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Twelve-Month Results of A Prospective, Randomised, Multicentre Trial to Assess the Everolimus-Eluting Coronary Stent System (PROMUS Element): The Platinum Plus Trial

Short Title: Platinum Plus Trial

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Abstract

Aims. To compare the safety and efficacy of the platinum-chromium everolimus-eluting stent (EES) with the cobalt-chromium EES.

Methods and Results. We performed a prospective, multicentre, single-blind non-inferiority European study randomising patients with stable or unstable coronary artery disease (2:1) to treatment with the platinum-chromium EES (n=1952) or the control cobalt-chromium EES (n=1028). The primary endpoint was target vessel failure (TVF) at 12 months: a composite of target-vessel related cardiac death, myocardial infarction (MI), and ischaemia-driven target-vessel revascularisation (TVR). Of the 2,980 study patients, 33% presented with acute coronary syndromes, and 48% with multivessel disease. At 12 months, the platinum-chromium EES was non-inferior to the cobalt-chromium EES for the primary endpoint (86 [4.6%] patients vs. 32 [3.2%], absolute difference 1.4%; upper limit of the one-sided 95% CI: 2.57%; non-inferiority $P = 0.012$); there were no significant differences in the rates of cardiac death (1.1% vs. 1.0%, $P=0.78$), MI (1.6% vs. 0.8%, $P=0.09$), or ischaemia-driven TLR (2.0% vs. 1.6%, $P=0.49$). The rates of ARC definite or probable stent thrombosis were comparably low among platinum-chromium and cobalt-chromium EES patients (0.8% vs. 0.5% respectively, $P=0.44$).

Conclusions. The platinum-chromium EES is a safe and effective alternative to the cobalt-chromium EES in routine clinical practice

Keywords: Percutaneous coronary intervention, Coronary artery disease, Drug-eluting stent, Myocardial infarction, Stent thrombosis

Condensed Abstract

To compare the safety and efficacy of the platinum-chromium everolimus-eluting stent (EES) with the cobalt-chromium EES, we performed a prospective single-blind non-inferiority study in 48 European centres. Patients with stable or unstable coronary artery disease were randomised (2:1) to treatment with the platinum-chromium EES (PROMUS Element; n=1952) or the control cobalt-chromium (XIENCE Prime; n=1028) EES. At 12 months, the platinum-chromium EES was non-inferior to the cobalt-chromium EES for target vessel failure (4.6%vs.3.2%; absolute difference 1.4%; upper limit of one-sided 95% confidence interval: 2.57%; non-inferiority P=0.012). The platinum-chromium EES is a safe and effective alternative to the cobalt-chromium EES in routine clinical practice.

Introduction

Ever improving coronary stent technology has yielded improved clinical outcomes for patients undergoing percutaneous coronary intervention (PCI). In particular, the cobalt-chromium everolimus-eluting stents (EES) (PROMUS, Boston Scientific, Marlborough, Massachusetts, USA or XIENCE V, Abbott Vascular, Santa Clara, California, USA) have demonstrated a reduced incidence of stent thrombosis, myocardial infarction (MI), and restenosis compared to the first-generation paclitaxel-eluting stents (PES) ¹⁻³. More recently, a third-generation platinum-chromium EES (PROMUS Element, Boston Scientific, Marlborough, Massachusetts, USA) has been designed. This novel metal alloy and redesigned scaffold architecture aims to further improve the acute performance of the stent by enhancing deliverability, radial strength, vessel conformability, and radiopacity ^{4, 5}. This novel platform provides the same antiproliferative drug and biocompatible durable polymer as its cobalt-chromium predecessor ^{6, 7}.

