A New Strategy for Discontinuation of Dual Antiplatelet Therapy

The RESET Trial (REal Safety and Efficacy of 3-month dual antiplatelet Therapy following Endeavor zotarolimus-eluting stent implantation)

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Objectives	The goal of this study was to evaluate shorter duration (3 months) dual antiplatelet therapy (DAPT) after drug- eluting stent (DES) implantation.
Background	There have been few published reports of prospective randomized clinical studies comparing the safety and effi- cacy of shorter duration DAPT after DES implantation.
Methods	We randomly assigned 2,117 patients with coronary artery stenosis into 2 groups according to DAPT duration and stent type: 3-month DAPT following Endeavor zotarolimus-eluting stent (E-ZES) implantation (E-ZES + 3-month DAPT, $n = 1,059$) versus 12-month DAPT following the other DES implantation (standard therapy, n = 1,058). We hypothesized that the E-ZES+3-month DAPT would be noninferior to the standard therapy for the primary composite endpoint (cardiovascular death, myocardial infarction, stent thrombosis, target\vessel revascularization, or bleeding) at 1 year.
Results	The primary endpoint occurred in 40 (4.7%) patients assigned to E-ZES+3-month DAPT compared with 41 (4.7%) patients assigned to the standard therapy (difference: 0.0%; 95% confidence interval [Cl]: -2.5 to 2.5; $p = 0.84$; $p < 0.001$ for noninferiority). The composite rates of any death, myocardial infarction, or stent thrombosis were 0.8% and 1.3%, respectively (difference: -0.5%; 95% Cl: -1.5 to 0.5; $p = 0.48$). The rates of stent thrombosis were 0.2% and 0.3%, respectively (difference: -0.1%; 95% Cl: -0.5 to 0.3; $p = 0.65$) without its further occurrence after cessation of clopidogrel in the E-ZES+3-month DAPT group. The rates of target vessel revascularization were 3.9% and 3.7%, respectively (difference: 0.2%; 95% Cl: -2.3 to 2.6; $p = 0.70$).
Conclusions	E-ZES+3-month DAPT was noninferior to the standard therapy with respect to the occurrence of the primary end- point. (REal Safety and Efficacy of a 3-month dual antiplatelet Therapy following E-ZES implantation [RESET]; NCT01145079) (J Am Coll Cardiol 2012;60:1340-8) © 2012 by the American College of Cardiology Foundation

Because one of the strong predictors for stent thrombosis is early discontinuation of clopidogrel (1,2), prolonged dual antiplatelet therapy (DAPT) is highly recommended to prevent stent thrombosis (1,3). However, reports from several trials of the zotarolimus-eluting stent (Endeavor [E-ZES], Medtronic, Santa Rosa, California) have shown

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beneficial efficacy and safety, despite a relatively short duration of DAPT (4-6). One optical coherence tomography study reported sufficient strut coverage following implantation with the E-ZES as early as 3 months post-procedure (7). A recent registry study with 661 low-risk patients who received DAPT for 3 months following E-ZES implantation showed favorable long-term clinical outcomes and lower incidence of stent thrombosis after cessation of clopidogrel 3 months post-intervention (8). On the basis of the safety nature of E-ZES and theoretical backgrounds from the imaging and clinical studies, we hypothesized that 3-month DAPT after E-ZES implantation (E-ZES+3-month DAPT) may be noninferior to 12-month DAPT after implantation with other drug-eluting stent (DES) (standard therapy). In the RESET (REal Safety and Efficacy of a 3-month dual antiplatelet Therapy following E-ZES implantation) trial, we compared the safety and efficacy between patients treated with E-ZES+3-month DAPT and patients treated with the standard therapy.

Methods

The RESET trial was a prospective, open-label, randomized trial conducted at 26 sites in Korea; the complete lists and detailed information regarding participating institutes appear in the Online Appendix. The trial protocol was approved by the institutional review board at each participating center. Patients with a diagnosis of angina or acute myocardial infarction with more than 50% diameter stenosis in a coronary artery by visual estimation, who presented to the catheterization laboratory for elective percutaneous coronary intervention, were eligible for participation. The complete inclusion and exclusion

criteria are provided in the Online Appendix. All study participants provided written informed consent using documents approved by the local ethics board.

Using an interactive web-based response system, study participants were randomly assigned in a 1:1 ratio to receive either the E-ZES or another currently available DES. Randomization was stratified by participating center and 4 clinical or lesion characteristics (Fig. 1): diabetes mellitus, acute coronary syndrome, treatment of a short lesion (stent length \leq 24 mm); and treatment of a long lesion (stent length \geq 28 mm). Patients with diabetes mellitus or acute coronary syndrome were randomized to either the E-ZES or the Resolute zotarolimus-eluting stent (Medtronic); patients with short lesions to the E-ZES or the Cypher Select sirolimus-eluting stent (Cordis, Miami, Florida); and those with long lesions to the E-ZES or the Xience V

