Long-Term Safety and Efficacy of Percutaneous Coronary Intervention With Stenting and Coronary Artery Bypass Surgery for Multivessel Coronary Artery Disease
A Meta-Analysis With 5-Year Patient-Level Data From the ARTS, ERACI-II, MASS-II, and SoS Trials

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Background—Randomized trials that studied clinical outcomes after percutaneous coronary intervention (PCI) with bare metal stenting versus coronary artery bypass grafting (CABG) are underpowered to properly assess safety end points like death, stroke, and myocardial infarction. Pooling data from randomized controlled trials increases the statistical power and allows better assessment of the treatment effect in high-risk subgroups.

Methods and Results—We performed a pooled analysis of 3051 patients in 4 randomized trials evaluating the relative safety and efficacy of PCI with stenting and CABG at 5 years for the treatment of multivessel coronary artery disease. The primary end point was the composite end point of death, stroke, or myocardial infarction. The secondary end point was the occurrence of major adverse cardiac and cerebrovascular accidents, death, stroke, myocardial infarction, and repeat revascularization. We tested for heterogeneities in treatment effect in patient subgroups. At 5 years, the cumulative incidence of death, myocardial infarction, and stroke was similar in patients randomized to PCI with stenting versus CABG (16.7% versus 16.9%, respectively; hazard ratio, 1.04, 95% confidence interval, 0.86 to 1.27; P=0.69). Repeat revascularization, however, occurred significantly more frequently after PCI than CABG (29.0% versus 7.9%, respectively; hazard ratio, 0.23; 95% confidence interval, 0.18 to 0.29; P<0.001). Major adverse cardiac and cerebrovascular events were significantly higher in the PCI than the CABG group (39.2% versus 23.0%, respectively; hazard ratio, 0.53; 95% confidence interval, 0.45 to 0.61; P<0.001). No heterogeneity of treatment effect was found in the subgroups, including diabetic patients and those presenting with 3-vessel disease.

Conclusions—In this pooled analysis of 4 randomized trials, PCI with stenting was associated with a long-term safety profile similar to that of CABG. However, as a result of persistently lower repeat revascularization rates in the CABG patients, overall major adverse cardiac and cerebrovascular event rates were significantly lower in the CABG group at 5 years. (Circulation. 2008;118:1146-1154.)

Key Words: bypass ■ coronary disease ■ prognosis ■ stents ■ surgery

Coronary artery bypass grafting (CABG) has been considered the gold standard for treating multivessel coronary artery disease, mainly because of its higher rate of complete revascularization, reflected by a lower need for repeat revascularizations compared with percutaneous coronary intervention (PCI).1-4 Yet, the risk difference of CABG versus balloon angioplasty for repeat revascularization in a large-scale meta-analysis proved to be 34% at 3 years, this difference decreased to 15% when coronary stents were used.1 In terms of clinical safety end points, the recently reported 5-year follow-up of the Arterial Revascularization Therapies Study (ARTS),5 Argentine Randomized Trial of Coronary Angioplasty With Stenting Versus Coronary Bypass Surgery in Patients With Multiple Vessel Disease (ERACI-II),6 and the Medicine, Angioplasty or Surgery Study for Multi-Vessel Coronary Artery Disease (MASS-II)7 reported no difference in death rates between the 2 revascularization strategies.

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Whereas the risk difference of CABG versus balloon angioplasty for repeat revascularization in a large-scale meta-analysis proved to be 34% at 3 years, this difference decreased to 15% when coronary stents were used.1 In terms of clinical safety end points, the recently reported 5-year follow-up of the Arterial Revascularization Therapies Study (ARTS),5 Argentine Randomized Trial of Coronary Angioplasty With Stenting Versus Coronary Bypass Surgery in Patients With Multiple Vessel Disease (ERACI-II),6 and the Medicine, Angioplasty or Surgery Study for Multi-Vessel Coronary Artery Disease (MASS-II)7 reported no difference in death rates between the 2 revascularization strategies.

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Conversely, the Stent or Surgery (SoS) trial recently demonstrated a significantly lower survival in patients treated with PCI compared with CABG at 6 years.\(^7\)

In the present study, patient-level data of the above-mentioned randomized trials were pooled to make a more precise estimate of the relative long-term safety and efficacy of PCI with stenting and CABG for multivessel coronary artery disease, to assess the relative treatment effect in several high-risk subgroups, and to assess the heterogeneity of the treatment effect.

