Diabetes Does Not Influence Treatment Decisions Regarding Revascularization in Patients With Stable Coronary Artery Disease

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OBJECTIVE — To evaluate whether in stable angina preference for coronary revascularization by either percutaneous coronary intervention (PCI) or coronary artery bypass surgery (CABG) is influenced by diabetes status and whether this has prognostic implications.

RESEARCH DESIGN AND METHODS — A total of 2,928 consecutive patients with stable angina who were enrolled in the prospective Euro Heart Survey on Coronary Revascularization were studied. Multivariable analyses were applied to evaluate the relation between diabetes, treatment decision, and 1-year outcome.

RESULTS — Diabetes was documented in 587 patients (20%) who had more extensive coronary disease. Revascularization was intended in 74% of patients with diabetes and in 77% of those without diabetes. In patients selected for revascularization, CABG was intended in 35% of diabetic and in 33% of nondiabetic patients. Multivariable analyses did not change these findings, but in some subgroups diabetes influenced treatment decisions. For example, diabetic subjects with mild heart failure had more often intended revascularization (91%) than those without diabetes (67%, $P < 0.001$). Treatment decisions in patients with more extensive (left main, multivessel, or proximal left anterior descending artery) disease were not influenced by diabetes status. Diabetes was not associated with an increased incidence of all-cause death, nonfatal cerebrovascular accident, or nonfatal myocardial infarction at 1 year, regardless of preferred treatment. The incidence of the combined end points was 7.3% in diabetic and 6.8% in nondiabetic patients (adjusted hazard ratio 1.0 [95% CI 0.7–1.4]).

CONCLUSIONS — In stable angina, treatment decisions regarding revascularization or the choice for CABG or PCI were not influenced by the presence of diabetes. Diabetes was not associated with a poor prognosis.

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Abbreviations: BARI, Bypass Angioplasty Revascularization Investigation; CABG, coronary artery bypass surgery; CAD, coronary artery disease; CVA, cerebrovascular accident; DES, drug-eluting stent; EHS-CR, Euro Heart Survey on Coronary Revascularization; LAD, left anterior descending artery; MI, myocardial infarction; NYHA, New York Heart Association; PCI, percutaneous coronary intervention.

A table elsewhere in this issue shows conventional and Système International (SI) units and conversion factors for many substances.

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Prevalence of diabetes in the general population is high, particularly in North America (7.9%) and Europe (7.8%) (1). In patients with established coronary artery disease (CAD) the prevalence of diabetes is even higher. In the Euro Heart Survey on Diabetes and the Heart, 14% of patients with stable CAD had newly detected diabetes, whereas ~37% had impaired glucose regulation. Furthermore, patients with CAD and diabetes may have a worse prognosis (2,3).

Whether coronary revascularization in patients with diabetes has comparable benefits as in patients without diabetes is not yet clear. There is also debate whether coronary artery bypass surgery (CABG) or percutaneous coronary intervention (PCI) should be preferred in diabetes (4–6). As a consequence, current treatment guidelines do not provide firm treatment advice for the general diabetic CAD population, although some detailed recommendations are given for specific subgroups (7–14).

The Euro Heart Survey on Coronary Revascularization (EHS-CR) was developed to obtain quantitative information on the adherence to guidelines and prognosis in patients undergoing coronary angiography (15). The EHS-CR enrolled 3,006 consecutive patients with stable CAD, and this well-characterized study population provides a unique opportunity for a systematic analysis of the relation between patient characteristics (including diabetes), invasive treatment choices, and prognosis.

RESEARCH DESIGN AND METHODS

EHS-CR

The EHS-CR was described in detail elsewhere (15). Briefly, the survey was designed to screen consecutive patients undergoing invasive procedures in the catheterization laboratory. Patients were enrolled if they had a diameter stenosis of at least 50% in at least one major epicardial coronary artery. Data were collected by dedicated data collecting officers and

sent to a central database in the European Heart House (Sophia Antipolis, Valbonne, France) via the Internet using the MacroTM software (InferMed, London, U.K.). The collected data included demographics, comorbidity, diagnosis, and detailed information regarding diagnostic angiography and treatment modalities. Between 1 November 2001 and 1 March 2002, a total of 5,767 patients were enrolled.