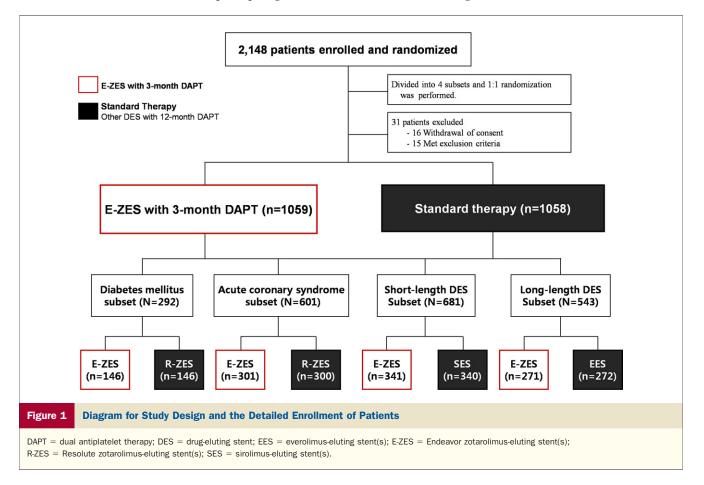


Table 1

	Dasenne Chincal, Angiographic		tenstics	
	Variables	E-ZES+3-Month DAPT	Standard Therapy	p Value
Duration of	DAPT, days	93 ± 28	364 ± 31	<0.001
Clinical char	racteristics			
n		1,059	1,058	
Age, yrs		$\textbf{62.4} \pm \textbf{9.4}$	$\textbf{62.4} \pm \textbf{9.8}$	0.94
Male		682 (64.4)	665 (62.9)	0.47
Body mas	s index, kg/m ²	$\textbf{25.0} \pm \textbf{3.2}$	$\textbf{24.9} \pm \textbf{3.1}$	0.50
Hypertens	sion	660 (62.3)	650 (61.4)	0.69
Diabetes	mellitus	316 (29.8)	305 (28.8)	0.63
Dyslipider	mia	611 (57.7)	634 (59.9)	0.31
Current si	moker	267 (25.2)	241 (22.8)	0.20
Congestiv	e heart failure	120 (11.3)	125 (11.8)	0.74
Ejection f	raction, %	64.2 ± 9.4	$\textbf{63.9} \pm \textbf{9.4}$	0.45
Prior myo	cardial infarction	19 (1.8)	17 (1.6)	0.87
Prior perc	utaneous coronary intervention	37 (3.5)	32 (3.0)	0.63
Prior coro	nary bypass surgery	2 (0.2)	6 (0.6)	0.18
Clinical pr	resentation			0.66
Stable	angina	471 (44.5)	490 (46.3)	
Unstabl	le angina	432 (40.8)	422 (39.9)	
Acute n	nyocardial infarction	156 (14.7)	146 (13.8)	
No. of dis	eased vessels			0.99
1		603 (56.9)	604 (57.1)	
2		292 (27.6)	292 (27.6)	
3		164 (15.5)	162 (15.3)	
Medicatio	ns at discharge			
Statins		923 (87.2)	914 (86.4)	0.61
Beta-bl	ockers	712 (67.2)	730 (69.0)	0.40
Angiote	ensin-converting enzyme inhibitors	331 (31.3)	349 (33.0)	0.40
Angiote	ensin receptor blockers	323 (30.5)	301 (28.4)	0.32
Calciun	n channel blocker	389 (36.7)	389 (36.8)	1.00
Angiographi	c and procedural characteristics			
No. of les	ions	1,341	1,346	
Treated ve	essel			0.54
Left and	terior descending artery	707 (52.7)	722 (53.6)	
Left cire	cumflex artery	281 (21.0)	259 (19.2)	
Right c	oronary artery	353 (26.3)	365 (27.1)	
ACC/AHA	class B2/C	910 (67.9)	932 (69.2)	0.46
Lesion ler	ngth, mm	$\textbf{19.6} \pm \textbf{10.1}$	$\textbf{20.1} \pm \textbf{10.8}$	0.21
Type of dr	rug-eluting stent			
E-ZES		1,341 (100.0)	_	
Cypher	sirolimus-eluting stents	—	383 (28.5)	
Xience	everolimus-eluting stents	_	404 (30.0)	
Resolut	e zotarolimus-eluting stents	_	559 (41.5)	
Multivess	el intervention/patients	233 (22.0)	248 (23.4)	0.44
Number o	f lesions per patient	$\textbf{1.27} \pm \textbf{0.53}$	$\textbf{1.27} \pm \textbf{0.68}$	0.88
Stent diar	neter, mm	$\textbf{3.18} \pm \textbf{0.42}$	$\textbf{3.17} \pm \textbf{0.83}$	0.63
Stent leng	gth per lesion, mm	$\textbf{22.7} \pm \textbf{10.1}$	$\textbf{22.9} \pm \textbf{10.7}$	0.35
Adjuvant	post-dilation	539 (40.2)	540 (40.1)	0.97
Maximum	i stent pressure, atm	$\textbf{16.2}\pm\textbf{3.7}$	$\textbf{16.5}\pm\textbf{3.6}$	0.35
Use of gly	coprotein IIb/IIIa inhibitors/patient	20 (1.9)	21 (2.0)	0.89
Procedure	e success	1,339 (99.9)	1,345 (99.9)	0.63

Baseline Clinical, Angiographic, and Procedural Characteristics

Continued on next page

everolimus-eluting stents (Abbott Vascular, Santa Clara, California).

After stent implantation, 100-mg daily aspirin was prescribed indefinitely, and the duration of clopidogrel 75-mg daily was given depending on the randomization scheme (Fig. 1). Details of study procedures and quantitative coronary angiographic analyses are provided in the Online Appendix.

Post-procedure clinical assessment was performed inhospital, and after 1, 3, 6, and 12 months, either by clinic visit or by telephone interview. The primary endpoint was a

Table 1	Continued			
	Variables	E-ZES+3-Month DAPT	Standard Therapy	p Value
Quantitative	e angiographic analysis			
Pre-interv	vention			
Refere	nce vessel diameter, mm	3.0 ± 0.5	$\textbf{3.0} \pm \textbf{0.5}$	0.13
Minimu	um luminal diameter, mm	$\textbf{1.1} \pm \textbf{0.5}$	$\textbf{1.0} \pm \textbf{0.5}$	0.23
Percen	t diameter stenosis, %	$\textbf{65.0} \pm \textbf{14.1}$	$\textbf{65.5} \pm \textbf{13.8}$	0.36
Post-inter	rvention			
Minimum	luminal diameter, mm			
In-sten	t	2.7 ± 0.4	$\textbf{2.7} \pm \textbf{0.4}$	0.28
In-segn	nent	2.2 ± 0.5	$\textbf{2.1} \pm \textbf{0.5}$	0.58
Percent d	liameter stenosis, %			
In-sten	t	$\textbf{11.2} \pm \textbf{7.8}$	$\textbf{11.1} \pm \textbf{8.1}$	0.65
In-segn	nent	$\textbf{30.7} \pm \textbf{11.7}$	$\textbf{30.7} \pm \textbf{11.7}$	0.83

Values are mean \pm SD, n, or n (%).

ACC = American College of Cardiology; AHA = American Heart Association; DAPT = dual antiplatelet therapy; E-ZES = Endeavor zotarolimuseluting stent(s).

composite of death from cardiovascular cause, myocardial infarction, stent thrombosis, ischemia-driven target-vessel revascularization, or bleeding at 1-year post-procedure. Clinical events are defined according to the Academic Research Consortium (9). Detailed definitions of study endpoints, clinical diseases, and procedural findings are provided in the Online Appendix. All clinical events were independently monitored and assessed by a clinical event committee, comprising members masked as to the assigned therapy groups.

The primary analysis was a noninferiority comparison between the 2 groups with respect to the occurrence of the primary endpoint. On the basis of the previous studies, we assumed the overall incidence of the primary endpoint after E-ZES+3-month DAPT, and after the standard therapy, would be 10% and 11%, respectively (4-6,10-12). We hypothesized that the clinical outcome of E-ZES+3-month DAPT would be noninferior to the other group, with a noninferiority margin of 4% for the absolute difference in risk at 12 months. Assuming a 10% dropout rate, this required an estimated sample size of 2,120 patients (1,060 for each group) to achieve 80% power for the noninferiority test and a 1-sided type I error of 5%. The detailed methods of statistical analysis are provided in the Online Appendix.

Results

Between April 2009 and December 2010, we enrolled and randomized 2,148 patients, of which 2,117 patients (E-ZES+3-month DAPT = 1,059; standard therapy = 1,058) comprised the analysis population. The study design and the detailed enrollment of patients are provided in Figure 1. The baseline characteristics were similar between the 2 groups (Table 1). Clinical follow-up at 1 year was completed for 2,086 of 2,117 patients (98.5%): 1,044 of 1,059 patients (98.6%) in E-ZES+3-month DAPT group, and 1,042 of 1,058 patients (98.5%) in standard therapy group (p = 0.99). Clinical outcomes through 1-year follow-up are listed in Table 2. At 1 year, the E-ZES+3month DAPT group was noninferior to the standard therapy group for the primary endpoint (cumulative events: 40 [4.7%] vs. 41 [4.7%]; difference: 0.0%, 95% confidence interval [CI]: -2.5 to 2.5; p = 0.84; p < 0.001 for noninferiority) (Fig. 2A). The cumulative events rates of the composite of any death, myocardial infarction, or stent thrombosis were 0.8% and 1.3%, respectively (difference: -0.5%; 95% CI: -1.5 to 0.5; p = 0.48, Fig. 2B). The occurrence of stent thrombosis was similar between the 2 groups (0.2% vs. 0.3%; difference: -0.1%; 95% CI: -0.5 to 0.3; p = 0.65). From 3 months through 12 months following the index procedure, there were 3 stent thrombosis events in the standard therapy group, and none in the E-ZES+3-month DAPT group despite the cessation of clopidogrel. The rates of target-vessel revascularization were 3.9% for the E-ZES+3-month DAPT group and 3.7% for the standard therapy group. The subgroup analysis of the primary endpoint and other events at 1 year is shown in Figure 3 and Table 2.

