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ORIGINAL RESEARCH

Bioresorbable vascular scaffold versus metallic drug-eluting stent in patients at high risk of restenosis: final 7-year results of the COMPARE-ABSORB trial

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ABSTRACT

BACKGROUND: The clinical outcomes of bioresorbable vascular scaffolds (BVS) compared with everolimus-eluting stents (EES) beyond 5-year follow-up are unknown.

AIMS: This study aims to investigate clinical outcomes of BVS 7 years after implantation.

METHODS: The COMPARE-ABSORB trial is an investigator-initiated, prospective randomised study. Patients at high risk of restenosis were randomly assigned to receive either a BVS or an EES. A dedicated implantation technique was recommended for BVS. The primary endpoint was target lesion failure (TLF), defined as the composite of cardiac death, target vessel myocardial infarction (TVMI), or clinically indicated target lesion revascularisation (CI-TLR). The primary and co-primary objectives were non-inferiority at 1 year and superiority of BVS at 7 years after a 3-year landmark analysis.

RESULTS: Although enrolment was stopped at 1,670 patients (80% of the intended 2,100 patients; 848 patients receiving BVS and 822 EES) because of high thrombosis and TVMI rates in the BVS arm, non-inferiority for TLF at 1 year was met. At 7-year follow-up subsequent to a 3-year landmark analysis, the TLF rate of BVS was 6.7% versus 5.9% for EES (hazard ratio [HR] 1.14, 95% confidence interval [CI]: 0.76-1.77; p=0.53); therefore, superiority was not met. Cardiac death, TVMI, and device thrombosis rates did not differ between both groups; however, CI-TLR was significantly higher in the BVS arm (4.4% vs 2.2%; HR 1.97, 95% CI: 1.08-3.60; p=0.023).

CONCLUSIONS: After complete resorption, no benefit was observed with BVS compared with EES at 7-year follow-up, despite the use of a dedicated implantation protocol for BVS. In fact, after 3 years, more target lesion revascularisations occurred with BVS than with EES.

KEYWORDS: bioresorbable scaffold; drug-eluting stent; long-term outcome; stent thrombosis

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Studies with second-generation drug-eluting stents (DES) have shown that after the initial 30 days, the target lesion failure (TLF) rate increases linearly up to 5- or 10-year follow-up, with an annual TLF rate of approximately 2.0%[1-3]. To improve the long-term outcome of percutaneous coronary intervention (PCI) patients by attempting to flatten this TLF event rate over time, new strategies with bioresorbable vascular scaffolds (BVS) or drug-coated balloons have been introduced. These "leave nothing behind" strategies have the potential to restore the physiology of the treated vessel segment by restoring pulsatility, vasomotion, remodelling, and removing the trigger for neoatherosclerosis that is caused by a permanent metallic implant, with or without a durable polymer.

Previous randomised trials comparing BVS with metallic DES resulted in BVS demonstrating higher rates of TLF and device thrombosis compared with metallic DES[4-7]. These disappointing outcomes with BVS were mainly driven by events in the early phase and have been partially attributed to a suboptimal implantation technique, selection of small vessels, or to the mechanical limitations of this relatively thick-strut device resulting in less acute gain, despite an optimal implantation technique. A second wave of scaffold thrombosis around 3 years, though to a lesser extent compared with the early phase, has been described, mainly related to intraluminal dismantling of discontinuous or malapposed scaffold remnants[8,9]. These observations, and the fact that in all prior randomised ABSORB trials a BVS-specific implantation technique was neither fully developed nor employed as part of the study design, raised the question as to whether a BVS-specific optimal implantation technique can prevent these very late adverse events and whether very late adverse events originating from the treated coronary segments can be prevented when the scaffold is fully resorbed and the vessel is fully "uncaged".

Furthermore, with one exception[6], prior BVS trials excluded patients with complex lesion characteristics, and follow-up in all previous trials with BVS was limited to 5 years, while resorption of a BVS is only complete between 3 and 4 years after implantation. Therefore, in the COMPARE-ABSORB trial, we hypothesised that the use of a BVS in a high-risk population for restenosis, when using a specific BVS implantation protocol, might demonstrate better long-term outcomes, compared with an everolimus-eluting stent (EES), after full BVS resorption with a follow-up of 7 years. Spline analysis, demonstrating the hazard risk over time for BVS, based on the final 5-year results of the ABSORB programme, points in this direction[10].

In this report, we present the final 7-year results from the COMPARE-ABSORB trial.

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Impact on daily practice

This trial showed no benefit in the very long term of using an optimal implantation technique and prolonging dual antiplatelet therapy beyond 1 year following bioresorbable vascular scaffold implantation. Other devices and treatment strategies are needed to improve the long-term outcome of percutaneous coronary intervention in patients at high risk for restenosis.

Methods

The study design has been previously published[11]. In summary, the COMPARE-ABSORB trial is a prospective, randomised, controlled, single-blind, multicentre study across 45 centres in Europe **(Supplementary Table 1)**. Patients aged 18-75 years with symptomatic ischaemic heart disease and presence of high-risk features for restenosis due to clinical profile or coronary lesion complexity and who were scheduled to undergo elective or emergent PCI were eligible. Subjects participating in the trial met at least one of the inclusion criteria: medically treated diabetes, multivessel disease with more than one *de novo* target lesion, and/or presence of at least one complex target lesion (long lesion, small vessel, total occlusion, or bifurcation). Key exclusion criteria included a target lesion not suitable for BVS implantation, patients with cardiogenic shock, severe renal failure, a severely impaired ejection fraction, left main disease, or those on oral anticoagulants. Detailed criteria are listed in **Supplementary Table 2**. Patients were randomly assigned 1:1 to receive either a BVS (Absorb [Abbott]) or an EES (XIENCE [Abbott]). Blocked randomisation was performed with randomly selected block sizes. A dedicated implantation technique was defined in the protocol: predilatation using non-compliant balloons of the same diameter as the reference vessel diameter (RVD) and post-scaffold high-pressure (≥16 atm) dilatation were mandatory in the BVS group. Scaffold-to-vessel sizing was based on the instructions for use. The primary endpoint was TLF (a composite of cardiac death, target vessel myocardial infarction [TVMI] and clinically indicated target lesion revascularisation [CI-TLR]). The primary objective was to show non-inferiority of BVS compared with EES at 1 year, and the co-primary objective was to show superiority of BVS compared with EES at 7-year follow-up subsequent to landmark analysis at 3 years. An additional, non-powered objective is to show superiority of BVS compared with EES up to 7-year follow-up. An extended methods section is provided in **Supplementary Appendix 1**, including study organisation, hypotheses, sample size calculation, endpoints, and the definition of clinically indicated target vessel and lesion revascularisation. Follow-up is up to 7 years after randomisation.

Invasive imaging was planned in a prespecified subpopulation of 62 diabetic patients at selected sites. At the index procedure, the patients underwent intravascular ultrasound (IVUS) imaging pre- and post-procedure. Angiography and

Abbreviations

BVS	bioresorbable vascular scaffold	**EES**	everolimus-eluting stent	**TVF**	target vessel failure
CI-TLR	clinically indicated target lesion revascularisation	**PCI**	percutaneous coronary intervention	**TVMI**	target vessel myocardial infarction
		TLF	target lesion failure		

IVUS were repeated at 62 months of follow-up. The main objective of the substudy was to assess in diabetic patients with complex coronary artery disease the performance of the BVS compared with the EES in terms of plaque regression in the stented/scaffolded segment (percentage change in total atheroma volume) at 62 months.

STATISTICAL ANALYSIS

All clinical data were analysed according to the intention-to-treat principle.

For time-to-event endpoints, hazard ratios (HRs) and Kaplan-Meier plots were constructed and compared by the log-rank test. Percentages shown in tables and graphs of time-to-event analyses are Kaplan-Meier estimates. For landmark analysis, patients with the event of interest before the landmark were excluded from the analysis after the landmark, as were patients who were censored before the landmark.

To further examine the change in hazard ratio during the 7-year follow-up period, a flexible parametric survival model – restricted cubic spline analysis – was used to estimate the HR and its 95% confidence interval (CI) of TLF over time. Five knots were selected at clinically relevant points of 30 days, and 3, 4, 5, and 6 years post-randomisation. To show that the choice of knots did not affect the results, we ran a test with automated knot placement, based on equal numbers of outcome events in the intervals between the knots. The SAS macro (SAS Institute) we created for this was based on a macro by Austin et al[12].

Forest plots for subgroups were created, and a p-value for interaction was calculated.

Dichotomous variables were evaluated by Fisher's exact test, ordinal variables with >2 categories were evaluated by the Mantel-Haenszel rank score test, and categorical variables with >2 categories were evaluated by the chi-square test. Continuous variables were tested with a two-sample t-test or with the Mann-Whitney U test when data were not normally distributed.

A two-sided p-value of less than 0.05 was considered to indicate statistical significance. All statistical analyses were performed using SAS software, version 9.4 (SAS Institute). This trial was registered at ClinicalTrials.gov: NCT02486068.

Results

BASELINE PATIENT, LESION, AND PROCEDURAL CHARACTERISTICS AND 1-YEAR RESULTS

Between 28 September 2015 and 31 August 2017, 1,670 (80%) of the intended 2,100 patients were randomly assigned to receive either a BVS (848 patients with 1,243 lesions) or an EES (822 patients with 1,214 lesions). Baseline clinical and procedural characteristics are shown in **Table 1** and **Table 2**. Of the 1,670 patients, 293 (34.6%) in the BVS group and 296 (36.1%) in the EES group had a history of diabetes, and 442 (52.1%) in the BVS group and 400 (48.7%) in the EES group presented with an acute coronary syndrome, including acute non-ST-segment elevation myocardial infarction (non-STEMI) and STEMI patients. According to the implantation protocol for BVS, predilatation was performed in 96.5% of lesions and post-dilatation in 92.8% of lesions treated with BVS – significantly higher compared with the EES group.