Treatment decisions

The EHS-CR is a descriptive study, and the survey protocol did not dictate any treatment decision. In general, physicians were encouraged to treat their patients in conformance with the most recent guidelines. To be informed of the physicians preferred intended treatment, the survey included the question "As the treating physician, which treatment option would be your first choice?" According to the reply to this question, patients were classified with a physician's intention for medical treatment, PCI, or CABG.

Definitions

Since the EHS-CR was a survey of day-to-day clinical practice, it was avoided to require additional specific diagnostic tests. In this context, the survey protocol did not require specific measurements to verify the diagnosis of comorbidities, including diabetes. For this study, patients with diabetes were classified as those who used oral hypoglycemic agents, insulin, or a combination of both. The extent of CAD was estimated by the number of diseased arteries and the number of diseased segments (15).

Follow-up

Patients were followed for 1 year after the initial angiogram. However, because of logistic reasons, 14 of 130 hospitals (11%) were not able to provide long-term follow-up information. Consequently, follow-up duration was only 30 days in 8% of patients and 30–300 days in another 13%. The median follow-up duration was 356 days (interquartile range 308–365). Follow-up data included all-cause mortality, cerebrovascular accident (CVA), myocardial infarction (MI), and repeat revascularization procedures.

Data description and data analysis

Continuous data are described as median values and corresponding quartiles and dichotomous data as counts and percentages. Univariable analyses were performed by unpaired Mann-Whitney tests (continuous data) and χ^2 or Fisher's exact tests (dichotomous data), as appropriate.

A number of multivariable logistic regression analyses were applied to further evaluate the relation between diabetes status and intended treatment (medical versus revascularization; CABG versus PCI in patients with intended revascularization) and the extent to which this relation was influenced by a range of clinical and angiographic characteristics. Therefore, each separate regression model included a diabetes status interaction term. If there was statistical evidence that this interaction term contributed to the model, it was concluded that the relation between diabetes and intended treatment was influenced by that specific characteristic.

As suggested by previous trials (13), we studied the relation between diabetes status and intended treatment in three specific patient subgroups in more detail: patients with significant left main disease; patients with three-vessel disease, combined with those with two-vessel disease and a significant lesion in the proximal left anterior descending artery (LAD); and patients with two-vessel disease not involving the proximal LAD, combined with those with one-vessel disease.

Kaplan-Meier survival analyses, as well as univariable and multivariable Cox proportional hazard regression, were applied to study patient outcome at 1-year follow-up. Since the number of outcome events was limited, in multivariable analysis we only adjusted for the EuroSCORE, a scoring system to estimate the operative mortality for patients undergoing cardiac surgery based on a broad range of clinical characteristics (16). We report adjusted hazard ratios and corresponding 95% CIs. All statistical tests were two sided, and significance was stated at the classical 0.05 probability level.

RESULTS

Patient characteristics

A total of 3,006 patients were diagnosed with stable angina. Complete data on diabetes status and intended treatment was available in 2,928 (97%) patients who comprised our study population. A total of 587 (20%) patients had diabetes.

There were important differences in clinical and angiographic baseline characteristics between patients with and without diabetes (Table 1). Patients with diabetes were more often women and had a higher prevalence of chronic renal insufficiency, peripheral vascular disease, and cerebrovascular disease. The size of the myocardium at risk was significantly increased in diabetic patients, as was the EuroSCORE and the number of diseased vessels and segments. Moreover, patients with diabetes more often had impaired left ventricular function than those without diabetes.

Univariable analyses

In patients with diabetes, a PCI was intended in 282 (48%) patients and CABG in 155 (26%) patients, compared with 1,217 (52%) and 586 (25%) in patients without diabetes, respectively. There were, however, some specific patient subgroups in which the presence of diabetes seemed to influence choice of treatment (Table 2). The presence of diabetes was associated with an increased physician's preference for medical treatment in women, in patients without heart failure, in those with mitral valve insufficiency, and in patients with four or more diseased segments. In contrast, diabetes was associated with an increased preference for revascularization in patients with previous PCI and those with mild heart failure. In the diabetic patients, an increased physician's preference for CABG rather than PCI was observed in patients aged <60 years, in women, in patients with previous PCI or extensive antianginal medication, and in those with a EuroSCORE of less than three points. An increased physician's preference for intervention by PCI rather than CABG was observed in diabetic patients with a large area of jeopardized myocardium.