Methods

Study Design and Patient Population

The methodology of the present meta-analysis has been described previously.\(^8\) In brief, a MEDLINE search using the keywords coronary stenting, coronary artery bypass surgery, and multisystem/multivessel disease was performed with the intention of selecting and including all randomized clinical trials comparing PCI with stenting and CABG in patients with multivessel coronary artery disease. Four trials were selected: ARTS,\(^9\) SoS,\(^10\) ERACI-II,\(^11\) and MASS-II.\(^12\)

Principal investigators of each study group were contacted, and individual patient data were requested on a broad range of baseline characteristics, medication usage, procedural results, and clinical outcome at 5 years. Clinical outcome included data on death, stroke, myocardial infarction (MI), and repeat revascularization (either PCI or CABG) at 5 years for ARTS, MASS, and ERACI-II. For the SoS trial, 5-year follow-up data were restricted to survival data. Data on the occurrence of stroke, MI, and repeat revascularization between 1 and 5 years were not collected by the SoS investigators.

Clinical events were adjudicated by independent clinical event committees. The patient-level–based data were subsequently transferred to Erasmus University Medical Center (Rotterdam, the Netherlands; E.B.) to 2 researchers (J.D., P.W.S.) who analyzed and interpreted the data.

Definitions and Clinical End Points

No attempt was made to readjudicate the events in the different trials to compensate for the differences in the individual end-point definitions. Given the randomized design of the 4 trials, no bias was expected. The primary end point was the composite end point of death, stroke, or MI at 5 years. The secondary end points included major adverse cardiac and cerebrovascular events (defined as the occurrence of major adverse cardiac and cerebrovascular accidents: all-cause death, stroke, MI, and repeat revascularization); the combined end point of all-cause death, MI, or repeat revascularization; and the itemized end points of death, stroke, MI, and repeat revascularization (PCI or CABG).

Statistical Analysis

All analyses were performed on an intention-to-treat population. Most continuous variables had nonnormal distribution (as evaluated by Kolmogorov-Smirnov tests). For reasons of uniformity, summary statistics for all continuous variables are therefore presented as medians and 25th and 75th percentiles. Categorical data are summarized as frequencies and percentages. Differences in baseline characteristics between patients allocated to PCI with stenting versus CABG were analyzed with Wilcoxon–Mann–Whitney tests or Fisher’s exact tests as appropriate.

The incidence of events over time was studied by the Kaplan–Meier method, and log-rank tests were applied to evaluate differences between patients allocated to PCI with stenting or CABG. Additionally, Cox proportional-hazards regression models were applied to further evaluate the effects of allocated treatment on the incidence of events over time. Because aggregated estimates of treatment effect that are based on small numbers of studies are sensitive to the chosen pooling method, we applied a variety of such methods, which showed quite consistent results. First, hazard ratios (HRs) for study end points were determined from the proportional-hazards model stratified by trial with a single fixed effect according to the Yusuf–Peto\(^13\) approach. Subsequently, nonstratified models were fitted with study membership as a covariate in the model, allowing for the adjustment of trial effects and variations in the standards of practice across participating institutions.\(^14\) Then, trial-by-treatment interaction terms were added to evaluate heterogeneity in treatment effect across trials. Interaction terms also were added to study heterogeneities in treatment effects according to clinically relevant characteristics, including age, gender, diabetes, dyslipidemia, hypertension, prior MI, number of diseased vessels, left ventricular ejection fraction, and peripheral vascular disease. Because the −2 log likelihood of the regression models was not improved by adding interaction terms (except for death in relation to trial; see the Results section), we decided to stick to the fixed-effects approach and to remove any interaction term from further models. The HRs that are finally reported (together with the 95% confidence intervals [CIs]) are based on regression models with allocated treatment as the main effect and with the above-mentioned clinical characteristics as covariates.\(^15\)

All tests are 2 sided with a significance level of 0.05. All statistical analyses were performed with the SAS System version 8.2 (SAS Institute Inc, Cary, NC).

The authors had full access to and take full responsibility for the integrity of the data. All authors have read and agree to the manuscript as written.