Although enrolment was prematurely stopped on the recommendation of the Data and Safety Monitoring Board based on significantly more device thrombosis and target vessel myocardial infarction in the BVS arm than the EES arm, the primary endpoint of non-inferiority for TLF at 1-year follow-up was nevertheless met with statistical significance ($p_{non\text{-}inferiority}<0.001$)[7].

CLINICAL OUTCOMES AT 7-YEAR FOLLOW-UP AFTER A 3-YEAR LANDMARK ANALYSIS

Clinical follow-up at 7 years was complete in 802/848 (94.6%) patients treated with BVS versus 784/822 (95.4%) patients in the EES group **(Figure 1)**. Vital status could be obtained in 17 of the 44 patients lost to follow-up, resulting in 7-year vital status of 95.5% in the BVS arm and 96.5% in the EES arm. The clinical outcomes at 7 years after a 3-year landmark analysis are shown in **Table 3**. The co-primary objective, TLF between 3 and 7 years, based on a 3-year landmark analysis, showed no difference between BVS and EES: 6.7% versus 5.9%, respectively; HR 1.14, 95% CI: 0.76-1.73; p=0.53 **(Figure 2)**. Cardiac death and TVMI rates between BVS and EES were not different at 2.3% (n=18) versus 2.8% (n=21); HR 0.84, 95% CI: 0.45-1.57; p=0.58, and 2.0% (n=15) versus 2.2% (n=16); HR 0.94, 95% CI: 0.46-1.90; p=0.86, respectively. However, the rate of CI-TLR was significantly higher for BVS compared with EES (4.4% vs 2.2%; HR 1.97, 95% CI: 1.08-3.60; p=0.023). Device thrombosis rates were not different: 0.4% versus 0.5% for BVS and EES, respectively (HR 0.74, 95% CI: 0.17-3.30; p=0.69) (**Table 3**, **Figure 3A**-**Figure 3D**).

CLINICAL OUTCOMES UP TO 7-YEAR FOLLOW-UP

Annual clinical outcomes at 1, 2, 3, 5, 6, and 7 years are given in **Supplementary Table 3**. The primary endpoint of TLF at 7 years occurred in 123 patients (15.1%) in the BVS group and in 104 patients (13.1%) in the EES group; this was not statistically significant (HR 1.17, 95% CI: 0.90-1.52; p=0.24) **(Table 3, Central illustration, Supplementary Figure 1)**. Cardiac death, TVMI, CI-TLR, and definite device thrombosis rates were also not statistically different **(Table 3, Supplementary Figure 2A-Supplementary Figure 2D)**. Subgroup analysis showed consistency of the TLF outcomes with BVS and EES across all predefined subgroups **(Figure 4)**.

Landmark analyses at 30 days or 1 year showed no differences between BVS and EES in any clinical outcome parameter at 7-year follow-up. In fact, the time-to-event curves run parallel up to 7 years after the initial 30 days, except for CI-TLR. After 3-year follow-up, the CI-TLR curves started to diverge, with an increase in revascularisations of BVS-treated lesions **(Supplementary Figure 3A-Supplementary Figure 3D)**.

Dual antiplatelet treatment (DAPT) and cardiac medication up to 7-year follow-up are provided in **Supplementary Table 4** and **Supplementary Figure 4**. Between 4 and 7 years of follow-up, DAPT usage was similar between both arms.

CASE DESCRIPTION OF SCAFFOLD THROMBOSIS BETWEEN 3 AND 7 YEARS

Three patients in the BVS arm experienced a scaffold thrombosis between 3- and 7-year follow-ups. One patient

Table 1. Baseline characteristics.

Characteristic	BVS (n=848)	EES (n=822)	*p*-value
Patient measures			
Age, years	62 [56; 69]	63 [56; 69]	0.61
Male	674/848 (79.5)	627/822 (76.3)	0.13
Body mass index, kg/m^2	27 [25; 31]	27 [25; 30]	0.43
Current smoker	241/837 (28.8)	217/807 (26.9)	0.41
Diabetes mellitus	293/846 (34.6)	296/821 (36.1)	0.57
Hypertension	601/839 (71.6)	567/819 (69.2)	0.31
Hypercholesterolaemia	546/824 (66.3)	531/807 (65.8)	0.88
Family history of coronary artery disease	278/767 (36.2)	241/760 (31.7)	0.07
Previous MI	154/847 (18.2)	166/820 (20.2)	0.29
Established peripheral vascular disease	59/842 (7.0)	56/819 (6.8)	0.92
Previous PCI	229/847 (27.0)	238/822 (29.0)	0.38
Previous CABG	16/848 (1.9)	21/822 (2.6)	0.41
Previous stroke	29/845 (3.4)	39/820 (4.8)	0.18
Renal insufficiency[a]	33/845 (3.9)	49/817 (6.0)	0.054
Left ventricular ejection fraction			0.84
Good (>60%)	492/661 (74.4)	486/647 (75.1)	
Reduced (30-60%)	155/661 (23.4)	143/647 (22.1)	
Poor (<30%)	14/661 (2.1)	18/647 (2.8)	
Clinical presentation			
Stable coronary artery disease	406/848 (47.9)	422/822 (51.3)	0.17
Silent ischaemia	63/848 (7.4)	73/822 (8.9)	
Stable angina	343/848 (40.4)	349/822 (42.5)	
ACS	442/848 (52.1)	400/822 (48.7)	0.17
Unstable angina	149/848 (17.6)	141/822 (17.2)	
Non-ST-segment elevation MI	183/848 (21.6)	156/822 (19.0)	
ST-segment elevation MI	110/848 (12.9)	103/822 (12.5)	

Data are median [interquartile range] or n/N (percentage). [a]Renal insufficiency is defined as an MDRD estimated glomerular filtration rate less than 60 mL/min/1.73 m^2 or serum creatinine above 130 micromol/L. ACS: acute coronary syndrome; BVS: bioresorbable vascular scaffold; CABG: coronary artery bypass graft; EES: everolimus-eluting stent; MDRD: Modification of Diet in Renal Disease; MI: myocardial infarction; PCI: percutaneous coronary intervention

was treated with a BVS in the mid-left anterior descending artery (LAD; BVS 3.5x18 mm, postdilatated with a 4.0 mm non-compliant balloon) and mid-ramus circumflex (RCx; BVS 3.0x28 mm, postdilatated with a 3.5 mm non-compliant balloon). On day 1,115, nine days after stopping clopidogrel (single antiplatelet therapy in combination with non-vitamin K oral anticoagulants), the patient was admitted with a non-STEMI and underwent coronary angiography and optical coherence tomography. The presence of thrombus at the LAD scaffold remnants with a 56% diameter stenosis by quantitative coronary angiography (QCA) was observed. The second patient was treated in the mid-LAD with a 2.5x12 mm BVS, with post-dilatation performed using a 2.5 mm non-compliant balloon. On day 1,304, the patient was admitted with STEMI while on monotherapy with acetylsalicylic acid. Coronary angiography showed occlusion of the LAD with thrombus in the scaffold segment. The third patient was treated for tandem lesions in the proximal and mid-RCx with adjacently implanted 3.5x28 mm and 3.0x18 mm BVS, with post-dilatation performed using a 3.5 mm non-compliant balloon at 16 atmospheres. On day 2,174, the patient was admitted for myocardial infarction, which, according to the investigator, was a thrombotic-appearing occlusion and was treated by angiography of the mid-RCx. Although no electrocardiogram or biomarkers were available, the clinical event adjudication committee judged the patient to have myocardial infarction and scaffold thrombosis on clinical grounds.

HAZARD RISK EVOLUTION UP TO 7-YEAR FOLLOW-UP

Spline analysis demonstrating the hazard ratio for TLF over time for BVS in comparison to EES is presented in **Supplementary Figure 5**, showing an increase in the HR between years 3 and 4, followed by a decrease between years 4 and 5, similar to what has been previously described[10]. However, a subsequent increase was seen between 5- and 7-year follow-ups.

ANGIOGRAPHIC DIABETIC SUBSTUDY

In the end, 15 of the intended 62 diabetic patients were enrolled in the angiographic substudy, and only 9 of these

Table 2. Angiographic and procedural characteristics.