Interruption of the DAPT regimen occurred in 62 (5.9%) of 1,059 patients who were allocated to E-ZES+3-month DAPT (mean duration of DAPT: 196 \pm 63 days). Reasons for interruption of the DAPT regimen were as follows: physicians' mistake or failure of monitoring (n = 26), physicians' discretion (n = 22), patients' disagreement (n = 13), and repeat revascularization (n = 1). After censoring patients who had an interruption of DAPT duration in the E-ZES+3-month DAPT group, there were no significant differences in 1-year clinical outcomes between the 2 groups (Tables 3 and 4).

Discussion

This randomized study demonstrated that E-ZES+3month DAPT is safe and noninferior to the standard therapy for the primary composite endpoint.

Regardless of DES types, current recommendations call for a minimum of 12 months of DAPT after DES implantation for the prevention of late stent thrombosis (3). However, prolonged DAPT has been associated with

Table 2

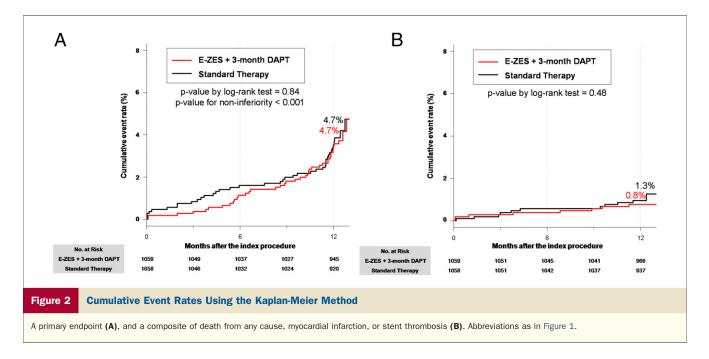
Clinical Outcomes Through 1 Year

Variables	E-ZES+3-Month DAPT (n = 1,059)	Standard Therapy (n = 1,058)	Difference (95% CI)	p Value
Composite events				
Primary endpoint	40 (4.7)	41 (4.7)	0.0% (-2.5 to 2.5)	0.84
Death from any cause, myocardial infarction, or stent thrombosis	8 (0.8)	11 (1.3)	-0.5% (-1.5 to 0.5)	0.48
Death from cardiovascular cause or myocardial infarction	4 (0.4)	7 (0.7)	-0.3% (-1.0 to 0.4)	0.36
Each component				
Death				
From any cause	5 (0.5)	8 (1.0)	-0.5% (-1.4 to 0.4)	0.39
From cardiovascular cause	2 (0.2)	4 (0.4)	-0.2% (-0.6 to 0.3)	0.41
Myocardial infarction	2 (0.2)	4 (0.4)	-0.2% (-0.7 to 0.3)	0.41
Target vessel revascularization	31 (3.9)	27 (3.7)	0.2% (-2.3 to 2.6)	0.70
Non-target vessel revascularization	15 (1.5)	11 (1.5)	0.0% (-1.3 to 1.4)	0.52
Stent thrombosis, definite or probable	2 (0.2)	3 (0.3)	-0.1% (-0.5 to 0.3)	0.65
<1 month	2	0		
1-3 months	0	0		
3-12 months	0	3		
Bleeding				
Major or minor	5 (0.5)	10 (1.0)	-0.5% (-1.2 to 0.2)	0.20
Major	2 (0.2)	6 (0.6)	-0.4% (-0.9 to 0.1)	0.16
Cerebrovascular accidents	6 (0.6)	6 (0.7)	0.1% (-0.1 to 1.0)	0.96
Subgroup analysis				
Diabetes mellitus subset	146	146	_	_
Primary endpoint	4 (2.8)	5 (3.4)	-0.6% (-4.6 to 3.3)	0.74
Death from cardiovascular cause	1 (0.7)	1(0.7)	0.0% (-1.9 to 1.9)	1.00
Myocardial infarction	0 (0.0)	1(0.7)	, , , , , , , , , , , , , , , , , , ,	0.32
Target vessel revascularization	3 (2.1)	2 (1.4)	0.7% (-2.3 to 3.7)	0.65
Stent thrombosis, definite or probable	0 (0.0)	1(0.7)	, , , , , , , , , , , , , , , , , , ,	0.32
Bleeding, major or minor	0 (0.0)	2 (1.4)		0.16
Acute coronary syndrome subset, n	301	300	_	_
Primary endpoint	12 (6.5)	6 (2.0)	4.4% (-1.4 to 10.2)	0.16
Death from cardiovascular cause	1 (0.3)	0 (0.0)	, , , , , , , , , , , , , , , , , , ,	0.32
Myocardial infarction	0 (0.0)	0 (0.0)		1.00
Target vessel revascularization	9 (5.4)	2 (0.7)	4.7% (-0.8 to 10.1)	0.04
Stent thrombosis, definite or probable	1 (0.3)	0 (0.0)	-0.9% (-5.1 to 3.4)	0.32
Bleeding, major or minor	2 (0.7)	4 (1.3)	-0.7% (-2.3 to 0.9)	0.41
Short-lesion drug-eluting stent subset, n	341	340	_	_
Primary endpoint	9 (2.7)	8 (4.1)	-1.5% (-5.3 to 2.4)	0.86
Death from cardiovascular cause	0 (0.0)	2 (0.6)	, , , , , , , , , , , , , , , , , , ,	0.16
Myocardial infarction	1 (0.3)	2 (0.6)	-0.3% (-1.3 to 0.7)	0.60
Target-vessel revascularization	6 (1.8)	6 (3.6)	-1.8% (-5.5 to 1.9)	0.91
Stent thrombosis, definite or probable	0 (0.0)	1(0.3)		0.32
Bleeding, major or minor	2 (0.6)	0 (0.0)		0.16
Long-lesion drug-eluting stent subset, n	271	272	_	_
Primary endpoint	15 (7.2)	22 (8.4)	-1.2% (-6.6 to 4.3)	0.22
Death from cardiovascular cause	0 (0.0)	1 (0.4)		0.32
Myocardial infarction	1 (0.4)	1 (0.4)	0.0% (-1.0 to 1.0)	0.99
Target vessel revascularization	13 (6.3)	17 (7.8)	-1.4% (-7.2 to 4.3)	0.40
Stent thrombosis, definite or probable	1 (0.4)	1(0.4)	0.0% (-1.0 to 1.0)	0.99
Bleeding, major or minor	1 (0.4)	4 (1.5)	-1.1% (-2.7 to 0.5)	0.18
,,	_ (0)	(1.0)		

Values are the number of events and the cumulative event rate (%). *p values were calculated with the use of the log-rank test. In case of no clinical event in either group, the confidence interval (CI) of the differences of event rates could not be calculated.