Results

Patients, Baseline, and Procedural Characteristics

A total of 3051 patients were included in this analysis between June 1995 and June 2000 (1205 in ARTS, 450 in ERACI-II, 408 in MASS-II, and 988 in SoS). In total, 1533 were randomized to CABG, and 1518 were randomized to PCI. Eighty-nine percent of patients allocated to PCI underwent the assigned treatment compared with 96% of those assigned to CABG.

Baseline and procedural characteristics are summarized in Table 1. Although 3-vessel disease was more frequent in the CABG group compared with the PCI group (40.0% versus 36.1%, respectively; \(P=0.017\)), complete revascularization was performed in 89.4% of the CABG patients compared with 62.0% of the PCI patients \((P<0.001)\). The hospital stay was significantly longer in the CABG group (median, 8 days; interquartile range, 1 to 4 days) compared with the PCI group (median, 3 days; interquartile range, 6 to 11) \((P<0.001)\).

Clinical Outcome

Clinical event rates are summarized in Table 2 and Figure 1. Five-year follow-up was complete for 97% of all patients (100% in ARTS and ERACI-II; 97.5% in MASS-II, and 91.6% in SoS). At 5 years, the cumulative incidence of death, MI, and stroke was similar in patients randomized to PCI with stenting versus CABG (16.7% versus 16.9%, respectively; HR, 1.04; 95% CI, 0.86 to 1.27; \(P=0.69\)). Repeat revascularization, however, occurred significantly more frequently after PCI compared with CABG (29.0% versus 7.9%, respectively; HR, 0.23; 95% CI, 0.18 to 0.29; \(P<0.001\)). Because of the substantial difference in the repeat revascularization rates between both treatment modalities, major adverse cardiac and cerebrovascular event rates were significantly higher in the PCI group than in the CABG group (39.2% versus 23.0%, respectively; HR, 0.53; 95% CI, 0.45 to 0.61; \(P<0.001\)).
Table 1. Baseline and Procedural Characteristics and Medications