	BVS (n=1,243 lesions)	EES (n=1,214 lesions)	*p*-value
Procedural characteristics			
Number of target lesions undergoing treatment attempt per patient	1 [1; 2] (n=848)	1 [1; 2] (n=822)	0.64
Multivessel treatment	441/848 (52.0)	433/822 (52.7)	0.81
IVUS performed post-procedure	126/848 (14.9)	122/822 (14.8)	1.00
OCT performed post-procedure	84/848 (9.9)	24/822 (2.9)	<0.001
Target lesion measures			
Lesion location			0.11
LAD	569/1,243 (45.8)	503/1,214 (41.4)	
LCx	281/1,243 (22.6)	310/1,214 (25.5)	
RCA	392/1,243 (31.5)	400/1,214 (32.9)	
Left main	1/1,243 (0.1)	1/1,214 (0.1)	
Bifurcation lesions	254/1,243 (20.4)	269/1,214 (22.2)	0.30
Two or more devices used in bifurcation lesions	82/254 (32.3)	68/269 (25.3)	0.08
Pre-existing total occlusions	181/1,243 (14.6)	159/1,214 (13.1)	0.32
Long lesions (>28 mm)	312/1,243 (25.1)	382/1,214 (31.5)	<0.001
Small vessel lesions (>2.25 mm, ≤2.75 mm)	302/1,243 (24.3)	404/1,214 (33.3)	<0.001
SYNTAX score	11 [7;17]	11 [7;16]	0.88
Number of study devices implanted per lesion	1 [1; 2]	1 [1;1]	0.06
Median total device length per lesion, mm	28 [18; 36]	28 [18; 38]	0.29
Median device diameter per lesion, mm	3.0 [2.8; 3.5]	3.0 [2.8; 3.5]	<0.001
Overlapping devices implantation	194/1,243 (15.6)	256/1,214 (21.1)	<0.001
Lesions without study device	44/1,243 (3.5)	9/1,214 (0.7)	<0.001
Predilatation	1,199/1,243 (96.5)	954/1,214 (78.6)	<0.001
Largest balloon, mm	3.0 [2.5; 3.0]	3.0 [2.5; 3.0]	0.95
Non-compliant balloon used	815/1,199 (68.0)	504/954 (52.8)	<0.001
Maximum pressure used, atm	16 [12; 18]	14 [12; 16]	0.002
Cutting/scoring balloon used	72/1,243 (5.8)	28/1,214 (2.3)	<0.001
Post-dilatation	1,113/1,199 (92.8)	699/1,205 (58.0)	<0.001
Largest balloon, mm	3.5 [3.0; 3.5]	3.5 [3.0; 3.5]	0.53
Non-compliant balloon used	1,039/1,199 (86.7)	616/1,205 (51.1)	<0.001
Maximum pressure used, atm	18 [16; 20]	18 [16; 20]	0.80
Maximum pressure ≥16 atm	899/1,113 (80.8)	561/699 (80.3)	0.81
Procedure success	749/848 (88.3)	772/820 (94.1)	<0.001
TIMI flow post-procedure			0.80
0	2/1,243 (0.2)	0/1,214 (0)	
1	2/1,243 (0.2)	1/1,214 (0.1)	
2	8/1,243 (0.6)	12/1,214 (1.0)	
3	1,231/1,243 (99.0)	1,201/1,214 (98.9)	
Angiographic analysis (core laboratory)			
Preprocedure			
Reference vessel diameter, mm	2.51±0.50 (1,123)	2.49±0.49 (1,109)	0.21
Minimum lumen diameter, mm	0.89±0.49 (1,148)	0.89±0.50 (1,129)	0.74
Diameter stenosis, %	64.3±18.4 (1,148)	63.7±18.7 (1,129)	0.41
Lesion length[a], mm	12.46±6.96 (986)	12.46±6.96 (973)	0.23

Table 2. Angiographic and procedural characteristics (cont'd).

Procedural characteristics	BVS (n=1,243 lesions)	EES (n=1,214 lesions)	*p*-value
Angiographic analysis (core laboratory)			
Post-procedure			
In-device measures			
Reference vessel diameter, mm	2.63±0.45 (1,161)	2.66±0.42 (1,159)	0.07
Minimum lumen diameter, mm	2.21±0.41 (1,161)	2.32±0.39 (1,159)	<0.001
Diameter stenosis, %	15.5±8.6 (1,161)	12.10±6.44 (1,159)	<0.001
Acute gain, mm	1.33±0.57 (1,123)	1.42±0.53 (1,111)	<0.001
In-segment measures			
Reference vessel diameter, mm	2.55±0.46 (1,161)	2.57±0.44 (1,159)	0.38
Minimum lumen diameter, mm	2.01±0.42 (1,161)	2.02±0.44 (1,159)	0.61
Diameter stenosis, %	21.0±9.7 (1,161)	21.3±10.3 (1,159)	0.52
Acute gain, mm	1.13±0.56 (1,123)	1.13±0.55 (1,111)	0.98

Data are median [interquartile range], mean±standard deviation (count), or n/N (percentage). [a]ST-segment elevation myocardial infarction and chronic total occlusion lesions were excluded. BVS: bioresorbable vascular scaffold; EES: everolimus-eluting stent; IVUS: intravascular ultrasound; LAD: left anterior descending artery; LCx: left circumflex artery; OCT: optical coherence tomography; OIT: optimal implantation technique; PCI: percutaneous coronary intervention; QCA: quantitative coronary analysis; RCA: right coronary artery; TIMI: Thrombolysis in Myocardial Infarction

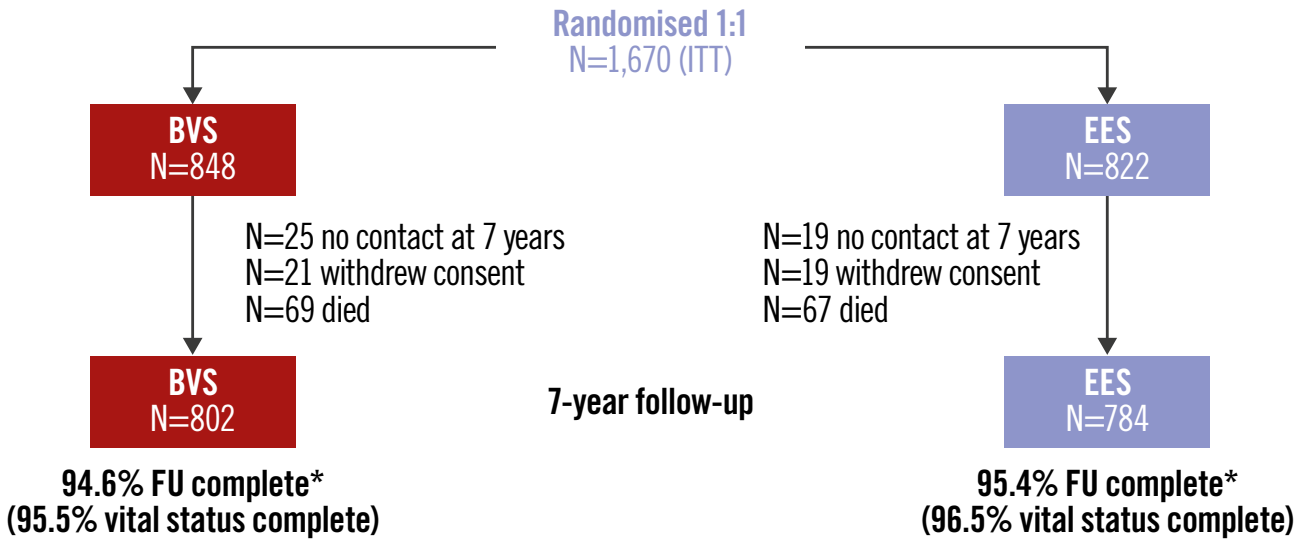


Figure 1. *Seven-year study flowchart. *Complete clinical information available. BVS: bioresorbable vascular scaffold; EES: everolimus-eluting stent; FU: follow-up; ITT: intention-to-treat*

15 patients (5 in the BVS arm and 4 in the EES arm) underwent elective coronary angiography and IVUS at 62-month follow-up.

Discussion

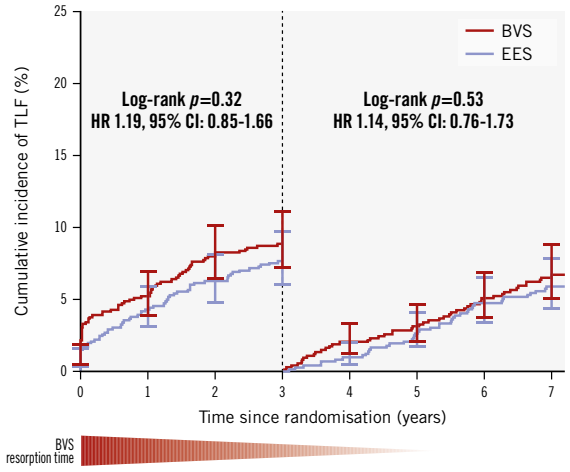
The COMPARE-ABSORB trial is unique in the sense that (1) it is the only randomised controlled trial that evaluates the outcomes of BVS beyond the 5-year follow-up, when the scaffold is fully absorbed and the treated segment has been completely uncaged for a few years, and that (2) it is the only trial that implemented a dedicated implantation protocol for BVS from the start[13].

In this final 7-year follow-up, we report that BVS did not show any benefit compared with EES. Moreover, the treatment effect on TLF was similar across different subgroups, including risk groups defined according to lesion complexity or baseline characteristics. The co-primary endpoint of TLF at 7 years following a 3-year landmark analysis did not meet superiority for BVS compared with EES. In fact, at between 3 and 4 years, target vessel and lesion revascularisations curves started to diverge because of increases in both outcomes in the BVS arm. The cause of this late uptake in revascularisations is unknown. However, it is known that scaffold remnants are still visible at 3 years

Table 3. Clinical outcomes at 3-year follow-up, at 7-year follow-up after 3-year landmark analysis, and at 7-year follow-up.