Abbreviations as in Table 1.

higher severe bleeding rates compared with treatment with aspirin alone; reported incidence of major and minor bleeding were 1.8% to 3.7% and 1.7% to 5.1%, respectively (13,14). In addition, nuisance bleeding is common in patients on prolonged DAPT post-DES implantation (28.9% of 2,948 patients) (14). The higher incidence of



bleeding episodes can impact patients' compliance and result in premature discontinuation of DAPT.

A previous randomized study reported that the use of DAPT for a period longer than 12 months in patients who had received DESs was not significantly more effective than

aspirin monotherapy in reducing the rate of myocardial infarction or death from cardiac causes (15). In addition, recent randomized trials showed no clinical benefits of prolonged DAPT compared with 6-month DAPT after DES implantation (16,17).

Subgroup	E-ZES + 3-month DAPT	Standard Therapy	Difference	95% CI	p-value	p-for-interaction	
Age						0.599	
< 65 (n=1153)	20/582 (4.4%)	18/571 (4.5%)	-0.2%	(-3.8%~3.3%)	0.805		
≥ 65 (n=964)	20/477 (5.1%)	23/487 (4.8%)	0.4%	(-2.8%~3.6%)	0.636		
Gender						0.424	
Male (n=1347)	29/682 (5.8%)	26/665 (5.1%)	0.6%	(-3.0%~4.2%)	0.786		
Female (n=770)	11/377 (3.0%)	15/393 (3.8%)	-0.9%	(-3.4%~1.7%)	0.483		
Diabetes mellitus						0.416	
Yes (n=621)	11/316 (3.8%)	14/305 (4.7%)	-0.9%	(-4.1%~2.4%)	0.426		
No (n=1496)	29/743 (5.1%)	27/753 (4.6%)	0.5%	(-2.7%~3.6%)	0.769		
Congestive heart failure						0.840	
Yes (n=245)	4/120 (3.4%)	5/125 (4.0%)	-0.6%	(-5.4%~4.1%)	0.783		
No (n=1872)	36/939 (4.8%)	36/933 (4.8%)	0.0%	(-2.7%~2.8%)	0.897		
Multivessel disease						0.902	
Yes (n=910)	18/456 (4.2%)	19/454 (4.3%)	-0.1%	(-2.8%~2.6%)	0.829		
No (n=1207)	22/603 (5.3%)	22/604 (5.1%)	0.1%	(-3.9%~4.2%)	0.934		
Reference diameter						0.105	
≤ 3.0mm (n=669)	8/322 (2.5%)	16/347 (6.6%)	-4.1%	(-8.6%~0.4%)	0.166		<
> 3.0mm (n=1448)	32/737 (5.7%)	25/711 (3.5%)	2.2%	(-0.7%~5.0%)	0.370		
Lesion length						0.203	
< 20mm (n=1301)	20/653 (3.9%)	15/648 (3.4%)	0.5%	(-2.7%~3.8%)	0.330		
≥ 20mm (n=816)	20/406 (6.0%)	26/410 (6.4%)	-0.4%	(-4.3%~3.5%)	0.400		
Subsets						0.344	
Acute coronary syndrome (n=601)		6/300 (2.0%)	4.4%	(-1.4%~10.2%)	0.158		
Diabetes mellitus (n=292)	4/146 (2.8%)	5/146 (3.4%)	-0.6%	(-4.6%~3.3%)	0.735		
Long (n=543)	15/271 (7.2%)	22/272 (8.4%)	-1.2%	(-6.6%~4.3%)	0.219		<
Short (n=681)	9/341 (2.7%)	8/340 (4.1%)	-1.5%	(-5.3%~2.4%)	0.855		
Overall (n=2117)	40/1059 (4.7%)	41/1058 (4.7%)	0.0%	(-2.5%~2.5%)	0.843		
							-5 -2.5 0 2.5 5
						favor E-ZES	+ 3-month DAPT Difference (%) favor Standard Therapy

CI = confidence interval; other abbreviations as in Figure 1.

Table 3

Baseline Clinical and Angiographic Characteristics of Both Groups on a Per Protocol Analysis