<table>
<thead>
<tr>
<th></th>
<th>PCI With Stenting (n=1518 Patients)</th>
<th>CABG (n=1533 Patients)</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>Age, y</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Median</td>
<td>61.6</td>
<td>61.6</td>
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<tr>
<td>IQR</td>
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<td>54.6–68.3</td>
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</tr>
<tr>
<td>Range</td>
<td>30.2–85.4</td>
<td>31.9–86.0</td>
<td></td>
</tr>
<tr>
<td>Men, %</td>
<td>76.5 (1162/1518)</td>
<td>77.1 (1182/1533)</td>
<td>0.73</td>
</tr>
<tr>
<td>Diabetes mellitus, %</td>
<td>18.1 (275/1518)</td>
<td>17.5 (268/1533)</td>
<td>0.67</td>
</tr>
<tr>
<td>Hyperlipidemia, %</td>
<td>60.1 (910/1515)</td>
<td>56.5 (866/1532)</td>
<td>0.051</td>
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<tr>
<td>Hypertension, %</td>
<td>50.5 (766/1518)</td>
<td>51.7 (792/1533)</td>
<td>0.52</td>
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<td>Family history of CAD, %</td>
<td>38.1 (498/1307)</td>
<td>38.7 (514/1327)</td>
<td>0.75</td>
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<td>Current smoker, %</td>
<td>28.3 (429/1516)</td>
<td>26.5 (406/1533)</td>
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</tr>
<tr>
<td>Previous MI, %</td>
<td>42.8 (650/1518)</td>
<td>41.4 (635/1533)</td>
<td>0.44</td>
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<tr>
<td>Peripheral vascular disease, %</td>
<td>7.0 (107/1518)</td>
<td>8.2 (126/1533)</td>
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<td>Aspirin, %</td>
<td>93.5 (1419/1518)</td>
<td>90.2 (1382/1533)</td>
<td>0.001</td>
</tr>
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<td>β-Blockers, %</td>
<td>79.4 (1205/1518)</td>
<td>81.7 (1252/1533)</td>
<td>0.11</td>
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<tr>
<td>Calcium channel blockers, %</td>
<td>37.3 (566/1518)</td>
<td>40.2 (617/1533)</td>
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</tr>
<tr>
<td>Nitrates, %</td>
<td>68.1 (1033/1518)</td>
<td>69.7 (1068/1533)</td>
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<td>Statins, %</td>
<td>40.9 (621/1517)</td>
<td>39.5% (606/1533)</td>
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<td>Enrollment diagnosis, %*</td>
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<tr>
<td>Stable angina</td>
<td>68.2 (1036/1518)</td>
<td>68.9 (1057/1533)</td>
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<td>Unstable angina</td>
<td>28.5 (432/1518)</td>
<td>27.3 (418/1533)</td>
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<td>Silent ischemia</td>
<td>3.5 (48/1358)</td>
<td>2.6 (34/1330)</td>
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<tr>
<td>Ejection fraction, %</td>
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<td>Median</td>
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<td>51–67</td>
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</tr>
<tr>
<td>Range</td>
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<td>26–91</td>
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<tr>
<td>Segments with &gt;50% stenosis, n</td>
<td></td>
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<tr>
<td>IQR</td>
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<td>2–3</td>
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</tr>
<tr>
<td>Range</td>
<td>1–9</td>
<td>1–8</td>
<td></td>
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<tr>
<td>Diseased vessels, n</td>
<td></td>
<td></td>
<td>0.017</td>
</tr>
<tr>
<td>1</td>
<td>4.6 (70/1518)</td>
<td>3.0 (46/1533)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>59.3 (900/1518)</td>
<td>57.0 (874/1533)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>36.1 (548/1518)</td>
<td>40.0 (613/1533)</td>
<td></td>
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<tr>
<td>Vessel territory with stenosis, %</td>
<td></td>
<td></td>
<td>0.017</td>
</tr>
<tr>
<td>RCA</td>
<td>74.2 (1127/1518)</td>
<td>78.0 (1195/1533)</td>
<td></td>
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<tr>
<td>LAD</td>
<td>89.9 (1364/1518)</td>
<td>91.8 (1408/1533)</td>
<td></td>
</tr>
<tr>
<td>LCx</td>
<td>63.2 (959/1518)</td>
<td>67.7 (1038/1533)</td>
<td></td>
</tr>
<tr>
<td>LMCA</td>
<td>1.0 (15/1518)</td>
<td>0.7 (10/1533)</td>
<td></td>
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<tr>
<td>Length of hospital stay, d</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
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<tr>
<td>Median</td>
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<td>8</td>
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<td>IQR</td>
<td>1–4</td>
<td>6–11</td>
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<tr>
<td>Range</td>
<td>1–70</td>
<td>1–110</td>
<td></td>
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<tr>
<td>Complete revascularization, %</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
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</tbody>
</table>

IQR indicates interquartile range; CAD, coronary artery disease; RCA, right coronary artery; LAD, left anterior descending artery; LCx, left circumflex artery; and LMCA, left main coronary artery. Values are mean±SD when appropriate. The difference between the total number in each group and the denominator used to calculate the percentages for each variable is due to missing data.

*Stable angina was defined according to the Canadian Cardiovascular Society system; unstable angina was classified according to the Braunwald classification.
The cumulative 5-year incidence of death was similar between PCI and CABG in both the 2-vessel disease (7.6% versus 7.3%, respectively; \(P=0.87\)) and the 3-vessel disease (10.2% versus 9.5%, respectively; \(P=0.71\)) subgroups. The cumulative incidence of death, stroke, and MI was similar between PCI and CABG in both the 2- and 3-vessel subgroups. However, repeat revascularization rates were significantly higher in the PCI group in patients with 2-vessel and in those with 3-vessel disease (29.0% versus 7.2%, \(P<0.001\); and 28.9% versus 7.8%, \(P<0.001\), respectively), resulting in a significantly lower incidence of the combined major adverse cardiac and cerebrovascular events in the CABG cohort for both 2- and 3-vessel disease.

### Discussion

The present study was conducted using individual patient-based data with complete follow-up until 5 years. We demonstrated that at 5 years PCI and CABG were associated with a similar safety profile, expressed by hard clinical end points like death, stroke, and MI. These results confirm the previous findings of a large-scale review of 23 PCI (with and without stenting) versus CABG trials by Bravata et al., which demonstrated no difference in the 5-year survival rates between both treatment modalities. No differences in survival rates between PCI and CABG were noted even up to 13 years.