	0-3 years				3-7 years				0-7 years			
	BVS, %	EES, %	HR (95% CI)	P_{LR}	BVS, %	EES, %	HR (95% CI)	P_{LR}	BVS, %	EES, %	HR (95% CI)	P_{LR}
TLF	9.0	7.6	1.19 (0.85-1.66)	0.32	6.7	5.9	1.14 (0.76-1.73)	0.53	15.1	13.1	1.17 (0.90-1.52)	0.24
TVF	10.7	8.8	1.25 (0.92-1.71)	0.16	7.5	6.8	1.11 (0.75-1.64)	0.60	17.5	14.9	1.19 (0.94-1.52)	0.15
Death, all-cause	2.4	2.2	1.09 (0.57-2.05)	0.80	6.0	6.3	0.96 (0.64-1.43)	0.83	8.3	8.4	0.99 (0.71-1.39)	0.96
Cardiac death	1.4	1.0	1.47 (0.60-3.59)	0.40	2.3	2.8	0.84 (0.45-1.57)	0.58	3.7	3.7	1.01 (0.61-1.69)	0.96
MI	6.0	4.3	1.41 (0.91-2.17)	0.12	3.6	4.0	0.89 (0.52-1.51)	0.67	9.3	8.1	1.17 (0.84-1.64)	0.34
TVMI	5.2	3.3	1.61 (0.99-2.59)	0.0501	2.0	2.2	0.94 (0.46-1.90)	0.86	7.2	5.4	1.36 (0.92-2.01)	0.13
All revascularisations	12.4	12.5	0.99 (0.76-1.31)	0.97	9.4	7.9	1.18 (0.82-1.70)	0.36	20.6	19.4	1.06 (0.85-1.32)	0.60
TV revascularisations	8.6	8.0	1.08 (0.78-1.52)	0.63	6.3	4.3	1.49 (0.94-2.36)	0.089	14.4	12.0	1.21 (0.92-1.59)	0.16
TL revascularisations	6.8	6.4	1.07 (0.74-1.56)	0.71	4.7	2.5	1.87 (1.06-3.31)	0.0288	11.2	8.8	1.28 (0.94-1.75)	0.12
Clinically indicated TV revascularisations	7.0	6.7	1.05 (0.72-1.52)	0.81	5.6	4.2	1.31 (0.82-2.11)	0.26	12.2	10.6	1.14 (0.85-1.53)	0.37
Clinically indicated TL revascularisations	5.2	5.1	1.02 (0.67-1.57)	0.92	4.4	2.2	1.97 (1.08-3.60)	0.0236	9.3	7.2	1.29 (0.91-1.82)	0.15
Definite device thrombosis	2.3	1.1	2.06 (0.93-4.56)	0.067	0.4	0.5	0.74 (0.17-3.30)	0.69	2.6	1.6	1.66 (0.83-3.29)	0.14
Definite and probable device thrombosis	2.4	1.1	2.17 (0.99-4.77)	0.047	0.4	0.5	0.74 (0.17-3.30)	0.69	2.8	1.6	1.73 (0.88-3.42)	0.11

BVS: bioresorbable vascular scaffold; CI: confidence interval; EES: everolimus-eluting stent; HR: hazard ratio; MI: myocardial infarction; P_{LR}: log-rank p; TL: target lesion; TLF: target lesion failure; TV: target vessel; TVF: target vessel failure; TVMI: target vessel myocardial infarction

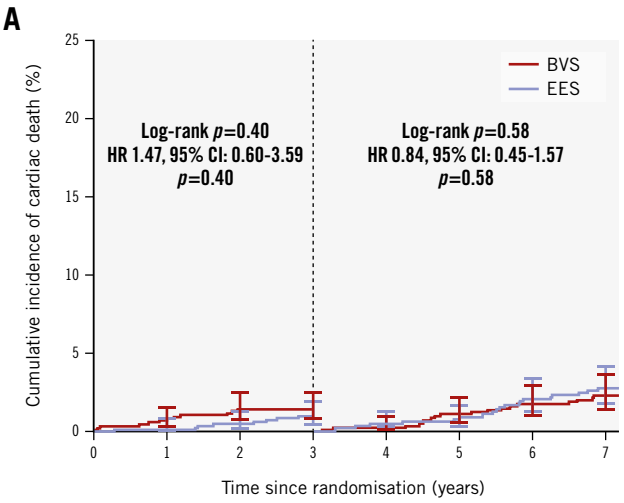


BVS									
# At risk	848	791	760	747	747	726	702	670	471
# Censored	0	13	7	6	0	7	17	16	212
# Events	8	36	24	7	0	15	8	14	11
Cum. events (%)	0.9	5.2	8.1	9.0	0.0	2.0	3.1	5.1	6.7
EES									
# At risk	822	775	752	739	739	726	702	677	493
# Censored	0	13	6	2	0	10	9	9	200
# Events	6	29	16	11	0	7	12	15	8
Cum. events (%)	0.7	4.3	6.3	7.6	0.0	1.0	2.6	4.7	5.9

Figure 2. *Kaplan-Meier plot for the co-primary endpoint, TLF, at 7-year follow-up after a 3-year landmark analysis. Kaplan-Meier curves show the cumulative incidence of target lesion failure. BVS: bioresorbable vascular scaffold; CI: confidence interval; cum: cumulative; EES: everolimus-eluting stent; HR: hazard ratio; TLF: target lesion failure*

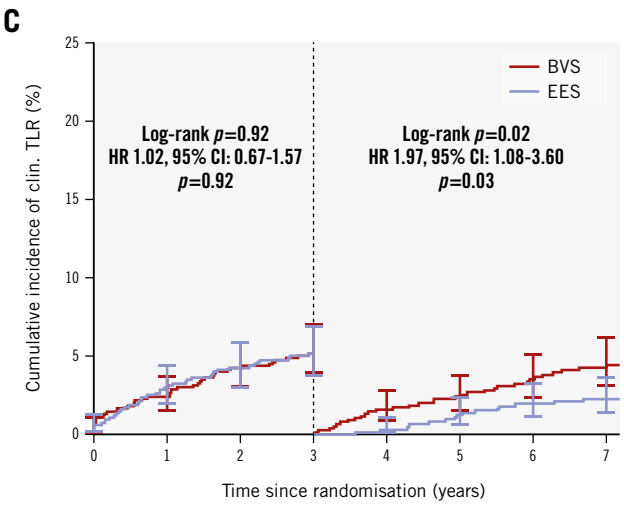
by optical coherence tomography[14,15] and that dismantling of the scaffold potentially might have altered flow patterns and caused new stenoses to form between 3- and 4-year follow-ups. Alternatively, resorption of polylactic acid might have caused an intramural acidic milieu and a trigger for late neoatherosclerosis.

In COMPARE-ABSORB, ischaemic events such as scaffold thrombosis and target vessel myocardial infarction in the BVS arm predominantly occurred during the early phase after implantation, implicating procedure-related causes. After the initial 30 days, the ischaemic event curves for BVS and EES, including TLF, were superimposed up to 7 years of follow-up,



BVS									
# At risk	848	828	815	809	808	800	777	753	530
# Censored	0	14	7	7	0	7	17	17	244
# Events	0	6	6	0	0	2	7	5	4
Cum. events (%)	0.0	0.7	1.4	1.4	0.0	0.2	1.1	1.8	2.3
EES									
# At risk	822	809	799	793	793	779	764	740	541
# Censored	0	13	6	2	0	10	14	13	219
# Events	0	1	3	4	0	4	2	10	5
Cum. events (%)	0.0	0.1	0.5	1.0	0.0	0.5	0.8	2.1	2.8

BVS									
# At risk	848	797	776	769	768	755	731	704	497
# Censored	0	17	12	7	0	9	21	21	230
# Events	8	26	9	1	0	5	4	4	2
Cum. events (%)	0.9	4.0	5.1	5.2	0.0	0.7	1.2	1.7	2.0
EES									
# At risk	822	792	776	767	767	752	733	710	516
# Censored	0	14	8	6	0	14	12	18	216
# Events	2	15	7	3	0	1	8	4	3
Cum. events (%)	0.2	2.1	2.9	3.3	0.0	0.1	1.2	1.8	2.2



BVS									
# At risk	848	811	784	770	770	750	725	693	487
# Censored	0	17	12	6	0	9	20	22	224
# Events	3	17	15	8	0	12	6	8	6
Cum. events (%)	0.4	2.4	4.2	5.2	0.0	1.6	2.4	3.5	4.4
EES									
# At risk	822	785	766	753	753	737	716	690	505
# Censored	0	14	8	6	0	14	15	20	207
# Events	4	20	10	7	0	2	7	5	2
Cum. events (%)	0.5	2.9	4.2	5.1	0.0	0.3	1.2	1.9	2.2

BVS									
# At risk	848	816	801	795	794	784	763	738	522
# Censored	0	16	12	7	0	9	22	22	241
# Events	4	12	3	0	0	2	0	1	0
Cum. events (%)	0.5	1.9	2.3	2.3	0.0	0.3	0.3	0.4	0.4
EES									
# At risk	822	804	793	784	784	769	752	729	533
# Censored	0	14	9	6	0	14	16	21	221
# Events	3	2	1	3	0	1	2	1	0
Cum. events (%)	0.4	0.6	0.7	1.1	0.0	0.1	0.4	0.5	0.5

Figure 3. *Kaplan-Meier plots for the individual components of the co-primary endpoint and definite device thrombosis. A) Cardiac death; (B) target vessel myocardial infarction; (C) clinically indicated target lesion revascularisation; (D) definite device thrombosis. BVS: bioresorbable vascular scaffold; CI: confidence interval; clin.: clinically indicated; cum: cumulative; EES: everolimus-eluting stent; HR: hazard ratio; ST: stent thrombosis; TLR: target lesion revascularisation; TVMI: target vessel myocardial infarction*