Chineal characteristics n 997 1.058 Age, ys 62.4 ± 9.4 62.4 ± 9.8 0.93 Maie 647 (64.9) 665 (62.9) 0.36 Body mass index, kg/m ² 25.0 ± 3.2 24.4 ± 3.1 0.47 Hypertension 624 (62.6) 650 (61.4) 0.62 Dubbetes mellitus 300 (30.1) 305 (28.8) 0.33 Diglippedina 550 (63.2) 241 (22.8) 0.23 Compestive heart failure 100 (10.0) 125 (11.8) 0.74 Prior procendial infraction 18 (18.8) 17 (1.6) 0.74 Prior percutaneous coronary intervention 37 (3.7) 32 (2.0) 0.39 Prior coronary bypass surgery 2.02 6.04 (57.1) 2.04 Statia argina 43 (45.4) 490 (45.3) 2.04 No. of diseased vessels 576 (57.8) 604 (57.1) 2.02 Action ys and transmition 31 (31.2) 34 (85.4) 0.33 Best-blockers 576 (67.8) 604 (57.1) 2.24 Angiotensin cove	Variables	E-ZES+3-Month DAPT	Standard Therapy	p Value
Age, ys 62.4 ± 9.4 62.4 ± 9.8 0.93 Male 647 (64.9) 665 (62.9) 0.36 Body mass index, kg/m ² 25.0 ± 3.2 24.9 ± 3.1 0.47 Hypertension 624 (62.6) 650 (61.4) 0.62 Diabetes melitus 300 (30.1) 305 (28.8) 0.53 Dysipidemia 580 (55.2) 634 (59.9) 0.44 Current smoker 249 (25.0) 241 (22.8) 0.33 Congestive heart failure 100 (10.0) 125 (11.8) 0.20 Ejection fraction, % 64.3 ± 9.2 63.9 ± 9.4 0.33 Prior myocardial infraction 18 (1.8) 17 (1.6) 0.74 Prior percutaneous coronary intervention 37 (3.7) 32 (3.0) 0.39 Prior coronary bypass surgery 2 (0.2) 6 (0.6) 0.29 Clinical presentation 146 (1.6) 144 (6.3) 1 No. of diseased vessels 0.88 1 1 576 (57.8) 604 (57.1) 2 2 211 (27.2) 292 (27.6) 3 1.50 (15.	Clinical characteristics			
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Hypertension624 (62.6)650 (61.4)0.62Diabetes mellitus300 (30.1)305 (28.8)0.63Dyslipidemia580 (58.2)634 (59.9)0.45Current smoler249 (25.0)241 (2.8)0.23Congestive heart failure100 (10.0)125 (11.8)0.20Ejection fraction, %64.3 \pm 9.263.9 \pm 9.40.33Prior roycardial infarction18 (18)17 (1.6)0.74Prior coronary byses surgery2 (0.2)6 (0.6)0.29Clinical presentation398 (39.9)422 (39.9).Acute myocardial infarction146 (14.6)146 (13.8).No. of diseased vessels0.881576 (57.8)604 (57.1).2271 (27.2)292 (27.6).3150 (15.0)152 (15.3).Medications at discharge		647 (64.9)		
Dabetes melitus 300 (30.1) 305 (28.8) 0.53 Dysipidemia 580 (58.2) 634 (59.9) 0.45 Current smoker 249 (25.0) 241 (22.8) 0.23 Congestive heart failure 100 (10.0) 125 (11.8) 0.20 Ejection fraction, % 64.3 : 9.2 63.8 : 9.4 0.33 Prior myocardial infarction 18 (1.8) 17 (1.6) 0.74 Prior coronary intervention 37 (3.7) 22 (3.0) 0.39 Prior coronary bypass surgery 2 (0.2) 6 (0.6) 0.29 Clinical presentation 0.84 53 (45.4) 490 (46.3) Unstable angina 398 (39.9) 422 (39.9) Acute myocardial infarction 1.46 (14.6) 1.46 (13.8) No. of diseased vessels 0.88 1 2 2.71 (27.2) 292 (27.6) 1.53 Medications at discharge 1 306 (30.9) 301 (28.4) 0.39 Beta-blockers 670 (67.2) 730 (69.0) 0.49 Angiotensin receptor blockers 308 (30.9) 301 (28.4) 0.23 1.61	Body mass index, kg/m ²	25.0 ± 3.2	$\textbf{24.9} \pm \textbf{3.1}$	0.47
$\begin{array}{ c c c c c c } \begin{tabular}{ c c c c } \hline Dyslipidemia & 580 (58.2) & 634 (59.9) & 0.45 \\ Current smoker & 249 (25.0) & 241 (22.8) & 0.23 \\ Congestive heart failure & 100 (10.0) & 125 (11.8) & 0.20 \\ Ejection fraction, % & 64.3 & 5.2 & 63.9 & 9.4 & 0.33 \\ Prior myocardial infraction & 18 (1.8) & 17 (1.6) & 0.74 \\ Prior percutaneous coronary intervention & 37 (3.7) & 32 (3.0) & 0.39 \\ Prior coronary bypass surgery & 2 (0.2) & 6 (0.6) & 0.29 \\ Clinical presentation & 145 (14.5) & 146 (13.8) \\ Unstable angina & 453 (45.4) & 4490 (46.3) \\ Unstable angina & 453 (45.4) & 4490 (46.3) \\ Unstable angina & 398 (39.9) & 422 (39.9) \\ Actue myocardial infraction & 146 (14.6) & 146 (13.8) \\ No. of diseased vessels & & & & & \\ 1 & 576 (57.8) & 604 (57.1) \\ 2 & 271 (27.2) & 292 (27.6) \\ 3 & 150 (15.0) & 162 (15.3) \\ \hline \\ Medications at discharge & & & & \\ Statins & 874 (87.7) & 914 (86.4) & 0.39 \\ Bate blockers & 670 (67.2) & 730 (69.0) & 0.39 \\ Angiotensin-converting enzyme & 311 (31.2) & 349 (33.0) & 0.40 \\ Inhibitors & & & & \\ No. of elesions & 1.261 & 1.346 \\ \hline \\ Treated vessel & & & & & & \\ Left anterior descending artery & 664 (52.7) & 722 (53.6) \\ Left circumftex artery & 268 (21.3) & 259 (19.2) \\ Right coronary artery & 329 (26.1) & 365 (27.1) \\ ACO/HAI lesion class B2 or C & 852 (67.6) & 932 (69.2) & 0.38 \\ Lesion length, mm & 19.6 \pm 10.1 & 234 (23.0) \\ Left circumftex artery & 268 (21.3) & 259 (19.2) \\ Right coronary artery & 329 (26.1) & 365 (27.1) \\ ACO/HAI lesion class B2 or C & 852 (67.6) & 932 (69.2) & 0.38 \\ Lesion length, mm & 19.6 \pm 10.1 & 248 (23.4) & 0.37 \\ Type of drug-ething stents & - & & & & & & & & & & & & & & & & & $				
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$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Dyslipidemia	580 (58.2)	634 (59.9)	
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Prior perutaneous coronary intervention 37 (3.7) 32 (3.0) 0.39 Prior coronary bypass surgery 2 (0.2) 6 (0.6) 0.29 Clinical presentation 0.84 Stable angina 453 (45.4) 490 (46.3) Unstable angina 398 (39.9) 422 (39.9) Acute myocardial infarction 146 (14.6) 146 (13.8) No. of diseased vessels 0.88 1 576 (57.8) 604 (57.1) 2 271 (27.2) 292 (27.6) 3 150 (15.0) 162 (15.3) Medications at discharge Statins 874 (87.7) 914 (86.4) 0.39 Angiotensin-converting enzyme 311 (31.2) 349 (33.0) 0.40 inhibitors 308 (30.9) 301 (28.4) 0.23 Calcium channel blocker 370 (37.1) 389 (36.8) 0.89 Angiotensin receptor blockers 308 (30.9) 301 (28.4) 0.23 Calcium channel blocker 370 (37.1) 389 (36.8) 0.89 Angiotensin receptor blockers 2	Ejection fraction, %	64.3 ± 9.2	63.9 ± 9.4	
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Clinical presentation 0.84 Stable angina 453 (45.4) 490 (46.3) Unstable angina 398 (39.9) 422 (39.9) Acute myocardial infarction 146 (14.6) 146 No. of diseased vessels 0.88 1 576 (57.8) 604 (57.1) 2 271 (27.2) 292 (27.6) 3 105 (015.0) 166.4) Medications at discharge 730 (69.0) 0.39 Beta-blockers 670 (67.2) 730 (69.0) 0.39 Angiotensin-converting enzyme 311 (31.2) 39 (30.0) 0.40 inhibitors 0 730 (69.0) 0.39 Angiotensin receptor blockers 308 (30.9) 301 (28.4) 0.23 Calcium channel blocker 308 (30.9) 301 (28.4) 0.23 Angiographic characteristics 0.43 1.346 1.346 Treated vessel 0.43 259 (19.9) 1.81 Left anterior descending artery 268 (21.3) 259 (19.2) 0.38 Left anterior descending stents - 383				
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No. of diseased vessels0.881576 (57.8)604 (57.1)2271 (27.2)292 (27.6)3150 (15.0)150 (15.3)Medications at dischargeStatins874 (87.7)914 (86.4)0.39Beta-blockers670 (67.2)730 (69.0)0.39Angiotensin-converting enzyme311 (31.2)349 (33.0)0.40inhibitors0.23Calcium channel blocker308 (30.9)301 (28.4)0.23Calcium channel blocker308 (30.9)301 (28.4)0.23Left anterior descending artery664 (52.7)722 (53.6)1.41Left anterior descending artery268 (21.3)259 (19.2)368 (27.1)ACC/AHA lesion class B2 or C852 (67.6)932 (69.2)0.38Lesion length, mm19.6 \pm 10.120.1 \pm 10.80.19Type of drug-eluting stents-559 (41.5)Muttivessel intervention/patients-559 (41.5)Muttivessel intervention/patients-559 (41.5)Muttivessel intervention/patients-559	Unstable angina	398 (39.9)	422 (39.9)	
	Acute myocardial infarction	146 (14.6)	146 (13.8)	
2 271 (27.2) 292 (27.6) 3 150 (15.0) 162 (15.3) Medications at discharge Statins 874 (87.7) 914 (86.4) 0.39 Beta-blockers 670 (67.2) 730 (69.0) 0.39 Angiotensin-converting enzyme 311 (31.2) 349 (33.0) 0.40 inhibitors 308 (30.9) 301 (28.4) 0.23 Calcium channel blocker 370 (37.1) 389 (36.8) 0.89 Anglographic characteristics 0.43 0.43 Left anterior descending artery 664 (52.7) 722 (53.6) 1.461 Left anterior descending artery 268 (21.3) 259 (19.2) 0.38 Left anterior descending artery 329 (26.1) 365 (27.1) 365 (27.1) ACC/AHA lesion class B2 or C 852 (67.6) 932 (69.2) 0.38 Lesion length, mm 19.6 ± 10.1 20.1 ± 10.8 0.19 Type of drug-eluting stents - 383 (28.5) 383 (28.5) Xience everolimus-eluting stents - 559 (41.5)				0.88
