that was not statistically significant, said Dr. Kapur, a cardiologist at the London Chest Hospital.

As in the other major comparison of PCI and CABG presented at the meeting, the SYNTAX study, the rate of stroke was significantly lower in patients treated with PCI (0.4%) than in those treated with CABG (2.5%). But the PCI patients had a higher rate of nonfatal MIs (8.4%), although not significantly higher than the CABG patients (5.7%).

Also as in SYNTAX, the rate of repeat revascularizations was significantly higher in PCI patients (9.9%) than in CABG patients (2.0%), but unlike SYNTAX, the CARDIA study did not include repeat revascularization in the primary end point.

When the analysis was confined to the 179 PCI patients (71%) who received a drug-eluting coronary stent, the results shifted slightly in favor of PCI. The rate of death, MI, or stroke in this PCI subgroup was 10.1%, including no strokes. The rate of repeat revascularization fell to 7.3%.

The study received some support from Cordis, which markets Cypher stents, but many other device and drug companies also provided support for the study. The primary sponsor was Hammersmith Hospitals NHS Trust, London. Dr. Kapur said he had no relevant disclosures. ■