The extent of CAD was strongly associated with the physician's preference for revascularization (Table 2). Diabetes did not influence this association. Among patients selected for revascularization, CABG was preferred in those with more extensive disease, independent of the coexistence of diabetes.

Multivariable analyses

After multivariable adjustment for a range of potential cofounders (Table 3), the odds ratio for the relation between diabetes status and preferred revascularization versus medical treatment was 0.91 (95% CI 0.70–1.17). Thus, the treating physicians did not have a differential preference for either medical treatment or coronary revascularization in relation to diabetes status. There was also no preference for either CABG or PCI in relation to diabetes status, with

Table 1—*Characteristics of the study population according to diabetes status*

	Patients with diabetes	Patients without diabetes	*P*
n	587	2,341	
Demographics			
Age (years)	64 (57–71)	64 (55–71)	
Men	70	78	<0.001
Medical history and medication at admission			
Prior PCI	25	24	
Prior CABG	15	12	
Prior MI	43	43	
Peripheral vascular disease	18	12	<0.001
Cerebrovascular disease	10	7	<0.05
Chronic renal insufficiency	5	3	<0.05
Use of β-blockers, calcium antagonists, or nitrates			
None	9	11	
Mono	34	37	
Double	46	40	
Triple	11	12	
Presentation			
Concomitant valvular heart disease	7	7	
NYHA symptomatic (heart failure) class			
I or II	9	10	
III or IV	7	5	
CCS angina class			
I	14	16	
II	50	47	
III	31	32	
IV	5	5	
Size of the myocardium at risk*			<0.001
Small	23	29	
Intermediate	53	53	
Large	24	18	
EuroSCORE†	4 (2–5)	3 (2–5)	<0.001
Left ventricular function‡			<0.01
Mild impairment (left ventricular ejection fraction 40–50%)	26	22	
Moderate impairment (left ventricular ejection fraction 30–40%)	9	7	
Severe impairment (left ventricular ejection fraction <30%)	4	4	
Angiographic characteristics			
Mitral insufficiency potentially requiring surgery	13	14	
Proximal LAD disease	35	32	
Number of diseased arteries			<0.001
1	26	36	
2	27	30	
3	38	25	
Left main disease	9	9	
Number of diseased segments			<0.001
1	22	31	
2	19	24	
3	20	17	
≥4	38	28	
Grafts with >50% diameter stenosis§	60	61	

Continuous data (age, EuroSCORE) are median (25th–75th percentile) and dichotomous data are percent. *Qualitative estimate based on noninvasive diagnostics as described in the American College of Cardiology/American Heart Association guidelines (10). †European System for Cardiac Operative Risk Evaluation, which is a score developed to quantify the risk of perioperative mortality in patients scheduled for cardiac surgery (16). ‡Based on quantitative or qualitative measurements. §In patients with a history of prior CABG only. CCS, Canadian Cardiovascular Society.

the adjusted odds ratio 0.92 (0.63–1.3). However, diabetes significantly influenced treatment decisions in several subgroups according to age, previous PCI, heart failure, concomitant valvular disease, and EuroSCORE. For example, the presence of diabetes was associated with an increased preference for coronary revascularization in patients with mild heart failure (New York Heart Association [NYHA] class I or II). Furthermore, diabetes was associated with an

Table 2—*Intended invasive versus noninvasive treatment and intended CABG versus PCI according to diabetes status in relation to clinical baseline and angiographic characteristics*