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Statins $874 (87.7)$ $914 (86.4)$ 0.39 Beta-blockers $670 (67.2)$ $730 (69.0)$ 0.39 Angiotensin-converting enzyme inhibitors $311 (31.2)$ $349 (33.0)$ 0.40 Angiotensin receptor blockers $308 (30.9)$ $301 (28.4)$ 0.23 Calcium channel blocker $370 (37.1)$ $389 (36.8)$ 0.89 Angiographic characteristics $1,261$ $1,346$ 1.346 Treated vessel 0.43 $259 (19.2)$ 0.43 Left anterior descending artery $268 (21.3)$ $259 (19.2)$ 0.43 Left circumflex artery $2268 (21.3)$ $259 (19.2)$ 0.38 Lesion length, mm 19.6 ± 10.1 20.1 ± 10.8 0.19 Type of drug-eluting stents $ 383 (28.5)$ $333 (28.5)$ Xience everolimus-eluting stents $ 559 (41.5)$ 0.37 Multivessel intervention/patients $217 (21.8)$ $248 (23.4)$ 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 31.8 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/lila inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	-	150 (15.0)	162 (15.3)	
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Inhibitors Angiotensin receptor blockers 308 (30.9) 301 (28.4) 0.23 Calcium channel blocker 370 (37.1) 389 (36.8) 0.89 Angiographic characteristics $370 (37.1)$ 389 (36.8) 0.89 Angiographic characteristics $1,261$ $1,346$ 0.43 Left anterior descending artery 664 (52.7) 722 (53.6) 0.43 Left anterior descending artery 268 (21.3) 259 (19.2) 0.43 Right coronary artery 329 (26.1) 365 (27.1) 0.45 ACC/AHA lesion class B2 or C 852 (67.6) 932 (69.2) 0.38 Lesion length, mm 19.6 ± 10.1 20.1 ± 0.8 0.19 Type of drug-eluting stents — 383 (28.5) 0.19 Xience everolimus-eluting stents — 404 (30.0) — Resolute zotarolimus-eluting stents — 559 (41.5) 0.37 Multivessel intervention/patients 217 (21.8) 248 (23.4) 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm </td <td>Beta-blockers</td> <td>670 (67.2)</td> <td>730 (69.0)</td> <td>0.39</td>	Beta-blockers	670 (67.2)	730 (69.0)	0.39
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$\begin{tabular}{ c c c } Anglographic characteristics & 1,261 & 1,346 \\ \hline No. of lesions & 1,261 & 1,346 \\ \hline Treated vessel & 0.43 \\ \hline Left anterior descending artery & 664 (52.7) & 722 (53.6) \\ \hline Left circumflex artery & 268 (21.3) & 259 (19.2) \\ \hline Right coronary artery & 329 (26.1) & 365 (27.1) \\ \hline ACC/AHA lesion class B2 or C & 852 (67.6) & 932 (69.2) & 0.38 \\ \hline Lesion length, mm & 1.9.6 \pm 10.1 & 20.1 \pm 10.8 & 0.19 \\ \hline Type of drug-eluting stent & & & & & & & & & & & & & & & & & & &$	Angiotensin receptor blockers	308 (30.9)	301 (28.4)	0.23
No. of lesions1,2611,346Treated vessel0.43Left anterior descending artery664 (52.7)722 (53.6)Left circumflex artery268 (21.3)259 (19.2)Right coronary artery329 (26.1)365 (27.1)ACC/AHA lesion class B2 or C852 (67.6)932 (69.2)0.38Lesion length, mm19.6 \pm 10.120.1 \pm 10.80.19Type of drug-eluting stent-383 (28.5)Kience everolimus-eluting stents-383 (28.5)Xience everolimus-eluting stents-404 (30.0)Resolute zotarolimus-eluting stents217 (21.8)248 (23.4)0.37Multivessel intervention/patients217 (21.8)248 (23.4)0.73Stent diameter, mm3.18 \pm 0.423.17 \pm 0.680.78Stent length per lesion, mm22.7 \pm 10.122.9 \pm 10.70.71Adjuvant post-dilation504 (40.0)540 (40.1)0.95Maximum stent pressure, atm16.5 \pm 3.716.5 \pm 3.60.74Use of glycoprotein llb/llia inhibitors/patient19 (1.9)21 (2.0)0.63	Calcium channel blocker	370 (37.1)	389 (36.8)	0.89
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$\begin{tabular}{ c c c c } Left circumflex artery & 268 (21.3) & 259 (19.2) \\ Right coronary artery & 329 (26.1) & 365 (27.1) \\ ACC/AHA lesion class B2 or C & 852 (67.6) & 932 (69.2) & 0.38 \\ Lesion length, mm & 19.6 \pm 10.1 & 20.1 \pm 10.8 & 0.19 \\ \hline Type of drug-eluting stent & & & & & & & \\ \hline E-ZES & 1,261 (100.0) & - & & & & & & \\ \hline Cypher sirolimus-eluting stents & - & 383 (28.5) \\ Xience everolimus-eluting stents & - & 404 (30.0) \\ Resolute zotarolimus-eluting stents & - & 559 (41.5) \\ \hline Multivessel intervention/patients & 217 (21.8) & 248 (23.4) & 0.37 \\ \hline Total no. of lesions per patient & 1.27 \pm 0.54 & 1.27 \pm 0.68 & 0.78 \\ Stent diameter, mm & 3.18 \pm 0.42 & 3.17 \pm 0.83 & 0.73 \\ Stent length per lesion, mm & 22.7 \pm 10.1 & 22.9 \pm 10.7 & 0.71 \\ Adjuvant post-dilation & 504 (40.0) & 540 (40.1) & 0.95 \\ Maximum stent pressure, atm & 16.5 \pm 3.7 & 16.5 \pm 3.6 & 0.74 \\ Use of glycoprotein llb/llla inhibitors/patient & 19 (1.9) & 21 (2.0) & 0.63 \\ \end{tabular}$	Treated vessel			0.43
Right coronary artery $329 (26.1)$ $365 (27.1)$ ACC/AHA lesion class B2 or C $852 (67.6)$ $932 (69.2)$ 0.38 Lesion length, mm 19.6 ± 10.1 20.1 ± 10.8 0.19 Type of drug-eluting stent $ -$ E-ZES $1,261 (100.0)$ $-$ Cypher sirolimus-eluting stents $ 383 (28.5)$ Xience everolimus-eluting stents $ 404 (30.0)$ Resolute zotarolimus-eluting stents $ 559 (41.5)$ Multivessel intervention/patients $217 (21.8)$ $248 (23.4)$ 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	Left anterior descending artery	664 (52.7)	722 (53.6)	
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Lesion length, mm 19.6 ± 10.1 20.1 ± 10.8 0.19 Type of drug-eluting stent $1.261 (100.0)$ $-$ E-ZES $1.261 (100.0)$ $-$ Cypher sirolimus-eluting stents $ 383 (28.5)$ Xience everolimus-eluting stents $ 404 (30.0)$ Resolute zotarolimus-eluting stents $ 559 (41.5)$ Multivessel intervention/patients $217 (21.8)$ $248 (23.4)$ 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llia inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	Right coronary artery	329 (26.1)	365 (27.1)	
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E-ZES1,261 (100.0)Cypher sirolimus-eluting stents383 (28.5)Xience everolimus-eluting stents404 (30.0)Resolute zotarolimus-eluting stents559 (41.5)Multivessel intervention/patients217 (21.8)248 (23.4)0.37Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71Adjuvant post-dilation504 (40.0)540 (40.1)0.95Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74Use of glycoprotein llb/lla inhibitors/patient19 (1.9)21 (2.0)0.63	Lesion length, mm	$\textbf{19.6} \pm \textbf{10.1}$	$\textbf{20.1} \pm \textbf{10.8}$	0.19
Cypher sirolimus-eluting stents — $383 (28.5)$ Xience everolimus-eluting stents — $404 (30.0)$ Resolute zotarolimus-eluting stents — $559 (41.5)$ Multivessel intervention/patients $217 (21.8)$ $248 (23.4)$ 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	Type of drug-eluting stent			
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Multivessel intervention/patients $217 (21.8)$ $248 (23.4)$ 0.37 Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	Xience everolimus-eluting stents	—	404 (30.0)	
Total no. of lesions per patient 1.27 ± 0.54 1.27 ± 0.68 0.78 Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation 504 (40.0) 540 (40.1) 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient 19 (1.9) 21 (2.0) 0.63	Resolute zotarolimus-eluting stents	—	559 (41.5)	
Stent diameter, mm 3.18 ± 0.42 3.17 ± 0.83 0.73 Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation $504 (40.0)$ $540 (40.1)$ 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient $19 (1.9)$ $21 (2.0)$ 0.63	Multivessel intervention/patients	217 (21.8)	248 (23.4)	0.37
Stent length per lesion, mm 22.7 ± 10.1 22.9 ± 10.7 0.71 Adjuvant post-dilation 504 (40.0) 540 (40.1) 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient 19 (1.9) 21 (2.0) 0.63	Total no. of lesions per patient	$\textbf{1.27} \pm \textbf{0.54}$	$\textbf{1.27} \pm \textbf{0.68}$	0.78
Adjuvant post-dilation 504 (40.0) 540 (40.1) 0.95 Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein Ilb/Illa inhibitors/patient 19 (1.9) 21 (2.0) 0.63	Stent diameter, mm	$\textbf{3.18} \pm \textbf{0.42}$	$\textbf{3.17} \pm \textbf{0.83}$	0.73
Maximum stent pressure, atm 16.5 ± 3.7 16.5 ± 3.6 0.74 Use of glycoprotein llb/llla inhibitors/patient 19 (1.9) 21 (2.0) 0.63	Stent length per lesion, mm	$\textbf{22.7} \pm \textbf{10.1}$	$\textbf{22.9} \pm \textbf{10.7}$	0.71
Use of glycoprotein Ilb/Illa inhibitors/patient 19 (1.9) 21 (2.0) 0.63	Adjuvant post-dilation	504 (40.0)	540 (40.1)	0.95
	Maximum stent pressure, atm	$\textbf{16.5} \pm \textbf{3.7}$	$\textbf{16.5} \pm \textbf{3.6}$	0.74
Procedure success 1,259 (99.8) 1,345 (99.9) 0.61	Use of glycoprotein IIb/IIIa inhibitors/patient	19 (1.9)	21 (2.0)	0.63
	Procedure success	1,259 (99.8)	1,345 (99.9)	0.61