A nonrandomized study that reached different conclusions was a large-scale registry (\(n=59,314\)) by Hannan and colleagues. Risk-adjusted survival rates in this study were significantly higher in patients treated with CABG than in those treated with PCI with stenting. Bearing in mind that all baseline characteristics collected in this study were significantly different between the PCI and CABG groups and the unadjustable characteristic “judgment of the treating physician to chose for either PCI or CABG,” we must interpret these results with caution. Furthermore, the shorter follow-up and the higher-risk profile (higher age, higher incidence of diabetes, lower ejection fraction) of patients included in the study by Hannan and colleagues compared with the present meta-analysis make it difficult to put the results into perspective.
All 4 randomized trials included in the present meta-analysis studied the safety and effectiveness of PCI with bare metal stents. Since 2002, drug-eluting stents have been shown to halve repeat reinterventions rates without affecting the short- and long-term safety of the treatment. Moreover, because of their significantly lower revascularization rates, sirolimus-eluting stents proved to be capable of narrowing the gap in major adverse cardiac event rates between PCI and CABG, as demonstrated by the ARTS-II and ERACI-III studies. In contrast to the ARTS-I study, the recently presented 3-year results of the ARTS-II study showed similar major adverse cardiac and cerebrovascular events (death, stroke, MI, and repeat revascularization) after PCI with sirolimus-eluting stents and CABG. However, the need for repeat revascularization was still significantly lower after CABG. Although both ERACI-III and ARTS-II showed a clear impact of drug-eluting stents on the relative efficacy of PCI and CABG, it must be noted that both studies were nonrandomized comparisons. Along these lines, a recent registry by Javaid et al reported significantly higher mortality rates and a trend toward higher MI rates in patients treated with PCI with drug-eluting stents compared with those treated with CABG at 1 year regardless of the amount of vessels diseased and the presence of diabetes. It is worth mentioning that the 1-year results of none of the 4 randomized trials in the present study concurred with these latter findings. Given the similar, if not superior, safety profile of drug-eluting stents compared with bare metal stents, it is unlikely that the use of drug-eluting stents in this study accounted for this dissimilarity. Several large-scale randomized trials such as Future Revascularization Evaluation in Patients With Diabetes: Optimal Management of Multivessel Disease (FREEDOM), Coronary Artery Revascularization in Diabetics (CARDIA), and...
Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery (SYNTAX) are currently comparing the safety and effectiveness of CABG and PCI with drug-eluting stents. Of note, despite the improvement in durability of more contemporary PCI with (drug-eluting) stents, long-term survival rates do not seem to improve in a similar fashion and remain equal between PCI and CABG. This finding recalls a major goal of treating (multivessel) coronary artery disease: the relief of angina. Despite the fact that at 1 year after CABG significantly more patients were free of angina compared with PCI in all 4 trials, 5-year reports of the ARTS, ERACI-II, and MASS-II demonstrated similar incidences of angina at 5 years after CABG and PCI. Additionally, the final results from the Bypass Angioplasty Revascularization Investigation (BARI) trial proved that even up to 10 years, angina rates were still equal between both treatment modalities. However, in the PCI group, these similar angina rates were achieved only after a significantly higher rate of repeat revascularizations compared with the CABG group.

Significant heterogeneity in treatment effect was noted between SoS and the remaining trials with respect to survival at 5 years. Although the 5-year cumulative survival in the PCI arm of SoS (92.1%) was similar to the ARTS, ERACI-II, and MASS-II trials (92.2%, 92.9%, and 86.3% respectively), the survival in the CABG arm of SoS (95.5%) was remarkably higher than in ARTS, ERACI-II, and MASS-II (92.6%, 88.5%, and 84.1%, respectively). The exact reason for this superior survival rate remains puzzling, and a play of chance cannot be excluded. A speculative reason for the heterogeneity might be the difference in the inclusion criteria and procedural requirements in the different studies. In ARTS, higher-risk patients were excluded; 67% of the patients had 2-vessel disease; and an equivalent revascularization rate was required. Conversely, in MASS-II, almost 58% of the patients had 3-vessel disease, and a proximal left anterior descending artery lesion was required. Additionally, the SoS trial protocol stated that the study was intended to be a “pragmatic trial,” including enrollment of a wide range of patients with minimal restriction on postrandomization patient management. However, both patient groups in SoS were well matched, and it is unlikely that the pragmatic nature of the trial was the reason for the unexpected difference in death rates, which are not confirmed by the larger sample of this meta-analysis.