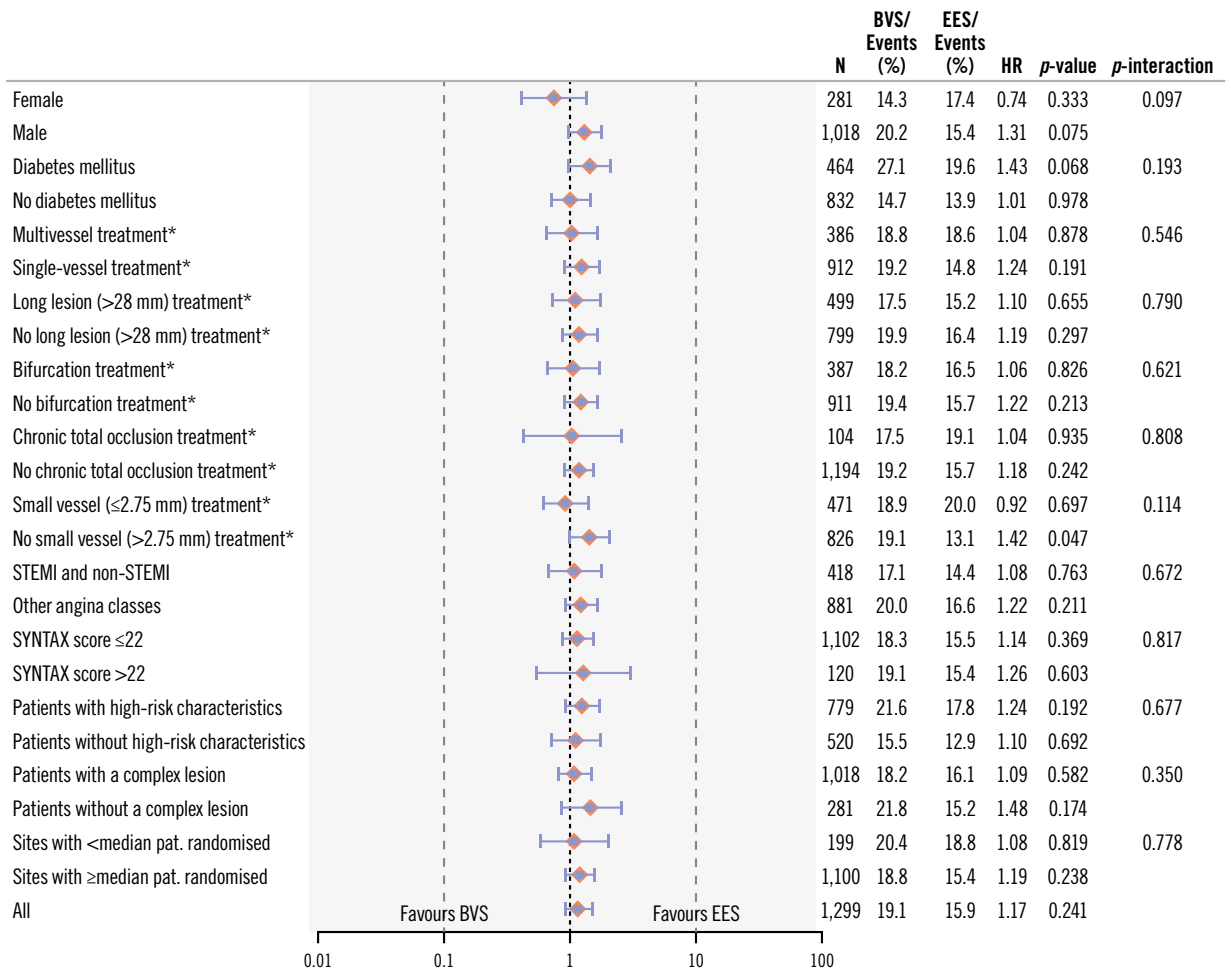


Figure 4. *Stratified analyses of the co-primary endpoint across subgroups. Hazard ratio with 95% CI and p-value results were from Cox proportional hazards analysis. *Analysis based on patients with at least one target lesion within the subgroup characteristics. BVS: bioresorbable vascular scaffold; CI: confidence interval; HR: hazard ratio; N: number of patients; pat.: patients; STEMI: ST-segment elevation myocardial infarction*

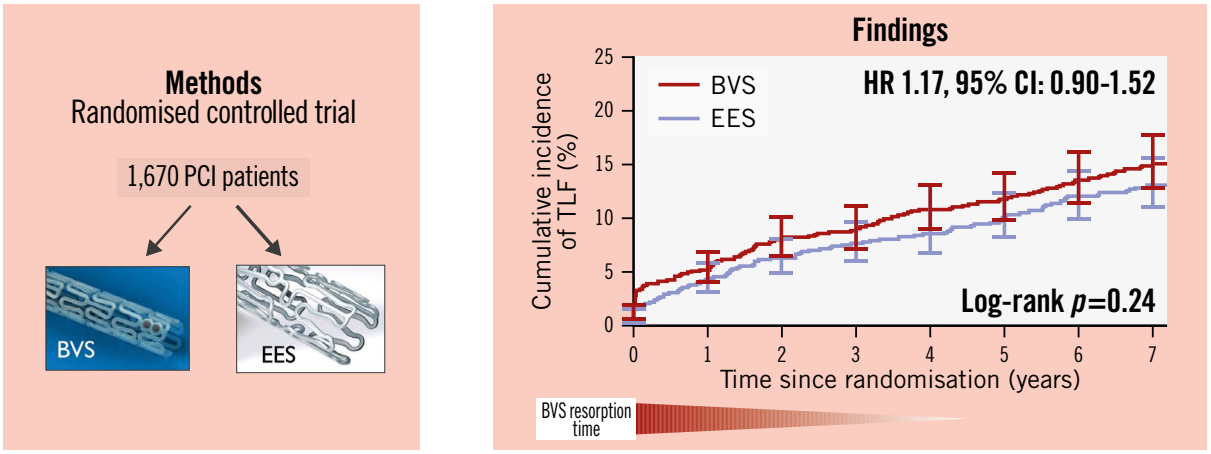
suggesting non-inferiority **(Central illustration)**. This finding differs from the ABSORB programme and the AIDA trial[6,10], both of which reported an excess of ischaemic events with BVS up to 3-4 years, after which the event rates converged with those of EES. The findings in our trial are likely related to the optimal implantation techniques applied from the onset and patient selection.

Regarding the early increase in ischaemic risk with BVS, likely attributable to procedural causes, a *post hoc* angiographic analysis performed by the core lab showed that 40.9% of lesions in the BVS group had a postprocedural RVD smaller than 2.5 mm[7].

These findings emphasise the importance of appropriate vessel sizing, which cannot be truly achieved by visual assessment alone nor by QCA as it structurally underestimates the vessel size[16]. Mandatory intravascular imaging guidance should be explored in future when implanting BVS to enhance safety. Furthermore, correct sizing with BVS according to the sizing criteria is difficult to achieve in the majority of lesions with one BVS because of a mismatch in size between the proximal and distal reference diameters and the expansion limits of BVS[7]. In the COMPARE-ABSORB trial, high-pressure post-dilatation with a non-compliant balloon was mandated by protocol. Nevertheless, based on angiographic analysis, in-device acute gain and established postprocedural minimal lumen diameter in the BVS arm did not match those in the EES arm, although the absolute differences between both arms appear to be smaller than or similar to the differences observed in previous trials[7]. This unclosed gap in acute performance between both devices could also be a contributing factor for early scaffold thrombosis with BVS compared with EES. Further improvements to the device, such as thinner and smaller struts, better conformability, and radial strength, are therefore indispensable.

Late scaffold thrombosis occurred at similar rates for BVS compared with EES between 3- and 7-year follow-ups and even between 30-day and 7-year follow-ups. Between 3 and 7 years, three definite scaffold thromboses occurred. Two cases occurred between 3 and 4 years, which probably was related to the resorption and dismantling process, and one case occurred around 6 years of follow-up, potentially related to neoatherosclerosis.

BVS versus EES in patients at high risk for restenosis: final 7-year outcomes of the COMPARE-ABSORB trial.



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COMPARE-ABSORB is a multicentre randomised controlled trial comparing BVS versus EES in 1,670 patients at high risk for coronary restenosis. A Kaplan-Meier plot shows the primary endpoint, TLF (defined as the combined clinical outcome of cardiac death, target vessel myocardial infarction, and clinically indicated target lesion revascularisation), from the index procedure to 7-year follow-up. No benefit in TLF was observed with BVS in the very long term, even in a 3-year landmark analysis (co-primary analysis). In the 3-year landmark analysis, more target lesion revascularisation occurred with BVS compared with EES between 3- and 7-year follow-ups. BVS: bioresorbable vascular scaffold; CI: confidence interval; EES: everolimus-eluting stent; HR: hazard ratio; PCI: percutaneous coronary intervention; TLF: target lesion failure

Compared with the 5-year results of the ABSORB IV trial[5], the definite scaffold thrombosis rate was slightly higher in the present study at 5-year follow-up (2.5% vs 1.7%), whilst it was similar in the EES group (1.5% vs 1.1%). The observed higher device thrombosis rate in this trial can likely be attributed to the higher complexity of patients and lesions included in the COMPARE-ABSORB trial. Chronic total occlusions, acute coronary syndrome patients (including STEMI patients), bifurcations and very long lesions were included in this trial, whereas they were excluded from ABSORB IV[5]. On the other hand, in the ABSORB IV trial, the TLF rates in both (BVS and EES) groups were approximately an absolute 5% higher at 5 years compared with COMPARE-ABSORB. This is highly likely related to the different myocardial infarction endpoint definitions between both protocols and to the different clinically indicated lesion revascularisation rates between the European sites (COMPARE-ABSORB) and the sites predominantly in the United States (ABSORB IV).

In comparison to the 5-year outcome results from the all-comer AIDA trial[6], COMPARE-ABSORB has a lower scaffold thrombosis rate (2.5% vs 4.1%, respectively) and a lower TLF rate (11.8% vs 14.9%, respectively). However, in the EES arm, stent thrombosis rates were similar (1.5% vs 1.0%, respectively), while the TLF rates were lower (10.1% vs 13.7%, respectively). The latter might be explained by the dedicated implantation technique that was implemented from the start in COMPARE-ABSORB and by the all-comer inclusion concept of AIDA.