Continued on next page

Therefore, balanced DES that can offer both safety and efficacy are desirable, especially for those who may need to stop DAPT early after DES implantation (5,6). The E-ZES comprises a cobalt alloy, thin-strut stent with a biocompatible phosphorylcholine polymer (4-6). A recent study reported that among 2,032 patients treated with E-ZES in 5 trials, Academic Research Consortium–defined definite or probable stent thrombosis rates through 3 years

Table 3 Continued			
Variables	E-ZES+3-Month DAPT	Standard Therapy	p Value
Quantitative angiographic analysis			
Pre-intervention			
Reference vessel diameter, mm	3.0 ± 0.5	$\textbf{3.0} \pm \textbf{0.5}$	0.18
Minimum luminal diameter, mm	1.1 ± 0.5	$\textbf{1.0} \pm \textbf{0.5}$	0.39
Percent diameter stenosis, %	$\textbf{65.1} \pm \textbf{14.1}$	$\textbf{65.5} \pm \textbf{13.8}$	0.52
Post-intervention			
Minimum luminal diameter, mm			
In-stent	$\textbf{2.7} \pm \textbf{0.4}$	$\textbf{2.7} \pm \textbf{0.4}$	0.24
In-segment	2.2 ± 0.5	2.1 ± 0.5	0.66
Percent diameter stenosis, %			
In-stent	$\textbf{11.1} \pm \textbf{7.8}$	$\textbf{11.1} \pm \textbf{8.1}$	0.83
In-segment	$\textbf{29.8} \pm \textbf{11.8}$	$\textbf{30.7} \pm \textbf{11.7}$	0.76

Values are n, mean ± SD, or n (%). Analysis was performed after exclusion of the patients interrupting the 3-month DAPT criteria. Abbreviations as in Table 1.

did not significantly differ between the 6-month and \geq 12month DAPT groups (0.3% vs. 0%, respectively) (18). These findings might be explained by better neointimal coverage in the early post-implant period compared with other DES (7).