To date, the platinum-chromium EES has demonstrated equivalent safety and efficacy as the cobalt-chromium EES (XIENCE V) and the cobalt-chromium zotarolimus-eluting stent (ZES) ^{8, 9}. The comparison between the platinum-chromium EES and the cobalt-chromium EES was, however, a rigorously controlled randomised trial of relatively low-risk patients. Thus, there remains a paucity of evidence comparing these two EES platforms in real-world clinical practice where up to half of all patients have off-label characteristics ^{10, 11}. An all-comers trial design, with wide-ranging inclusion and few exclusion criteria, further improves the generalisability of

the study results and affords the opportunity to assess the impact of low-frequency, clinically important differences between devices. Such studies are of particular relevance following the publication of recommendations from the Circulatory System Devices Advisory Panel of the US Food and Drug Administration ¹².

We sought to determine the safety and effectiveness of the platinum-chromium EES in an unrestricted population undergoing PCI compared to the cobalt-chromium EES (XIENCE Prime, Abbott Vascular, Santa Clara, California).

Methods

Study design and patients

We performed a multicentre, non-inferiority trial in 48 centres in Europe: France (17 centres), Germany (5), Italy (6), Macedonia (1), the Netherlands (1), Spain (10), Switzerland (1), and the United Kingdom (7).

Patients aged ≥ 18 years of age, undergoing PCI for stable coronary artery disease or acute coronary syndromes (non-ST-elevation and ST-elevation MI) were eligible for study inclusion if they had at least one coronary artery lesion amenable to stent implantation, of $\geq 50\%$ diameter stenosis, in a vessel of reference diameter ≥ 2.25 and ≤ 4.25 mm by visual estimation. Single or multiple coronary artery or saphenous vein graft lesions were suitable and no restrictions on lesion length or complexity were stipulated. Patients were not excluded on the basis of comorbid medical conditions, except where a concurrent illness could result in non-compliance with the study protocol or dual antiplatelet therapy, or could limit life expectancy to ≤ 1 year. Further exclusion criteria included: left ventricular ejection fraction $\leq 20\%$; known

hypersensitivity or contraindication to aspirin, heparin/bivalirudin, clopidogrel/ticlopidine, prasugrel, platinum chromium alloy, everolimus, or contrast media; pregnancy; participation in another investigational drug or device study; and an inability to provide informed consent. The study complied with the declaration of Helsinki and was approved by the ethics committee of all enrolling institutions. All patients provided written, informed consent to trial participation.

Randomisation was performed centrally after diagnostic coronary angiography using an interactive internet-based allocation service. The list of treatment allocation was computer generated and stratified according to the enrolling centre. Patients were randomly allocated on a 2:1 basis to treatment with the PROMUS Element or the XIENCE Prime EES. The operators were aware of the assigned study stent during the index PCI, but the patients and clinical staff involved in follow-up care were blinded to the stent allocation. Clinical follow-up by office or telephonic interview was scheduled at 30-days, 1 and 2 years after the index intervention.

Procedures

All PCI procedures were performed according to standard techniques. The recommended pre-treatment was 75-325 mg of aspirin, combined with a 600 mg loading dose of clopidogrel (if clopidogrel naïve), or a 60 mg loading dose of prasugrel. Unfractionated heparin, enoxaparin, or bivalirudin were administered after insertion of the arterial sheath, and monitoring of the anticoagulation level was recommended according to local laboratory practice (e.g., activated clotting time ≥ 250 seconds). The use of glycoprotein IIb/IIIa inhibitors was at the discretion of the treating physician. Initial balloon angioplasty of the target lesion was recommended, though direct stenting was permitted in the study protocol. The PROMUS Element

EES was available in diameters of 2.25, 2.5, 2.75, 3.0, 3.5, and 4.0 mm and in lengths of 8, 12, 16, 20, 24, 28, 32, and 38 (>2.25 mm) mm. The XIENCE Prime EES was available in identical diameters and in lengths of 8, 12, 15, 18, 23, 28, 33 (>2.25 mm), and 38 (>2.25 mm) mm. Treatment of non-target lesions with devices other than the study drug-eluting stent (DES) was not permitted, however staged procedures were allowed for multiple lesions within 42 days of the index intervention and using the assigned randomised DES.