Characteristics	Number of patients	Percentage with intended revascularization			Percentage with intended CABG in those with intended revascularization		
		Diabetes	No diabetes	*P*	Diabetes	No diabetes	*P*
All	2,928	74	77		35	33	
Age							
<60 years	1,165	77	79		34	26	<0.05
60–69 years	957	74	75		32	37	
≥70 years	806	72	77		42	38	
Sex							
Women	684	68	77	<0.05	35	27	<0.05
Men	2,242	77	77		36	34	
Prior PCI							
No	2,218	72	79	<0.01	43	37	<0.05
Yes	697	81	71	<0.05	15	17	
Prior CABG							
No	2,548	77	80		39	34	
Yes	366	59	53		10	13	
Prior MI							
No	1,673	76	80		35	33	
Yes	1,240	73	73		36	31	
Peripheral vascular disease							
No	2,535	74	77		33	31	
Yes	376	75	76		48	41	
Cerebrovascular disease							
No	2,685	75	77		34	32	
Yes	225	67	78		53	41	
Chronic renal insufficiency							
No	2,822	75	77		36	33	
Yes	102	60	72		22	23	
Use of β-blockers, calciumantagonists, or nitrates prior to inclusion							
None	314	64	73		32	37	<0.05
Mono	1,060	74	74		34	29	
Double	1,209	76	80		34	35	
Triple	332	77	80		47	32	
Concomitant valvular heart disease							
No	2,717	75	77		34	30	
Yes	209	63	77		62	62	
NYHA symptomatic (heart failure) class							
No heart failure	2,469	74	79	<0.05	33	30	
I or II	299	91	67	<0.001	47	46	
III or IV	159	60	67		48	53	
CCS angina class							
I	437	69	61		29	26	
II	1,353	72	77		33	29	
III	903	79	82		42	40	
IV	131	85	92		35	39	
Size of the myocardium at risk							
Small	707	64	65		18	20	<0.05
Intermediate	1,324	75	80		40	31	
Large	481	80	78		32	46	
EuroSCORE							
<3*	1,129	80	82		32	23	<0.05
≥3	1,760	72	74		37	38	

Continued on following page

Table 2—*Continued*

Characteristics	Number of patients	Percentage with intended revascularization			Percentage with intended CABG in those with intended revascularization		
		Diabetes	No diabetes	*P*	Diabetes	No diabetes	*P*
Left ventricular ejection fraction							
>50%	1,694	75	80	<0.05	34	31	
41–50%	597	77	76		45	38	
31–40%	184	71	64		43	52	
≤30%	98	57	51		23	53	
Mitral valve insufficiency							
No	2,409	74	78	<0.05	35	31	
Yes	392	76	72		44	44	
Prioximal LAD disease							
No	1,973	72	75		25	24	
Yes	955	79	82		53	48	
Number of diseased arteries							
1	987	72	73		8	8	
2	863	77	80		18	24	
3	798	74	79		59	60	
Left main	272	75	80		67	74	
Number of diseased segments							
1	861	74	73	<0.05	7	10	
2	667	78	79		18	21	
3	512	74	78		46	37	
>3	888	73	80		55	62	
Number of diseased segments suitable for PCI							
0	807	49	53		84	79	
1	1,073	85	86		14	13	
2	590	85	86		27	20	
>2	458	85	85		40	46	
Number of diseased segments suitable for CABG							
0	701	57	60		5	8	
1	755	83	80		10	10	
2	511	76	83		28	28	
>2	961	81	84		67	67	
Grafts with >50% diameter stenosis							
0	144	44	41		7	13	
1	110	62	57		6	10	
>2	112	76	66		16	16	

*Median value. CCS, Canadian Cardiovascular Society.

increased preference for CABG rather than PCI in patients aged <60 years but associated with an increased preference for PCI in elderly patients.

Outcome after 1 year

The incidence of the composite end point of all-cause death, nonfatal CVA, or nonfatal MI at 1-year follow-up was 7.3% in patients with diabetes and 6.8% in patients without diabetes (adjusted hazard ratio 1.0 [95% CI 0.7–1.4]). Patients with more extensive disease had a higher incidence of death, CVA, or MI at 1-year follow-up than those with less extensive disease (Fig. 1; Table 3). However, importantly, in the subgroups according to the extent of CAD, there were no significant differences in the incidence of this composite end point between patients with and without diabetes.

Concerning the relation among diabetes status, treatment choice, and outcome, because of small numbers, patients with left main disease or three-vessel disease were considered as one group. Regardless of the extent of the disease, patients selected for PCI had a lower incidence of major adverse cardiovascular or cerebrovascular events at 1-year follow-up than those selected for medical treatment or CABG (Table 4), but again we observed no difference in the relation between intended treatment and outcome according to diabetes status.

