p=0.0015). There was a significantly higher rate of revascularization in the PCI group (13.7% vs 5.9%; p<0.0001) but a significantly higher rate of CVA in the CABG group (2.2% vs 0.6%; p=0.003). The composite rates of all-cause death, CVA, and MI were nearly identical (7.6% for PCI vs 7.7% for CABG; p=0.98). Individual rates of death, MI, and thrombosed vessel (bypass graft vs stented vessel) at 12 months were each similar in both cohorts. Among the subgroups that were presented, patients with diabetes, isolated 3-vessel CAD, and left main plus involvement of an additional 2 or 3 vessels tended to have better outcomes with CABG, while outcomes in patients with isolated left main disease and left main plus a single additional vessel tended to favor PCI. A possible explanation is that the risk of complication with PCI is more closely related to the number of vessels undergoing revascularization than to the risk of complication with CABG.

SYNTAX Registries

Friedrich Mohr, MD, PhD, University of Leipzig, Leipzig, Germany, presented the results of the registries. There were 1275 patients who were eligible for only one of the interventions, of which 649 were enrolled in the CABG registry and 198 in the PCI registry.

"The treatment schedule and follow-up visits in the registries were identical with the subjects in the randomized groups, and major adverse cardio- and cerebrovascular events were completely monitored," Prof. Mohr said. "No statistical comparisons between the randomized and registry groups were performed," he added.

For the 12-month endpoint, Prof. Mohr reported a total MACCE rate for PCI registry subjects of 20.4%. This included all-cause death (7.3%), stroke (0%), MI (4.2%), death by stroke or MI (10.5%), and revascularization (12.0%).

For the same endpoint, he reported a total MACCE rate for CABG registry subjects of 8.8%. This included all-cause death (2.5%), stroke (2.2%), MI (2.5%), death from stroke or MI (6.6%), and revascularization (3.0%).

"While repeat revascularization drove the higher MACCE for the PCI group, it is notable and surprising that there were no strokes reported in the PCI group," Prof. Mohr said.

Prof. Mohr noted that SYNTAX showed that CABG remains the only interventional option for one-third of patients but that for patients who are not eligible for CABG, PCI is a good option instead of medical therapy. "Likewise, for patients who are not candidates for PCI, surgery results are excellent."

PCI is a "Reasonable" Strategy For Diabetic Patients With Multivessel Disease: The CARDia Trial

At 1 year following intervention, there apparently is no difference between coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI) in treating diabetic patients with multivessel disease, as measured by the incidence of a composite of death, myocardial infarction (MI), and stroke.

The CARDia (Coronary Artery Revascularization in Diabetes Trial; ISRCTN19872154) trial results were presented in Munich at the 2008 European Society of Cardiology Congress by Akhil Kapur, MD, London Chest Hospital, Barts and the London NHS Trust, London, UK.

"We saw more repeat revascularization in the PCI group, but with similarity in other major outcomes at 1 year, we can now consider PCI a reasonable strategy in diabetic patients with multivessel disease. But longer follow-up is still needed," said Dr. Kapur.

Dr. Kapur emphasized that even though the trial was designed to test the hypothesis that PCI is noninferior to CABG (n=254) in these patients, the targeted enrollment of 600 subjects was not met, and the noninferiority of PCI could not be formally, statistically established by the outcome of the trial. "The trial was, finally, underpowered to test this endpoint," he said. Noninferiority trials are intended to show that the effect of one treatment, in this case PCI, is not worse than that of an active control, in this case CABG, by a statistically significant margin. Investigators randomized 510 diabetic patients (mean age 64 years, 74% men, average weight 84 kg) with multivessel disease to CABG (n=254) or PCI (n=256). Nearly one-quarter of the admissions were considered acute (23.7% CABG group vs 21.5% in the PCI cohort). Similar numbers of patients required insulin to treat diabetes (31.4% of CABG vs 30.6% of PCI). All patients in the PCI group were treated with aspirin, clopidogrel, and GP IIb/IIIa inhibitors.

Of the CABG group, 229 underwent the procedure. Of the PCI group, 252 underwent the procedure. There was 96% (n=245) subject follow-up at 1 year in the CABG group and 98% (n=251) in the PCI group.

The investigators reported that for the composite primary endpoint of death, MI, and stroke at 1 year, there was a rate of 10.2% for CABG veruss 11.6% for PCI (OR=1.15, 95% CI, 0.65–2.03; p=0.63). This result was not statistically significant enough to establish the noninferiority of PCI.

The rate for revascularization at 1 year was 2.0% for CABG versus 9.9% for PCI (OR=5.31, 95% CI, 2.00-14.11; p=0.001).