Within 24 hours prior to the scheduled PCI, all patients had a 12-lead electrocardiogram (ECG), and assessment of creatinine kinase (CK), CK-MB, and cardiac troponin levels. These tests were repeated within 24 hours after the PCI or prior to hospital discharge, whichever occurred first, or in suspected cases of myocardial ischaemia. At hospital discharge, all patients were required to take aspirin 75-160 mg daily indefinitely, and either clopidogrel 75 mg daily or prasugrel 10 mg daily for at least 6 months.

Endpoints and definitions

The prespecified primary endpoint was target vessel failure (TVF) at 12 months following index PCI. TVF was defined as the composite of cardiac death related to the target vessel, MI (Q-wave and non-Q-wave) related to the target vessel, or ischaemia-driven revascularisation of the target vessel (TVR). Cardiac death was defined as death due to: MI; arrhythmia or conduction disturbance; deaths related to the procedure; stroke prior to hospital discharge; and death of unknown cause. Periprocedural MI (≤ 48 hours) was defined as follows: Q-Wave MI: new pathological Q-waves in ≥ 2 leads lasting ≥ 0.04 seconds with postprocedure CK-MB > upper limit

of normal (ULN) (or troponin $>1 \times \text{ULN}$ with normal baseline); Non-Q-Wave MI: *de novo* CK elevation $>3.0 \times \text{ULN}$ (or troponin $>3 \times \text{ULN}$ with normal baseline) in absence of CK without new Q-waves, and the presence of ECG changes indicative of new ischaemia (new ST-T changes or left bundle branch block [LBBB]), imaging evidence of new loss of viable myocardium, or new regional wall motion abnormality. Spontaneous MI was defined as follows: Q-Wave MI: new pathological Q-waves in ≥ 2 leads lasting ≥ 0.04 seconds with postprocedure CK-MB $> \text{ULN}$ (or troponin $>1 \times \text{ULN}$ with normal baseline); *de novo* CK elevation $>2.0 \times \text{ULN}$ (or troponin $>2 \times \text{ULN}$ with normal baseline) without new Q-waves, and the presence of ECG changes indicative of new ischaemia (new ST-T changes or LBBB), imaging evidence of new loss of viable myocardium, or new regional wall motion abnormality. TLR was defined as ischaemia-driven repeat PCI to the target lesion or coronary artery bypass grafting (CABG) distal to the target lesion. TLR was considered to be ischaemia-driven if the target lesion diameter stenosis was $\geq 70\%$ by qualitative coronary angiography (QCA) or $\geq 50\%$ by QCA with supporting evidence of clinical or functional ischaemia.

Prespecified secondary endpoints were adjudicated at 30 days and 1 year, and included: TVF; ischaemia-driven target lesion revascularisation (TLR); ischaemia-driven target vessel revascularisation (TVR); MI (Q-wave and non-Q-wave); cardiac death; non-cardiac death; all-cause death or MI; all-cause death/MI/TVR; major adverse cardiac event (MACE) rate defined as a composite of death, MI (Q-wave or non-Q wave), emergent CABG, or TLR; and stent thrombosis according to the ARC definition of definite and probable stent thrombosis and categorised as early, late or very late¹³. TVR was defined as TLR or ischaemia-driven revascularisation of a new lesion within the target vessel but excluding the target lesion itself. Non-cardiac death

was defined as a death not due to cardiac causes as outlined above. Procedural success was defined as mean lesion diameter stenosis <30% in 2 near-orthogonal projections with TIMI 3 flow, as visually assessed by the physician, without in-hospital MI, TVR, or cardiac death.

All patient data were collected using an internet-based secure electronic data capture system. Accuracy and completeness of the recorded data was ensured by the site principal investigators and were verified by monitoring visits and evaluation of original source documents by the contract research organisation (CERC, Massy, France). All angiographic data were centrally stored and adjudicated at a single angiographic core laboratory (CERC, Massy, France) whose staff were blinded to the stent allocation. A blinded independent clinical events committee reviewed and adjudicated all clinical endpoints and adverse events including: deaths, suspected MI, TLR, TVR, and stent thrombosis. An independent data monitoring committee, comprised of interventional cardiologists and biostatisticians, reviewed accumulating safety data to monitor the incidence of adjudicated and non-adjudicated events and other trends that could warrant modification or termination of the trial. Members of the data monitoring committee were unaware of stent allocation but had the authority to unblind if required.