One of the promises of absorbable scaffolds is the prevention of very late adverse events once the scaffold is fully resorbed and the vessel has been uncaged, thereby restoring pulsatility, vasomotion, and remodelling. However, this effect was not observed in the current 7-year COMPARE-ABSORB trial nor in the 5-year follow-up studies from other trials (ABSORB II, III, IV, AIDA, and ABSORB Japan)[4,5,6,10]. A possible explanation is the relatively long complete resorption time of 3 to 4 years with BVS, which may delay the manifestation of late benefits. Nevertheless, extending the follow-up to 7 years in our study failed to demonstrate such an effect.

That said, other important advantages of a "metal-free" vessel may emerge over time, such as greater ease of reintervention, improved access to side branches, or the possibility of grafting a previously treated segment. It is well established that in cases of metallic stent restenosis, a stent-in-stent procedure with multiple stent layers increases procedural complexity and carries a higher risk of adverse events[17]. Similarly, fenestration of side branches by a metallic stent permanently hampers access and complicates side branch interventions. In contrast, bioresorbable scaffolds have been shown to uncage the side branch and enlarge the area of side

branch ostia after resorption, thereby facilitating access[18-20]. Finally, bypass grafts cannot be placed on previously metallic stented segments – an issue that disappears when bioresorbable scaffolds are used. In our trial, we identified seven cases in the BVS arm that required bypass grafting at between 3 and 7 years of follow-up. Of these, one case involved grafting of the target vessel at the segment previously treated with a BVS.

Other therapies like drug-coated balloons, other bioresorbable scaffolds with thinner struts or a magnesium alloy (Freesolve [Biotronik]), or a hybrid DES (DynamX [Elixir Medical]) might provide a better clinical advantage over permanent metallic DES in the long term. On the other hand, it might also be the case that beyond an early phase, the natural progression of atherosclerosis is the main cause of future events in the long term, irrespective of the initial device therapy.

Limitations

First of all, despite the fact that an optimal implantation protocol was incorporated in the study design, optimal sizing and post-procedure control with mandatory use of intravascular imaging were not implemented. The low rate of intravascular imaging in this trial could have influenced the results. Secondly, a significantly prolonged DAPT regimen in the BVS arm compared with the EES arm potentially might have masked an increase in myocardial infarction and scaffold thrombosis rates in the BVS arm up to 4-year follow-up. Thirdly, as the trial was not double-blinded, we cannot rule out selection bias on reangiography and reinterventions. Fourthly, the enrolment was terminated at 80% of the required sample size of 2,100 patients; this resulted in lower than 90% power for the second primary hypothesis. Lastly, the study results only apply to the BVS, which is no longer commercially available for use in clinical practice. Nevertheless, the COMPARE-ABSORB study is the first trial to investigate the concept of preventing adverse events in the very long term (7 years) with a bioresorbable scaffold.

Conclusions

In the present large-scale randomised trial of patients at high risk of restenosis with a dedicated implantation protocol, BVS did not show superiority compared with metallic DES in the very long term.

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Conflict of interest statement

P.C. Smits received institutional research grants and consultancy fees from Abbott, Sahajand Medical Technologies (SMT), and Terumo; received speaker fees from Elixir Medical and MicroPort; and is a minor shareholder of CERC. B. Chevalier received grants and personal fees from Abbott during the conduct of the study; personal fees from Medtronic, Terumo, and Biotronik, outside the submitted work; and is a minor shareholder of CERC. N.E.J. West has received speaker fees from and was previously an employee of Abbott. T. Gori received speaker fees from Abbott. E. Barbato received personal fees from Boston Scientific, Abbott, OpSens Medical, and GE HealthCare, outside the submitted work. V. Kočka received personal fees from Abbott, Medtronic, B. Braun, and Terumo, outside the submitted work. J.G.P. Tijssen received grants and personal fees from Abbott during the conduct of the study. M.-C. Morice is the CEO of CERC, the CRO who conducted the trial. Y. Onuma was an advisory board member of Abbott. R.-J. van Geuns reports consulting and speaker fees from Abbott and AstraZeneca; and received institutional research grants from Amgen, InfraRedx, AstraZeneca, and Sanofi. The other authors have no conflicts of interest to declare.

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Supplementary data

Supplementary Appendix 1. Study organisation, study objectives, endpoint definitions, statistical analysis, and sample size calculation.

Supplementary Table 1. Participating sites.

Supplementary Table 2. Inclusion and exclusion criteria.

Supplementary Table 3. Annual clinical outcomes.

Supplementary Table 4. Medication usage up to 7-year follow-up.

Supplementary Figure 1. Kaplan-Meier plot for the primary endpoint: target lesion failure, the combined clinical outcome of cardiac death, target vessel myocardial infarction, and clinically indicated target lesion revascularisation.

Supplementary Figure 2. Kaplan-Meier curves for 0-7 years of follow-up.

Supplementary Figure 3. Landmark analysis of TLF, cardiac death, TVMI, and CI-TLR after 30 days.

Supplementary Figure 4. DAPT usage up to 7-year follow-up.

Supplementary Figure 5. Spline analysis demonstrating the hazard ratio of target lesion failure over time with BVS compared with EES up to 7-year follow-up.

The supplementary data are published online at: https://eurointervention.pcronline.com/doi/10.4244/EIJ-D-25-00778

Supplementary data

Supplementary Appendix 1. Study organisation, study objectives, endpoint definitions, statistical analysis, and sample size calculation.

Study organisation

Sponsor
In this investigator-initiated trial, the CERIC (Geneva, Switzerland) will act as Sponsor.

Principal investigator
Pieter C. Smits

Co-Principal investigator
Robert-Jan van Geuns

Executive Committee
Pieter C. Smits
Robert-Jan van Geuns
Marie-Claude Morice (representative of CERC)
Yoshinobu Onuma (representative of Cardialysis)

Senior Advisor to Executive Committee
Patrick W. Serruys

Steering Committee members
Pieter C. Smits
Robert-Jan van Geuns
Jan Tijssen
Victor Kocka
Dariusz Dudek
Bernard Chevalier
Tommaso Gori
Stephan Achenbach
Giuseppe Tarantini
Emanuele Barbato
Nick West
Javier Escaned
Marie-Claude Morice (non-voting)
Yoshinobu Onuma (non-voting)

Advisory Members of Health Economic Analyses
Ken Redekop
David Cohen

Data Safety Monitoring Board (DSMB)
Stefan James (Chair)
Eric Boersma
Michel Bertrand

Data Management, Site Management and Monitoring
Data management, site management and monitoring will be conducted by the Clinical Research Organisation (CRO) CERC (7, rue du theatre, 91300 Massy, France).

Safety Reporting
The CRO CERC (7 rue du Théâtre, 91300 Massy, France) is responsible for entering all Serious Adverse Events (SAEs) including the assessment regarding relationship to the device (SADEs) or to the procedure from the eCRF in a safety database and for reporting these SAEs and SADEs according to the MEDDEV 2.7/3 guidelines and national requirements.

Core Laboratories
Angiography (QCA) and intravascular ultrasound imaging (IVUS)
The independent QCA and IVUS Core Lab at Cardialysis (Cardialysis B.V., PO Box 2125, 3000 CC Rotterdam, The Netherlands) will analyse angiograms obtained during and/or before procedure. In the subpopulation of diabetic patients, the corelab will analyse angiogram and IVUS performed preprocedure, postprocedure, and at 62 months. In the ISR annex study, the corelab will analyse angiograms performed preprocedure, postprocedure and at 12 months. Members of the Angiographic/IVUS Core Lab are not involved as investigators or co-investigators in this study.

Statistical Analysis
The Cardialysis (Cardialysis B.V., PO Box 2125, 3000 CC Rotterdam, The Netherlands) is responsible for the statistical analysis.

Study objectives

Primary Hypotheses

Hypothesis I (short term)

BRS is non-inferior to EES in terms of TLF at 1 year

Hypothesis II (long term)

BRS is superior to EES in terms of TLF between 3 and 7 years (in a landmark analysis after 1 year)

Additional Hypothesis (long term)

BRS is superior to EES in terms of cumulative TLF at 7 years

Secondary Hypothesis

BRS is superior to EES in terms of cumulative angina rate up to 1 year

Primary endpoint

Target lesion failure (TLF) as defined as a composite of:

- Cardiac death
- Myocardial infarction (MI) in target vessel territory (SCAI consensus for periprocedural MI, 3rd universal definition for spontaneous or other MI)
- Clinically Indicated Target lesion revascularization

Secondary endpoints

- Components of primary endpoints
- Target vessel failure and its components
- All-cause mortality
- Periprocedural MI and spontaneous MI
- All revascularization
- Definite or Probable Stent/Scaffold thrombosis (per the ARC definition)
- Cumulative recurrent or worsening angina at 12 months, excluding the angina episodes that occurred during index hospitalization or in the 7 days post index procedure, whichever comes first (refer to appendix III)
- Health care cost related to diagnostic workup of presumed coronary ischemia and therapies in the first 12 months
- Health care costs related to target vessel failure up to 5 years
- Angina status at 1, 6, 12 months and at the time of any recurrent event assessed by Seattle angina questionnaire
- Quality of life at 1, 6, 12 months and at the time of any recurrent event assessed by EQ5D
- For STEMI patients, TIMI flow, myocardial blush and ST-segment resolution on ECG

Pré-specified subgroups

- Acute coronary syndrome (STEMI & non-STEMI)
- Female gender
- Diabetes
- Multivessel disease
- Long lesions (> 28 mm)
- Bifurcated lesions
- Chronic total occlusion
- Syntax Score (tertiles)

Endpoint definitions

[Death (Per ARC Circulation 2007; 115: 2344-2351)]
The deaths will be adjudicated per the ARC definition. All deaths are considered cardiac unless an unequivocal non-cardiac cause can be established. Specifically, any unexpected death even in patients with coexisting potentially fatal non-cardiac disease (e.g. cancer, infection) should be classified as cardiac.