CONCLUSIONS — This analysis revealed that in stable angina, subsequent treatment decisions regarding revascularization (and the choice for either CABG or PCI) were not influenced by the presence of diabetes. Importantly, diabetic patients with left main disease, proximal LAD disease, or more extensive, multivessel disease were not more likely to undergo

Table 3—*Multivariably adjusted association between treated diabetes and intended treatment according to patient characteristics with significant interaction*

	Intended revascularization (versus medical treatment)		Intended CABG (versus PCI)*	
	Adjusted odds ratio (95% CI)†	*P* value for homogeneity	Adjusted odds ratio (95% CI)†	*P* value for homogeneity
All	0.91 (0.70–1.17)	—	0.92 (0.63–1.3)	—
Age				
<60 years			1.6 (0.88–2.9)	Ref.
60–69 years			0.53 (0.22–1.3)	0.004
≥70 years			0.63 (0.25–1.5)	0.29
Prior PCI				
No	0.74 (0.55–1.0)	Ref.		
Yes	1.7 (0.93–3.1)	0.007		
NYHA symptomatic (heart failure) class				
No heart failure	0.77 (0.59–1.0)	Ref.		
I or II	8.3 (2.8–25)	<0.001		
III or IV	0.63 (0.25–1.5)	0.85		
Concomitant valvular heart disease				
No			1.0 (0.7–1.5)	Ref.
Yes			0.25 (0.06–0.95)	0.047
EuroSCORE				
<3			2.1 (1.1–3.7)	Ref.
≥3			0.55 (0.26–1.2)	<0.001

*The analysis is limited to patients with intended coronary revascularization. †An odds ratio >1 implies that treated diabetes is associated with an increased preference for the treatment option in the corresponding column, whereas an odds ratio <1 implies that treated diabetes is associated with an increased preference for the alternative. Odds ratios are adjusted for all variables that are listed in Tables 2 and 3, as appropriate.

coronary revascularization (or CABG) than their nondiabetic counterparts. Diabetes was also not associated with a poor prognosis.

Previous (1999) and current (2002) guidelines recommend CABG rather than PCI in patients with diabetes and multivessel disease (10,11). This treatment advice is mainly based on post hoc analyses from randomized trials that were conducted before the use of stents and glycoprotein IIb/IIIa inhibitors. In the Bypass Angioplasty Revascularization Investigation (BARI), patients with treated diabetes who were randomized to CABG had significantly better survival after 7-year follow-up than those randomized to balloon angioplasty (4). To some extent, this finding was confirmed by a meta-analysis of 13 randomized trials of CABG versus balloon angioplasty (including BARI), which demonstrated improved survival in favor of CABG at 4-year follow-up but no longer at 6.5-year follow-up (17).

How can we understand the discrepancy between guideline recommendations and the clinical practice patterns that we observed? Possibly, those involved in the care of patients with stable angina are not convinced that patients with diabetes should be treated differently than those without diabetes, especially since large-scale randomized trials are lacking. The ongoing BARI 2 Diabetes, in which diabetic patients will be randomly allocated to aggressive medical management targeting at optimal glycemic and metabolic control or revascularization, may help to solve this "burgeoning dilemma," as the investigators call it (18). Furthermore, it is well known that patients enrolled in clinical trials form a selected population, particularly in randomized trials comparing PCI and CABG (19). In this respect, observational studies, including the BARI registry (5), reported similar outcomes after CABG and PCI in patients with diabetes and symptomatic coronary disease (6).

Another interesting aspect is emphasized by McGuire et al. (20), who evaluated the effects of reporting the BARI results (which were made public together with a "clinical alert") on decision making. It was reported that the rapid advancement of health care technology was the major factor of the lack of influence of the clinical alert and the BARI on current clinical practice. In recent (1996–2000) randomized trials comparing CABG against PCI, patients with diabetes who were allocated to stenting with liberal use of glycoprotein IIb/IIIa inhibitors had much more favorable outcomes than the patients allocated to balloon angioplasty in the earlier (1985–1995) trials (21). Furthermore, no difference in irreversible clinical end points was observed between CABG and PCI with stenting. It is true that these trials are limited by a relatively small sample size and a short (1-year) follow-up duration. Still, these observations may have influenced treatment decisions.