Statistics

The PLATINUM PLUS trial was designed as a non-inferiority study, powered for non-inferiority of the primary endpoint at 12 months. Given the reported incidence of 1-year TVF in the XIENCE V arms of the SPIRIT IV and V trials ^{8, 14}, we projected a 12-month TVF rate of 7% for both the PROMUS Element and the XIENCE Prime stents. If the upper limit of the one-sided 95% confidence interval

(CI) of the absolute risk difference was <3%, non-inferiority would be declared. Based on these assumptions and a 2:1 randomization, we estimated that 1987 patients would be required in the PROMUS Element group and 993 in the XIENCE Prime group (total: 2980). These estimates included a 10% expected rate of attrition and yielded 80% power to detect non-inferiority at a one-sided type 1 error of 0.025. We used a two-group Farrington-Manning test evaluate the one-sided hypothesis of non-inferiority in proportions¹⁵. Between group differences were compared using the chi-square or Fischer exact test for discrete variables and the Student t test for continuous variables. Kaplan-Meier plots of time-to-event variables were constructed and treatment groups were compared using the Log-rank test. The primary and additional endpoints were analysed both on an intent-to-treat and on a per-protocol basis. All statistical analyses were performed using SAS system software (version 8 or above, SAS Institute, Inc., Cary, North Carolina).

Results

The derivation of the study population is depicted in **Figure 1**. Between February 2010 and October 2012, a total of 2980 patients were randomised to receive the PROMUS Element (N=1952) or XIENCE Prime (N=1028) DES. The baseline clinical and angiographic characteristics of the study groups were well matched (**Table 1**). The mean age was 65.8±10.6 years, 77.9% were male, and 29.4% had diabetes mellitus. One third (33.2%) presented with coronary syndromes. The left main was the target vessel in 6.5% and the left anterior descending was the most frequently treated vessel (65.9%). Almost half of all patients (48.3%) had multiple target vessels with an average 1.6±0.9 target lesions per patient.

Procedural and angiographic details are presented in **Table 2**. These characteristics were well matched between groups. The average stent length and diameter per target lesion were 23.93 ± 13.87 mm and 3.00 ± 0.47 mm, respectively. The mean number of stents per target lesion was 1.18 ± 0.49 and, on average, each patient received 1.73 ± 1.11 stents. Procedural success was observed in 97.6% in the PROMUS Element group and in 97.8% in the XIENCE Prime group ($P=0.78$).

Clinical Outcomes

As depicted in **Figure 1**, 30-day follow-up was available in 99.1% of the PROMUS Element group and in 99.7% of the XIENCE Prime group ($P=0.11$). The rates of adverse events were similar in both groups at 30 days (**Table 3**). In the intention to treat analysis, TVF occurred in 1.3% of the PROMUS Element group and in 0.9% of the XIENCE Prime group ($P=0.27$).

At 12 months, the primary endpoint occurred in 86 (4.6%) patients with the PROMUS Element stent and 32 (3.2%) with the XIENCE Prime stent (**Figure 2**). Non-inferiority of the PROMUS Element stent was established, with an absolute risk difference of 1.4%, and the upper limit of the one-sided 95% CI at 2.57%, which was less than the pre-specified non-inferiority margin of $<3.0\%$ (one-sided P value for non-inferiority = 0.012) (**Figure 3**). The results were similarly robust when patients that did not receive the allocated stent were excluded from the analysis (per-protocol analysis; data not shown).

At 12 months, we observed no significant difference in the individual rates of death, cardiac death, MI, and TLR between the PROMUS Element and XIENCE Prime stents (**Table 4, Figure 4**). The rates of ARC definite or probable stent thrombosis at 12 months were also similar between groups (0.8% vs. 0.5%, $P=0.44$).