Study limitations. First, 1 year of clinical follow-up may not be sufficient to assess the late outcomes, especially the occurrence of very late stent thrombosis. Second, because the patients with very high risks were not included, the generalized application of these results to the entire population demands careful attention. A careful assessment of the balance between the risk of stent thrombosis and the likelihood of bleeding events at an individual patient level is required (19). Third, the study design was

not ideal: the comparator group in our trial was not treated with a single DES type; in addition, there was no 3-month versus 12-month DAPT, either within E-ZES or within other DES patients. However, because the hypothesis of protection by E-ZES was the main objective of this trial, and the 1:1 matched randomization between E-ZES and the comparative DES was performed, interpretation of the final results of the E-ZES+3-month DAPT group should be viewed appropriate. Treatment strategies (combination of DES+ duration of DAPT), neither DES types alone, nor DAPT duration alone were evaluated in this study. Finally, although the sample size of this study was calculated not to be underpowered on the basis of the event rates in

Table 4 Clinical Outcomes of Both Groups on a Per-Protocol Analysis						
Characteristics	E-ZES+3-Month DAPT (n = 997)	Standard Therapy $(n = 1,058)$	Difference (95% CI)	p Value		
Composite events						
Primary endpoint	36 (4.6)	41 (4.7)	-0.1% (-2.7 to 2.4)	0.69		
Death from any cause, myocardial infarction, or stent thrombosis	6 (0.6)	11 (1.3)	-0.7% (-1.6 to 0.3)	0.27		
Death from cardiovascular cause or myocardial infarction	4 (0.4)	7 (0.7)	-0.3% (-0.9 to 0.4)	0.42		
Each component						
Death						
From any cause	3 (0.3)	8 (1.0)	-0.7% (-1.5 to 0.2)	0.15		
From cardiovascular cause	2 (0.2)	4 (0.4)	-0.2% (-0.6 to 0.3)	0.46		
Myocardial infarction	2 (0.2)	4 (0.4)	-0.2% (-0.7 to 0.3)	0.46		
Target vessel revascularization	27 (3.7)	27 (3.7)	0.0% (-2.5 to 2.4)	0.94		
Non-target vessel revascularization	14 (1.5)	11 (1.5)	0.0% (-1.4 to 1.4)	0.55		
Stent thrombosis, definite or probable	2 (0.2)	3 (0.3)	-0.1% (-0.5 to 0.3)	0.70		
<1 months	2	0				
1-3 months	0	0				
3-12 months	0	3				
Bleeding						
Major or minor	5 (0.5)	10 (1.0)	-0.5% (-1.2 to 0.3)	0.24		
Major	2 (0.2)	6 (0.6)	-0.4% (-0.9 to 0.2)	0.18		
Cerebrovascular accidents	5 (0.5)	6 (0.7)	-0.2% (-0.9 to 0.6)	0.80		

Values are the number of events and the cumulative event rate (%). Analysis was performed after exclusion of the patients with interrupting 3-month DAPT. *p values were calculated with the use of the log-rank test.

Abbreviations as in Tables 1 and 2.

prior studies (4-6,10-12), the findings of this study could be underpowered as a result of a relatively lower event rate than expected. The authors cannot know what among many factors was responsible for the differences from anticipated event rates.

Conclusions

E-ZES+3-month DAPT could be safe and beneficial for the selected patients with coronary artery disease who may need to stop DAPT early after DES implantation.

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REFERENCES

- 1. Iakovou I, Schmidt T, Bonizzoni E, et al. Incidence, predictors, and outcome of thrombosis after successful implantation of drug-eluting stents. JAMA 2005;293:2126–30.
- 2. Pfisterer M, Brunner-La Rocca HP, Buser PT, et al. Late clinical events after clopidogrel discontinuation may limit the benefit of drug-eluting stents: an observational study of drug-eluting versus bare-metal stents. J Am Coll Cardiol 2006;48:2584–91.
- Levine GN, Bates ER, Blankenship JC, et al. 2011 ACCF/AHA/ SCAI guideline for percutaneous coronary intervention: executive summary: a report of the American College of Cardiology Foundation/ American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011;58:2550–83.
- Fajadet J, Wijns W, Laarman GJ, et al. Randomized, double-blind, multicenter study of the Endeavor zotarolimus-eluting phosphorylcholineencapsulated stent for treatment of native coronary artery lesions: clinical and angiographic results of the ENDEAVOR II trial. Circulation 2006;114:798–806.
- Meredith IT, Ormiston J, Whitbourn R, et al. Four-year clinical follow-up after implantation of the endeavor zotarolimus-eluting stent: ENDEAVOR I, the first-in-human study. Am J Cardiol 2007;100:S56-61.
- Leon MB, Mauri L, Popma JJ, et al. A randomized comparison of the ENDEAVOR zotarolimus-eluting stent versus the TAXUS paclitaxel-eluting stent in de novo native coronary lesions: 12-month outcomes from the ENDEAVOR IV trial. J Am Coll Cardiol 2010;55:543–54.
- 7. Kim JS, Jang IK, Fan C, et al. Evaluation in 3 months duration of neointimal coverage after zotarolimus-eluting stent implantation by

optical coherence tomography: the ENDEAVOR OCT trial. J Am Coll Cardiol Intv 2009;2:1240-7.

- Hahn JY, Song YB, Choi JH, et al. Three-month dual antiplatelet therapy after implantation of zotarolimus-eluting stents: the DATE (Duration of dual Antiplatelet Therapy after implantation of Endeavor stent) registry. Circ J 2010;74:2314–21.
- Cutlip DE, Windecker S, Mehran R, et al. Clinical end points in coronary stent trials: a case for standardized definitions. Circulation 2007;115:2344-51.
- Moses JW, Leon MB, Popma JJ, et al. Sirolimus-eluting stents versus standard stents in patients with stenosis in a native coronary artery. N Engl J Med 2003;349:1315–23.
- 11. Stone GW, Midei M, Newman W, et al. Randomized comparison of everolimus-eluting and paclitaxel-eluting stents: two-year clinical follow-up from the clinical evaluation of the Xience V everolimus eluting coronary stent system in the treatment of patients with de novo native coronary artery lesions (SPIRIT) III trial. Circulation 2009;119: 680–6.
- Meredith IT, Worthley S, Whitbourn R, et al. Clinical and angiographic results with the next-generation resolute stent system: a prospective, multicenter, first-in-human trial. J Am Coll Cardiol Intv 2009;2:977–85.
- Yusuf S, Zhao F, Mehta SR, Chrolavicius S, Tognoni G, Fox KK. Effects of clopidogrel in addition to aspirin in patients with acute coronary syndromes without ST-segment elevation. N Engl J Med 2001;345:494–502.
- Ben-Dor I, Torguson R, Scheinowitz M, et al. Incidence, correlates, and clinical impact of nuisance bleeding after antiplatelet therapy for patients with drug-eluting stents. Am Heart J 2010;159:871–5.
- Park SJ, Park D-W, Kim Y-H, et al. Duration of dual antiplatelet therapy after implantation of drug-eluting stents. N Engl J Med 2010;362:1374–82.
- Valgimigli M, Campo G, Monti M, et al. Short- versus long-term duration of dual antiplatelet therapy after coronary stenting: a randomized multicentre trial. Circulation 2012;125:2015–26.
- 17. Gwon HC, Hahn JY, Park KW, et al. Six-month versus 12-month dual antiplatelet therapy after implantation of drug-eluting stents: the efficacy of Xience/Promus versus Cypher to reduce late loss after stenting (EXCELLENT) randomized, multicenter study. Circulation 2012;125:505–13.
- Kandzari DE, Barker CS, Leon MB, et al. Dual antiplatelet therapy duration and clinical outcomes following treatment with zotarolimuseluting stents. J Am Coll Cardiol Intv 2011;4:1119–28.
- 19. Kastrati A, Byrne RA, Schulz S. Will we ever know the optimal duration of dual antiplatelet therapy after drug-eluting stent implantation? J Am Coll Cardiol Intv 2011;4:1129–32.

Key Words: antiplatelet therapy • coronary artery disease • drug-eluting stents.

APPENDIX

For a supplementary introduction, methods, discussion, and references, as well as expanded information on the trial investigators, please see the online version of this paper.