Coronary artery disease in diabetics has been shown to be more aggressive and to be associated with an impaired event-free survival after both CABG and PCI because of smaller vessel sizes, longer lesion length, greater plaque burden, and a possibly differently acting restenotic cascade than in nondiabetics. Given this higher-risk profile, which is most often associated with multivessel disease, CABG was regarded as the preferred revascularization method because of its ability to bypass this large amount of plaque burden and to achieve more complete revascularization rates, making the need for repeat revascularizations less likely. Attempting to demonstrate the most optimal treatment strategy for diabetics, a subgroup analysis of the randomized BARI trial and a large observational registry demonstrated significantly impaired survival among patients treated with PCI compared with those treated with CABG. Interestingly, in the BARI registry, all-cause survival was not significantly different between both groups. Furthermore, all the above-mentioned studies were performed in the present era and may no longer be applicable in current clinical practice. In the present analysis, using pooled patient-level–based 5-year follow-up data from 4 randomized controlled trials, we found no significant heterogeneity of the
Moreover, 54% of the patients in AWESOME were treated generating a study population clearly different from the present meta-analysis. The AWESOME Referred for Coronary Angioplasty (OCTOSTENT) trials,41,42 compared PCI with CABG, the Angina With Extremely Serious Operative Mortality Evaluation (AWESOME) and a Randomized Comparison of CABG and balloon angioplasty only. The OCTOSTENT trial was excluded from the present meta-analysis. The AWESOME nor OCTOSTENT completed the 5-year follow-up at the time of the present meta-analysis.

Pooling data from 4 multicenter randomized controlled trials with diversity in inclusion and exclusion criteria resulted in a diverse and high-risk patient population. However, patients with severe 3-vessel disease presenting with an acute coronary syndrome, left main lesions, previous coronary interventions, heart failure, or renal disease were excluded in all 4 trials. Although no heterogeneity in the treatment effect was found among several high-risk subgroups in the present analysis, the results of several large-scale, dedicated, randomized controlled trials are eagerly awaited to determine the external validity of our findings. Until the relatively short-term findings of these large trials are presented, the results from the present meta-analysis constitute the highest amount of clinical evidence regarding the relative long-term safety of PCI using stents and CABG.

Conclusions

In this pooled analysis of 4 randomized trials, PCI was associated with a long-term safety profile, expressed by death, stroke, and MI, similar to that of CABG. However, because of the persistently lower repeat revascularization rates in the CABG patients, overall major adverse cardiac and cerebrovascular event rates were significantly lower in the CABG group at 5 years. Dedicated trial data on the impact of drug-eluting stents, the relief of angina, and the role of PCI in higher-risk patients are warranted.

Disclosures

Dr Stables received research grants from Cordis, Boston Scientific, Medtronic, and Abbott and has served as a consultant or on the advisory board for Cordis, Boston Scientific, Medtronic, and Abbott. The other authors report no conflicts.

References


Randomized trials that studied clinical outcome after percutaneous coronary intervention (PCI) with bare metal stenting versus coronary artery bypass grafting (CABG) are underpowered to properly assess safety end points like death, stroke, and myocardial infarction. Pooling data from randomized controlled trials increases the statistical power and allows better assessment of the treatment effect in high-risk subgroups. The present pooled analysis of 3051 patients in 4 randomized trials evaluating the relative safety and efficacy of PCI with stenting and CABG for the treatment of multivessel coronary artery disease demonstrates that both treatment modalities provided similar long-term safety profiles. At 5 years, the cumulative incidence of death, myocardial infarction, and stroke was similar in patients randomized to PCI with stenting versus CABG (16.7% versus 16.9%, respectively; hazard ratio, 1.04; 95% confidence interval, 0.86 to 1.27; \( P = 0.69 \)). Repeat revascularization, however, occurred significantly more frequently after PCI than CABG (29.0% versus 7.9%, respectively; hazard ratio, 0.23; 95% confidence interval, 0.18 to 0.29; \( P < 0.001 \)). Several large-scale randomized trials like the Future Revascularization Evaluation in Patients With Diabetes: Optimal Management of Multivessel Disease, and Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery are currently comparing the safety and effectiveness of CABG and PCI with drug-eluting stents. Whether drug-eluting stents will tip the balance between safety and efficacy of PCI and CABG is to be examined.

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