In our survey, diabetes was not associated with an increased incidence of major adverse cardiac and cerebral events. Diabetic patients scheduled for PCI had similar prognosis as nondiabetic subjects. It is true that the limited number of patients and the short duration of follow-up might have masked significant and clinically relevant differences. Furthermore, we realize that this is a purely observational study, and patients were not randomized to the different treatment regimens. Consequently, estimates of

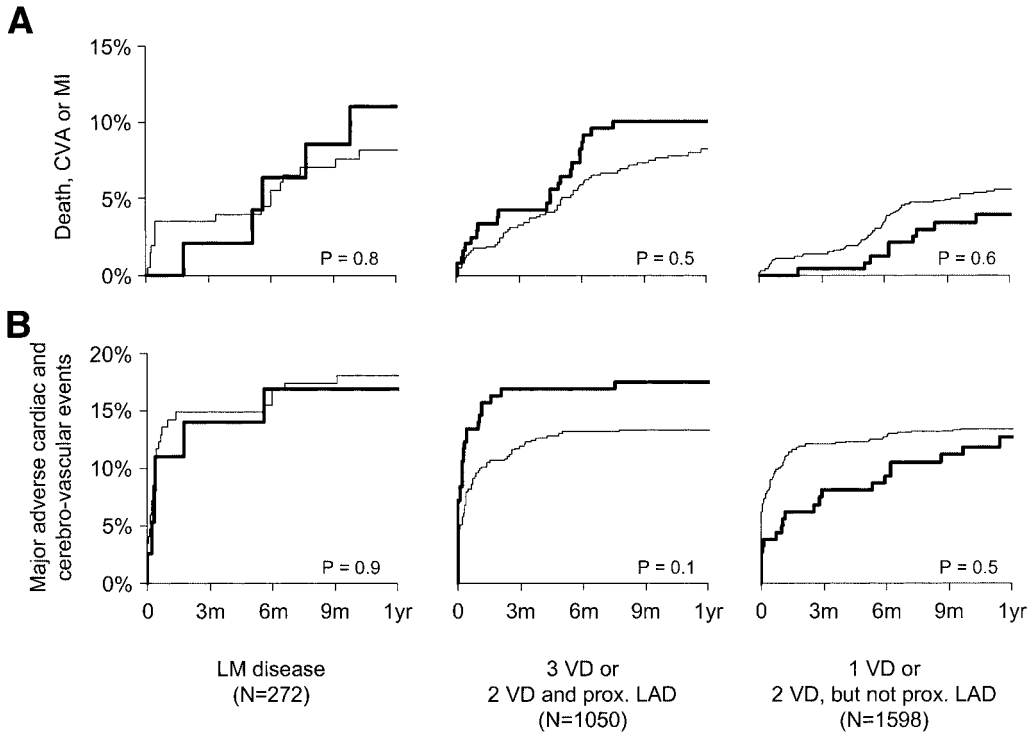

Figure 1—*Incidence of adverse cardiac events during 1-year follow-up according to the extent of coronary disease and diabetes status. A: Incidence of death, CVA, and MI. B: Incidence of death, CVA, MI, and repeated coronary revascularization procedures. The bold line represent patients with diabetes.*

treatment effect might be seriously biased due to differential patient selection. Still, based on these observations, we are confident that large differences in clinical outcome can be excluded with sufficient certainty. Hence, the position of PCI with stenting as a safe treatment for patients with diabetes and stable CAD seems justified.

Limitations

This study has several limitations that need to be addressed. First, the EHS-CR was conducted mainly in hospitals with liberal access to coronary revascularization facilities. It is known that the availability of specific medical resources decreases the threshold for its use (22). However, there is no indication that this has been different in patients with and without diabetes.

Second, as the EHS-CR is a survey of routine clinical practice, the treating physician was not enforced to use specific laboratory tests in order to establish the diagnosis of diabetes. Thus, we cannot exclude the possibility that misclassification of diabetes had occurred. However, the clinical and angiographic characteristics of patients with diabetes corresponded quite well with other datasets of diabetic subjects with stable coronary disease (23).

Third, no core lab analysis was performed of the qualifying coronary angiogram. Consequently, detailed anatomic information that may have influenced treatment decisions was lacking. This is especially relevant for the 366 patients with a prior history of CABG. However, sensitivity analyses that excluded these patients showed consistent results.