Discussion

The current multicentre randomised all-comers PLATINUM PLUS clinical trial demonstrates that the rate of TVF with the PROMUS Element EES is non-inferior to that of the XIENCE Prime EES at 12-month follow-up. Indeed, this study observed excellent safety and efficacy of both EES platforms, with low rates of MI, stent thrombosis and ischaemia-driven TLR in a real world patient population.

Large randomised trials have previously observed superior performance with EES compared to PES^{1, 3, 16}. The supremacy of the second-generation EES manifested in lower rates of TVF, TLR, MI, and stent thrombosis than the first-generation PES. Recently published data also suggest a potential mortality advantage of EES over PES¹⁷. EES have also demonstrated equivalent performance to second-generation ZES (Resolute, Medtronic Cardiovascular, Santa Rosa, California)¹⁸⁻²⁰.

The continued development of DES has focussed on enhancing each of the 3 major elements of the stent platform: the stent scaffold, the polymer, and the anti-proliferative agent. The PROMUS Element DES comprises a novel platinum-chromium stent with modified stent architecture, and the previously tested durable biocompatible polymer and antiproliferative agent⁸. Specifically, the design goals of the platinum-chromium scaffold were to improve deliverability, radial strength, vessel conformability, radiopacity, and side-branch accessibility, without compromising the safety and efficacy profile of the stent^{4, 5}. In this regard, animal models have suggested that the platinum-chromium EES yields drug-elution kinetics and drug tissue concentrations similar to its cobalt-chromium equivalent²¹. Supporting clinical data comes from the PLATINUM trial⁸. This prospective study randomised 1530

patients undergoing PCI for *de novo* stable coronary artery disease to treatment with the PROMUS Element or XIENCE V EES. At 1-year, the platinum-chromium EES was non-inferior to its cobalt-chromium equivalent (TVF 3.4% vs. 2.9%; absolute risk difference 0.5%, 95% CI -1.3% to 2.3%; upper limit of one-sided 95% CI 2.13%; non-inferiority $P = 0.001$). While these data suggest clinical equipoise between the EES platforms, patients with acute MI, true bifurcation lesions, left main stenosis, and chronic total occlusions were excluded from the PLATINUM study. Consequently, this study does not provide insight into the majority of patients undergoing PCI in the real-world setting ^{10, 11}. As such, the Circulatory System Devices Advisory panel of the FDA recommends that all new DES be tested in well-designed trials in off-label indications ¹². The recently reported phenomenon of longitudinal stent deformation underscores the need to undertake all-comer comparative safety and effectiveness studies ²².

The current randomised trial included the largest number of patients (N=2980) randomised to platinum-chromium or cobalt-chromium EES. One third of patients presented with acute MI and almost half had multivessel disease. In this all-comer population, the PROMUS Element EES was non-inferior to the XIENCE Prime EES for the composite safety and efficacy endpoint of TVF at 12 months. Acute procedural success (>97%) was excellent for both platforms and no significant differences in the individual rates of death, MI, or ischaemia-driven TLR were evident between the groups. Importantly, the 1-year incidence of ARC-defined definite or probable stent thrombosis was reassuringly low in both the platinum-chromium (0.8%) and cobalt chromium (0.5%) EES.

Recently, the PROMUS Element EES was compared to the cobalt-chromium-based ZES in an investigator-initiated prospective single-blind all-comer randomised

trial⁹. Among 1811 patients, 45% presented with acute coronary syndromes. The primary outcome measure (TVF) occurred in 5% of EES-treated and 6% of the ZES-treated patients (absolute risk difference 0.88%, 95% CI -1.24% to 3.01%; upper limit of one-sided 95% CI 2.69%; non-inferiority P = 0.006). These data, when considered in tandem with the current study, would appear to confirm that the platinum-chromium EES provides similar efficacy and safety to third-generation cobalt-chromium EES and ZES.