Cardiac death:
Any death due to proximate cardiac cause (e.g. MI, low-output failure, fatal arrhythmia), unwitnessed death and death of unknown cause, all study procedure related deaths including those related to concomitant treatment.

Vascular death:
Death due to non-coronary vascular causes such as cerebrovascular disease, pulmonary embolism, ruptured aortic aneurysm, dissecting aneurysm, or other vascular cause.

Non-cardiovascular death:
Any death not covered by the above definitions such as death caused by infection, malignancy, sepsis, pulmonary causes, accident, suicide or trauma.

[Myocardial Infarction]
Spontaneous MI is defined based on the third universal definition of myocardial infarction, while periprocedural MI is defined according to the SCAI definition.

Spontaneous MI (>48 hours after intervention, MI type I)
Symptoms suggestive of ischemia/infarction in association with ECG, cardiac biomarker or pathologic evidence of infarction as follows:
Detection of a rise and/or fall of cardiac biomarker values (preferably cardiac troponin T or I) with at least one value above the 99th percentile upper reference limit and with at least one of the following:
Symptoms of ischemia
New or presumed new significant ST segment-T wave (ST-T) changes or new LBBB
Development of new Q waves in the ECG
evidence of new loss of viable myocardium or new regional wall motion abnormality
Identification of an intracoronary thrombus by angiography or autopsy
Spontaneous MI typically occurs after the periprocedural period and may be secondary to late stent complications or progression of native disease (e.g., non-culprit lesion plaque rupture). Performance of ECG and angiography supports adjudication to either a *target* or *non-target vessel or lesion* in most cases.

Periprocedural MI after PCI (within 48 hours after PCI, MI type 4a [post PCI] and 5 [post CABG])
Periprocedural MI is defined based on the SCAI definitions as follows:

1) <u>In patients with normal baseline CK-MB:</u> The peak CK-MB measured within 48 hours of the procedure rises to ≥10x the local laboratory ULN, or to ≥5x ULN with new pathologic Q-waves in ≥2 contiguous leads or new persistent LBBB, *OR* in the absence of CK-MB measurements and a normal baseline cTn, a cTn (I or T) level measured within 48 hours of the PCI rises to ≥70x the local laboratory ULN,

or ≥35x ULN with new pathologic Q-waves in ≥2 contiguous leads or new persistent LBBB.

2) In patients with elevated baseline CK-MB (or cTn) in whom the biomarker levels are stable or falling: The CK-MB (or cTn) rises by an absolute increment equal to those levels recommended above from the most recent pre-procedure level.
3) In patients with elevated CK-MB (or cTn) in whom the biomarker levels have not been shown to be stable or falling: The CK-MB (or cTn) rises by an absolute increment equal to those levels recommended above *plus* new ST-segment elevation or depression *plus* signs consistent with a clinically relevant MI, such as new onset or worsening heart failure or sustained hypotension.

Target-vessel vs. non-target-vessel MI:
Any MI not clearly attributable to a non-target vessel will be considered as target-vessel MI.

[Revascularization]
The revascularizations will be adjudicated per the ARC definition.

Location of Revascularization:

Target Lesion Revascularization (TLR)
TLR is defined as any repeat percutaneous intervention of the target lesion or bypass surgery of the target vessel performed for restenosis or other complication of the target lesion. All TLR should be classified prospectively as clinically indicated [CI] or not clinically indicated by the investigator prior to repeat angiography. The target lesion is defined as the treated segment from 5 mm proximal to the stent and to 5 mm distal to the stent/scaffold.

Target Vessel Revascularization (TVR)
TVR is defined as any repeat percutaneous intervention or surgical bypass of any segment of the target vessel. The target vessel is defined as the entire major coronary vessel proximal and distal to the target lesion which includes upstream and downstream branches and the target lesion itself

Non Target Lesion Revascularization (Non-TLR)
Any revascularization in the target vessel for a lesion other than the target lesion is considered a non-TLR.

Non Target Vessel Revascularization (Non-TVR)
Revascularization of the vessel identified and treated as the non-target vessel at the time of the index procedure.

Note: TLR and TVR will be adjudicated by the angiographic core laboratory.

Ischemia-driven Revascularization (CI-TLR/TVR)
A revascularization is considered clinically indicated if associated with any of the following:
Positive functional ischemia study including positive FFR
Ischemic symptoms and angiographic diameter stenosis ≥ 50% by core laboratory QCA
Angiographic diameter stenosis ≥ 70% by core laboratory QCA without angina or positive functional study

[Coronary Artery Bypass Graft Surgery]

Urgent CABG is defined as immediate transfer from the cath lab to the operation room for urgent bypass surgery during the index procedure.

CABG during follow-up is only considered as a clinically-indicated target lesion revascularization if coronary angiography indicates a diameter of stenosis ≥ 50% of the treated coronary segment (core lab QCA assessment) associated with one of the following conditions:
A positive history of recurrent angina pectoris presumably related to the target vessel.
Objective signs of ischemia (12-lead ECG, exercise test or equivalent) presumably related to the target vessel,
Abnormal results of any invasive functional diagnostic test (e.g. Doppler flow velocity reserve, fractional flow reserve).
A TLR/TVR with a diameter stenosis ≥70% (core lab QCA assessment) in the absence of the above mentioned ischemic signs or symptoms.

[Stent/Scaffold Thrombosis]
Stent/scaffold thrombosis should be reported as a cumulative value at the different time points and with the different separate time points. Time 0 is defined as the time point after the guiding catheter has been removed and the subject left the catheterization lab.

Timing:

Acute stent/scaffold thrombosis*:	0 - 24 hours post stent implantation
Subacute stent/scaffold thrombosis*:	>24 hours . 30 days post stent implantation
Late stent/scaffold thrombosis†:	30 days - 1 year post stent implantation
Very late stent/scaffold thrombosis†:	>1 year post stent implantation

* Acute/subacute can also be replaced by early stent/scaffold thrombosis. Early stent/scaffold thrombosis (0 - 30 days) - this definition is currently used in the community.
†Including “primary” as well as “secondary” late stent/scaffold thrombosis; “secondary” late stent thrombosis is a stent/scaffold thrombosis after a target segment revascularization.

Categories:
Definite
Probable
Possible

Definitions of each category are as follows.

Definite stent/scaffold thrombosis
Definite stent thrombosis is considered to have occurred by either angiographic or pathologic confirmation.

Angiographic confirmation of stent/scaffold thrombosis*
The presence of a thrombus† that originates in the stent/scaffold or in the segment 5 mm proximal or distal to the stent/scaffold and presence of at least one of the following criteria within a 48-hour time window:
Acute onset of ischemic symptoms at rest
New ischemic ECG changes that suggest acute ischemia
Typical elevation or depression in cardiac biomarkers (refer to definition of spontaneous MI)

Nonocclusive thrombosis
Thrombus Intracoronary thrombus is defined as a (spheric, ovoid, or irregular) noncalcified filling defect or lucency surrounded by contrast material (on 3 sides or within a coronary stenosis) seen in multiple projections, or persistence of contrast material within the lumen, or a visible embolization of intraluminal material downstream.
Occlusive thrombus
TIMI 0 or TIMI 1 in-stent/scaffold or proximal to a stent/scaffold up to the most adjacent proximal side branch or main branch (if originates from the side branch).

*The incidental angiographic documentation of stent occlusion in the absence of clinical signs or symptoms is not considered a confirmed stent thrombosis
†Intracoronary thrombus.

Pathological confirmation of stent/scaffold thrombosis
Evidence of recent thrombus within the stent/scaffold determined at autopsy or via examination of tissue retrieved following thrombectomy.

Probable stent/scaffold thrombosis
Either of the following occurred after stent/scaffold implantation will be considered a probable stent/scaffold thrombosis:
Any unexplained death within the first 30 days‡
Irrespective of the time after the index procedure, any MI that is related to documented acute ischemia in the territory of the implanted stent without angiographic confirmation of stent thrombosis and in the absence of any other obvious cause

‡ For studies with ST-elevation MI population, one may consider the exclusion of unexplained death within 30 days as evidence of probable stent thrombosis.

Possible stent/scaffold thrombosis
Clinical definition of possible stent/scaffold thrombosis is considered to have occurred with any unexplained death from 30 days following intracoronary stenting until end of trial follow up.

ACUTE SUCCESS DEFINITIONS

Acute success is defined as follows:

[Clinical Device Success (Lesion Basis)]

Successful delivery and deployment of the assigned device at the intended target lesion and successful withdrawal of the delivery system with attainment of final in-scaffold/stent residual stenosis of < 30% by QCA (by visual estimation if QCA unavailable).

[Clinical Procedure Success (Patient Basis)]

Achievement of final in-scaffold/stent residual stenosis of < 30% by QCA (by visual estimation if QCA unavailable) with successful delivery and deployment of the assigned device at the intended target lesion and successful withdrawal of the delivery system without the occurrence of DoCE during the hospital stay (maximum of 7 days), and with or without use of other therapeutic device

Statistical analysis and sample size calculation

All clinical data except for anginal endpoints are analysed according to the intention-to-treat principle in the ITT population. The ITT population consists of all patients who were randomized, regardless of the actual treatment or per protocol deviations.
Assumptions for sample size determination are based on databases of multiple all-comer and STEMI trials in which EES was used.

Primary Hypothesis I
Non-inferiority in TLF (CVD/MI/TLR) at 1 year
• TLF in Xience: 8.5%
• Non-inferiority margin: 4.5%
• Alpha = 0.05
• Power = 90%
• Required sample size: 808 x 2 = 1616 pts

Primary Hypothesis II
Superiority after 3-year landmark
• Expected TLF rate with EES is 11.1%
• RR1-5 = 0.60
• Expected TLF rate with BRS is 6.64%
• Power 90%
• Sample size after landmark = 2 x 780 evaluable pts
• Sample size at beginning = 2 x 1004 evaluable pts
• Required sample size = 2100 (attrition rate: 0.9%/year)
• The trial still has 80% power even if RR3-7 is 0.65.