Fourth, the present data have been acquired before clinical availability of antirestenotic, drug-eluting stents (DESs). Randomized clinical trials comparing DESs with bare metal stents demonstrated lower repeat revascularization rates in favor of DESs (24–26). However, these trials did not provide evidence for a reduction in irreversible adverse cardiac events, including death and MI. Since the recommendation to conduct CABG instead of PCI is mainly based on the long-term results of the BARI, demonstrating a mortality reduction in favor of CABG (4) based on currently available evidence, it seems unlikely that the physician's preference for CABG or stenting will be different in the DES than in the bare metal stents era. At the other hand, the ongoing CARDia, FREEDOM, and BARI 2D trials, which enroll patients with coronary disease and diabetes who are randomized to either CABG or PCI with DES and modern antiplatelet therapy, including glycoprotein IIb/IIIa inhibitors and clopidogrel, may shed a vivid light on the PCI-versus-CABG debate. New surveys of clinical practice are warranted after the results of these trials are available.

Diabetes is not among the factors that determine treatment decisions regarding revascularization in patients with stable coronary disease. Diabetes was not associated with a worse prognosis, independent of invasive treatment preference. In expectation of the results of ongoing clinical trials comparing several medical and more invasive treatment strategies, guidelines for the management of CAD patients with diabetes should be updated more systematically than is currently the case.

APPENDIX

Organization of the survey

Survey Expert Committee. W. Wijns (survey chairman), Belgium; N. Mercado (research fellow), the Netherlands; M. Bertrand, France; W. Maier, Switzerland; B. Meier, Switzerland; C. Moris, Spain; F. Piscione, Italy; U. Sechtem, Germany; P.

Table 4—*Incidence of adverse cardiac complications at 1-year follow-up according to the extent of coronary disease, intended treatment, and diabetes status*

	Intended treatment	Diabetes	Number of patients	Incidence of death, CVAs, or MI at 1 year*	Adjusted hazard ratio (95% CI)†	Incidence of death, CVAs, MI, (re)CABG, or (re)PCI at 1 year‡	Adjusted hazard ratio (95% CI)†
All patients	Any	Yes	587	7.3	1.0 (0.7–1.4)	15.9	1.0 (0.8–1.3)
		No	2,341	6.8	1	13.8	1
	Medical	Yes	150	6.7	0.9 (0.5–1.7)	—	—
		No	538	7.6	1	—	—
	PCI	Yes	282	5.3	1.0 (0.6–1.8)	16.8	1.1 (0.8–1.6)
		No	1,217	4.9	1	14.8	1
	CABG	Yes	155	12.0	1.1 (0.6–1.9)	12.8	1.0 (0.6–1.8)
		No	586	10.2	1	11.7	1
Left main or three- or two-vessel disease and proximal LAD	Any	Yes	317	10.2	1.1 (0.7–1.7)	18.5	1.2 (0.8–1.7)
		No	1,005	8.5	1	14.4	1
	Medical	Yes	77	9.9	0.8 (0.3–1.9)	—	—
		No	202	10.2	1	—	—
	PCI	Yes	108	8.3	1.3 (0.5–2.9)	26.6	1.4 (0.9–2.2)
		No	331	6.2	1	18.9	1
	CABG	Yes	132	12.1	1.2 (0.6–2.3)	11.6	1.0 (0.6–1.9)
		No	472	9.3	1	11.1	1
One- or two-vessel disease but no proximal LAD	Any	Yes	268	4.0	0.8 (0.4–1.5)	12.8	0.8 (0.6–1.3)
		No	1,330	5.6	1	13.4	1
	Medical	Yes	73	3.3	1.0 (0.3–2.9)	—	—
		No	335	6.0	1	—	—
	PCI	Yes	173	3.4	0.8 (0.3–1.9)	11.9	0.8 (0.5–1.4)
		No	881	4.4	1	13.3	1
	CABG	Yes	22	11.1	0.7 (0.2–3.1)	19.2	1.0 (0.3–3.4)
		No	114	13.5	1	14.2	1

*Kaplan-Meier estimate. †Hazard ratios are adjusted for differences in EuroSCORE between groups. ‡Kaplan-Meier estimate; analysis based on patient with intended coronary revascularization only.

Sergeant, Belgium; E. Stahle, Sweden; J. Vos, the Netherlands; P. Widimsky, Czech Republic; F. Unger, Austria.

Euro Heart Survey Team (European Heart House, France). Malika Manini (operations manager), Claire Bramley (data monitor), Valérie Laforest (data monitor), Charles Taylor (database administrator), Susan Del Gaiso (administrator).

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Sponsoring institutions. French Federation of Cardiology, Hellenic Cardiological Society, Netherlands Heart Foundation, Swedish Heart and Lung Foundation, and individual hospitals.

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