Limitations

At 12-month follow-up, the rate of TVF in the XIENCE Prime control arm was 3.2%, and was consequently less than the expected 7% rate used for the sample size calculation. Thus, although the absolute difference in TVF at 12 months was small (1.4%), the current study cannot absolutely exclude small differences in event rates between the test stents. Extended follow-up is required to demonstrate equivalent longer-term outcomes.

Conclusions

In this large-scale all-comers prospective randomised trial, the platinum-chromium EES demonstrated non-inferiority to the cobalt-chromium EES for TVF at 12-months.

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Figures

Figure 1. Derivation of the Study Population

Legend. Patient flow in the PLATINUM PLUS randomised trial. * Follow-up rate for clinical endpoint.

Figure 2. Kaplan-Meier Curves for the Primary Endpoint at 12 Months

Legend. Kaplan-Meier curves for the primary endpoint in the intention to treat analysis at 12 months.

Figure 3. TVF: Primary Endpoint at 12 Months (ITT).

Legend. The primary endpoint of the study was target vessel failure (TVF) at 12 months in the intention-to-treat analysis. The plot demonstrates the difference in TVF between the PROMUS Element and XIENCE Prime stents at 12 months, and the upper bound of the one-sided 95% confidence interval (blue line).

Figure 4. Kaplan-Meier Curves for All Cause Death, Myocardial Infarction, and Target Lesion Revascularisation at 12 Months (ITT)

Legend. Kaplan-Meier curves for (A) all-cause death, (B) myocardial infarction, and (C) target lesion revascularisation in the intention to treat analysis at 12 months.

Tables.

Table 1. Baseline Clinical Characteristics

	PROMUS Element (N=1952)	XIENCE Prime (N=1028)	P
Age, years	65.7 ± 10.5	66.1 ± 10.7	0.29
Male sex	1515 (77.7)	806 (78.4)	0.64
Hypertension	1282 (68.0)	684 (68.6)	0.74
Hypercholesterolaemia	1195 (63.4)	620 (62.2)	0.52
Diabetes mellitus	568 (29.1)	280 (27.2)	0.30
Insulin treated	147 (7.8)	71 (7.1)	0.51
Current smoker	414 (22.0)	208 (20.9)	0.49
Family history of IHD	657 (34.9)	349 (35.0)	0.94
Prior myocardial infarction	422 (21.7)	250 (24.3)	0.10
Indication			
Stable angina	879 (45.2)	458 (44.6)	0.75
Silent ischaemia	207 (10.7)	117 (11.4)	0.54
Acute coronary syndrome	645 (33.2)	340 (33.1)	0.97
Location of target lesions			
Left main	123 (6.3)	69 (6.7)	0.68
Left anterior descending	1261 (64.9)	697 (67.9)	0.10

Left circumflex	913 (47.0)	439 (42.8)	0.028
Right	992 (51.0)	506 (49.3)	0.36
Multivessel disease	949 (48.8)	486 (47.3)	0.44
Number of target lesions	1.6±0.9	1.6±0.8	0.96
1	1194 (61.8)	630 (61.8)	0.98
2	496 (25.7)	266 (26.1)	0.81
3	168 (8.7)	86 (8.4)	0.81
4+	74 (3.8)	38 (3.7)	0.89
Target lesion measures			
Reference vessel diameter, mm	2.99±0.5	2.98±0.5	0.90
Diameter stenosis, %	83.3±11.6	82.8±12.2	0.32
Lesion length, mm	19.4±11.9	19.2±10.9	0.75

Legend. Values are mean ± SD or number (%). IHD = ischaemic heart disease.

Table 2. Procedural Characteristics

	PROMUS Element (N=1952	XIENCE Prime (N=1028)	P
Transradial access	62.0%	62.2%	0.91
Stents/patient	1.72±1.09	1.76±1.14	0.67
1	1019 (52.2)	533 (51.9)	0.84
2	533 (27.3)	274 (26.6)	0.70
3+	354 (18.1)	198 (19.2)	0.46
Stents/target lesion	1.17±0.48	1.2±0.51	0.013
Mean stent diameter, mm	2.99± 0.47	3.00±0.47	0.87
Total stent length/lesion, mm	23.90±13.83	23.98±13.95	0.30
Total stent length/lesion length ratio, mm	1.32±0.66	1.32±0.74	0.59
Total stent length/patient, mm	35.9 ± 24.8	35.8 ± 25.2	0.51
Maximal stent balloon pressure, atm	14.86±2.86	14.70±3.12	0.03
Lesion postdilatation	1205 (41.2)	653 (42.4)	0.43

Legend. Values are mean ± SD or number (%).