The rate of death at 1 year was 3.3% for CABG versus 3.2% for PCI (OR=0.98, 95% CI, 0.36-2.64; p=0.83). The rate of nonfatal MI was 5.7% for CABG versus 8.4% for PCI (OR=1.51, 95% CI, 0.75-3.03; p=0.25). The rate of nonfatal stroke was 2.5% for CABG versus 0.4% for PCI (OR=0.16, 95% CI, 0.02-1.33; p=0.09). The composite outcome of death, MI, stroke, and repeat revascularization was 11% for CABG versus 17.5% for PCI (OR=1.72, 95% CI, 1.02-2.87; p=0.04).

For CABG (n=245) versus the PCI-DES (n=179; 71% of total) subgroup, the primary composite outcome of death, nonfatal MI, and nonfatal stroke at 1 year was 10.2% for CABG versus 10.1% for PCI-DES (p=0.98). The rate for revascularization at 1 year was 2.0% for CABG versus 7.3% for PCI-DES (p=0.013). The rate of death at 1 year was 3.3% for CABG versus 3.9% for PCI-DES (p=0.723). The rate of nonfatal MI was 5.7% for CABG versus 6.2% for PCI-DES (p=0.852). The rate of nonfatal stroke was 2.5% for CABG versus 0% for PCI-DES (p=0.041). The composite outcome of death, nonfatal MI, nonfatal stroke, and repeat revascularization at 1 year was 11% for CABG versus 15.1% for PCI-DES (p=0.217).

Dr. Kapur noted that the findings are preliminary and that several clinical events still need to be adjudicated.

Biodegradable Biolimus Stent Appears Safe and Effective in PCI

A new generation of drug-eluting stent that is coated with biolimus and released from a biodegradable polymer demonstrated similar safety and efficacy through 9 months as compared with stents releasing sirolimus from a durable polymer in patients who were undergoing percutaneous coronary intervention (PCI), according to findings from the LEADERS (Limus Eluted from A Durable versus ERodable Stent) trial. The biolimus stent may have the potential to minimize late complications related to the polymer component.

Stephan Windecker, MD, Inselspital University Hospital, Bern, Switzerland, reported initial findings from the LEADERS trial, which were simultaneously published online in *The Lancet* [Windecker S et al. *Lancet* 2008].

Biolimus is a highly lipophilic, semi-synthetic sirolimus analog that is immersed in a biodegradable polymer and applied only to the abluminal vessel side of the stent, thereby reducing the amount of drug that is released into the circulation. By 6 to 9 months following PCI, the polymer completely dissolves into carbon dioxide and water, leaving only the stainless steel stent in the affected vessel. This novel design escapes the durable polymer surface coatings of current drug-eluting stents, which have been implicated in delayed healing and late stent thrombosis.

A "Real-World" Trial

In the LEADERS trial (NCT00389220), 1707 patients who were undergoing PCI were randomly assigned to receive a biolimus stent (n=857) or sirolimus stent (n=850). In a factorial design, 1 in 4 patients also was randomly selected for angiographic follow-up at 9 months.

In an attempt to reflect routine clinical practice, the study design employed broad inclusion criteria and few exclusion criteria. Patients with stable coronary artery disease (CAD) or acute coronary syndrome (ACS) that presented as unstable angina, non-ST-elevation myocardial infarction (NSTEMI), or STEMI were enrolled. Patients had to have at least one lesion that had at least 50% diameter stenosis, but there were no limits on the lesion length or number of lesions or diseased vessels. Major exclusions included known allergy to standard antithrombotic agents, contrast, or stent material that was used in the study; elective surgery that required interruption of antiplatelet therapy; pregnancy; or participation in another trial.

"LEADERS is the first all-comers study of PCI comparing two drug-eluting stents," said Laura Mauri, MD, MSc, Brigham and Women's Hospital, Boston, MA. With predominantly off-label and high-risk characteristics, the complex patient population includes diabetes mellitus in 24% of patients, multivessel stenting in 23%, and acute myocardial infarction (MI) in 34%. "This reflects the breadth of practice we see today and [permitted evaluation of] safety and efficacy across a broad population," Dr. Mauri said.

The primary endpoint was the composite of cardiac death, MI, or clinically indicated target vessel revascularization (TVR) at 9 months. In those who were selected for angiographic evaluation (n=427), the primary endpoint was in-stent percent diameter stenosis as assessed by a blinded core laboratory.

Non-Inferior Efficacy and Safety

Nine months after PCI, a similar proportion of patients with biolimus-eluting stents and sirolimus-eluting stents reached the primary endpoint (9.2% vs 10.5%; RR=0.88; 95% CI, 0.64 to 1.19; p=0.003 for non-inferiority). Regarding individual safety and efficacy outcomes at 9 months, patients