Table 3. 30-day Clinical Outcomes

	PROMUS Element (N=1935)	XIENCE Prime (N=1025)	P
TVF	26 (1.3)	9 (0.9)	0.27
All death	11 (0.6)	5 (0.5)	0.78
Cardiac death	10 (0.5)	5 (0.5)	0.92
Related to target vessel	10 (0.5)	4 (0.4)	0.78
Not related to target vessel	0 (0.0)	1 (0.1)	0.35
Non-cardiac death	1 (0.1)	0 (0.0)	0.99
MI	13 (0.7)	5 (0.5)	0.54
Related to target vessel	13 (0.7)	4 (0.4)	0.34
Not related to target vessel	0 (0.0)	1 (0.1)	0.35
Q-wave MI	4 (0.2)	0 (0.0)	0.31
Non-Q wave MI	9 (0.5)	5 (0.5)	0.99
TVR	7 (0.4)	2 (0.2)	0.73
TLR	6 (0.3)	1 (0.1)	0.43
Non-TLR	1 (0.1)	1 (0.1)	0.99
TLF	25 (1.3)	8 (0.8)	0.21
Cardiac death/MI	22 (1.1)	10 (1.0)	0.69
Death/MI/TVR	27 (1.4)	11 (1.1)	0.46
MACE	26 (1.3)	10 (1.0)	0.39
ARC stent thrombosis: definite or probable*	11 (0.6)	3 (0.3)	0.40

Definite	4 (0.2)	1 (0.1)	0.67
Probable	7 (0.4)	2 (0.2)	0.73
Possible	1 (0.1)	0 (0.0)	0.99

Legend. Values are number (%). TVF = target vessel failure; MI = myocardial infarction; TVR = target vessel revascularisation; TLR = target lesion revascularisation; PCI = percutaneous coronary intervention; CABG = coronary artery bypass grafting; MACE = major adverse cardiovascular events. * Academic Research Consortium definition ¹³.

Table 4. 12-Month Clinical Outcomes

	PROMUS Element (N=1862)	XIENCE Prime (N=987)	P
TVF	86 (4.6)	32 (3.2)	0.08
All death	33 (1.8)	15 (1.5)	0.62
Cardiac death	21 (1.1)	10 (1.0)	0.78
Related to target vessel	17 (0.9)	9 (0.9)	0.99
Not related to target vessel	4 (0.2)	1 (0.1)	0.66
Non-cardiac death	12 (0.6)	5 (0.5)	0.65
MI	29 (1.6)	8 (0.8)	0.09
Related to target vessel	24 (1.3)	5 (0.5)	0.05
Not related to target vessel	6 (0.3)	3 (0.3)	0.99
Q-wave MI	4 (0.2)	3 (0.3)	0.70
Non-Q wave MI	25 (1.3)	6 (0.6)	0.07
TVR	59 (3.2)	20 (3.0)	0.08
TLR	37 (2.0)	16 (1.6)	0.49
Non-TLR	25 (1.3)	7 (0.7)	0.13
Cardiac death/MI	49 (1.6)	18 (1.8)	0.18
Death/MI/TVR	106 (5.7)	41 (4.2)	0.08
MACE	87 (4.7)	38 (3.9)	0.31
ARC stent thrombosis: definite or probable*	14 (0.8)	5 (0.5)	0.44

Definite	6 (0.3)	3 (0.3)	0.99
Probable	8 (0.4)	2 (0.2)	0.51
Possible	1 (0.1)	2 (0.2)	0.28

Legend. Values are number (%). * Academic Research Consortium definition ¹³.