Additional Hypothesis
Cumulative superiority in TLF at 7 years
• Expected TLF rate with EES at 7 year is 22.9%
• BRS reduces TLF at 7 years to 19.1% (RR3-7=0.60)
• With 2 x 1004 pts, the study has approximately 55% power of showing superiority of BRS over EES within 5 years (α=0.05, two sided).

Cumulative superiority in TLF at 7 years
• With 2 x 1004 pts, the trial has 90% power to show superiority if follow-up is extended to 10 years.

Secondary Hypothesis
Using the data of ABSORB II trial, the cumulative incidence of angina endpoint at one year in the Xience arm is assumed to be 25%. With 2 x 1050 patients, the study has a 90% power to statistically detect a decrease to 19.1% in the Absorb arm.
The hypotheses are tested in hierarchical manner.

- First hypothesis: non-inferiority at 1 year
- Second hypothesis: superiority in landmark analysis post 3 year

2 x 1050 = 2100 patients

- >90% power for non-inferiority at 1 year
- 90% power for superiority between 3 and 7 years (landmark analysis)

The trial is underpowered (65%) for cumulative superiority at 5 years, however, the trial has 90% power for cumulative superiority at 7 years.

Supplementary Table 1. Participating sites.

Site ID	Site name	PI	Location	Number of patients enrolled	Date first patient enrolled	Date last patient enrolled
056-01	CARDIOVASCULAR CENTER AALST OLV HOSPITAL	E. BARBATO	AALST	66	08OCT2015	30JAN2017
056-02	CHR DE LA CITADELLE	G. SAAD	LIEGE	19	07MAR2016	20DEC2016
056-03	UZ LEUVEN	W. DESMET	LEUVEN	4	02MAY2016	05JUL2016
203-01	CARDIOCENTRE, UNIVERSITY HOSPITAL KRALOVS	V. KOCKA	PRAGUE	43	28DEC2015	20MAR2017
203-02	CENTRAL MILITARY HOSPITAL	M. MALY	PRAGUE	30	08MAR2016	08JUN2017
203-03	UNIVERSITY HOSPITAL BRNO	P. KALA	BRNO	34	04MAR2016	09APR2017
250-01	HÔPITAL PRIVÉ JACQUES CARTIER	B. CHEVALIER	MASSY	99	10NOV2015	19JUL2017
250-02	CLINIQUE PASTEUR	J. FAJADET	TOULOUSE	15	11JAN2016	29SEP2016
250-03	CLINIQUE RHÔNE DURANCE	J. SAINSOUS	AVIGNON	24	08JAN2016	08FEB2017
250-04	CHU CLERMONT-FERRAND	P. MOTREFF	CLERMONT FERRAND	25	18JAN2016	16NOV2016
250-05	CLINIQUE SAINT HILAIRE	R. KONING	ROUEN	4	12APR2017	25AUG2017
276-01	UNIVERSITATSMEDIZIN MAINZ	T. GORI	MAINZ	72	17DEC2015	25AUG2017
276-02	UNIVERSITATSKLINIKUM ERLANGEN	S. ACHENBACH	ERLANGEN	33	12FEB2016	10JUL2017
276-03	KERCKHOFF KLINIK	C. LIEBETRAU	BAD NAUHEIM	19	20SEP2016	26MAY2017
276-04	CHARITÉ CAMPUS BENJAMIN FRANKIN	U. LANDMESSER	BERLIN	29	08FEB2016	26MAY2017
276-05	KLINIKUM DER UNIVERSITÄT MÜNCHEN	J. MEHILLI	MUNCHEN	3	12MAY2016	18JAN2017
276-06	UNIVERSITATSKLINIKUM KOLN	T. RUDOLPH	KOLN	11	22JAN2016	27APR2017
276-07	ELISABETHKRANKENHAUS ESSEN	C. NABER	ESSEN	28	20APR2016	20JUN2017
276-08	UNIVERSITATSKLINIKUM GIESSEN	H. NEF	GIESSEN	25	17FEB2016	05MAY2017
276-09	SEGEBERGER KLINIKEN	M. ABDEL WAHAB	BAD SEGEBERG	67	14DEC2015	16AUG2017
276-10	UNIVERSITÄTSKLINIKUM LEIPZIG	P. LURZ	LEIPZIG	3	27AUG2016	06DEC2016
380-01	AZIENDA OSPEDALIERA DI PADOVA	G. TARANTINI	PADOVA	47	01MAR2016	01JUN2017
380-02	ARNAS CIVICO PALERMO	M. CARUSO	PALERMO	3	14SEP2016	13JAN2017
380-04	OSPEDALE PAPA GIOVANNI XXIII	O. VALSECCHI	BERGAMO	12	02APR2016	25OCT2016
380-05	OSPEDALE SAN GIACOMO	C. CERNETTI	CASTELFRANCO VENETO	13	19MAY2016	05JUL2017
380-06	UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO	G. ESPOSITO	NAPLES	62	21MAR2016	14JUL2017
380-07	UNIVERSITA DEGLI STUDI MAGNA GRAECIA	C. INDOLFI	CATANZARO	6	28SEP2016	23FEB2017
380-08	AZIENDA OSPEDALIERA BROTZU	B. LOI	CAGLIARI	6	07NOV2016	11FEB2017
380-10	UNIVERSITARIA DI PARMA	A. MENOZZI	PARMA	17	20SEP2016	13MAR2017
528-01	MAASSTADZIEKENHUIS	P. SMITS	ROTTERDAM	201	28SEP2015	16JAN2017
528-02	ERASMUS MEDISCH CENTRUM	R. VAN GEUNS	ROTTERDAM	55	16OCT2015	15APR2016
528-03	AMPHIA ZIEKENHUIS	M. MEUWISSEN	BREDA	11	23MAR2016	09NOV2016
528-04	CATHERINA ZIENKENHUIS	P. TONINO	EINDHOVEN	26	18MAR2016	03NOV2016
528-05	ALBERT SCHWEITZER HOSPITAL	S. IJSSELMUIDEN	DORDRECHT	29	29JUN2016	14NOV2016
616-01	UNIVERSITY HOSPITAL KRAKOW	D. DUDEK	KRAKOW	25	26MAY2016	28FEB2017
616-02	AMERICAN HEART OF POLAND	P. BUSZMAN	CHRZANOW	36	27JUN2016	27FEB2017
616-03	MIEDZIOWE CENTRUM ZDROWIA SA	A. WLODARCZAK	LUBIN	178	30MAY2016	31AUG2017
616-04	AMERICAN HEART OF POLAND	K. MILEWSKI	TYCHY	30	27MAY2016	28MAR2017
724-01	HOSPITAL CLINICO SAN CARLOS	J. ESCANED	MADRID	11	18APR2016	15NOV2016
724-02	HOSPITAL CLINIC	S. BRUGALETTA	BARCELONA	21	27MAY2016	29MAR2017
724-03	HOSPITAL UNIVERSITARIO MARQUES DE VALD	J.M. DE LA TORRE HERNANDEZ	SANTANDER	3	30SEP2016	02FEB2017
724-04	HOSPITAL DEL MAR	B. VAQUERIZO MONTILLA	BARCELONA	47	25JAN2016	29DEC2016
826-01	PAPWORTH HOSPITAL	S. HOOLE/N. WEST	CAMBRIDGE	89	11MAY2016	23AUG2017
826-02	ROYAL BOURNEMOUTH HOSPITAL	P. O'KANE	BOURNEMOUTH	39	11MAR2016	31AUG2017
826-03	FREEMAN HOSPITAL	M. EGRED	NEWCASTLE	50	05MAY2016	30MAY2017

Supplementary Table 2. Inclusion and exclusion criteria.

Inclusion Criteria

Patients aged 18-75 years with **at least one** of the following:

i) High-risk characteristics for restenosis

- Medically treated diabetes (oral medication or insulin) and/or multivessel disease of which more than one *de-novo* target lesion to be treated with the study scaffold/stent

ii) Complex target lesion

Single *de-novo* target lesion satisfying at least one of the following:

- Lesion length >28 mm
- Small vessels: Target lesion reference vessel diameter ≥2.5mm and ≤2.75mm
- Lesion with pre-existing* total occlusion (pre-procedural TIMI = 0)
- Bifurcation with single stent strategy

* "Pre-existing" occlusion is supposed to be present before procedure and does not include the culprit lesion in the setting of acute myocardial infarction.

Patients with in-stent restenosis of a drug-eluting metallic stent are admitted to the annex ISR protocol (appendix VII).

Exclusion Criteria

1. Age <18 years, or >75 years
2. Patients incapable of giving informed consent
3. Patients under judicial protection, tutorship or curatorship
4. Known comorbidities which make patients unable to complete 7 years of follow-up
5. Female of childbearing potential (and last menstruation within the last 12 months), who did not underwent tubal ligation, ovariectomy or hysterectomy
6. Pregnant woman
7. Breastfeeding woman
8. Known intolerance to aspirin, heparin, PLLA, everolimus, contrast material
9. Cardiogenic Shock (Killip >2)
10. PCI with implantation of stents/scaffolds within previous 30 days.
11. Active bleeding or coagulopathy ~~or patients at chronic anticoagulation therapy~~
12. Subject is currently participating in another clinical trial that has not yet completed its primary endpoint
13. Renal insufficiency (GFR <45 ml/min)
14. Life expectancy < 7 years
15. Known non-adherence to dual antiplatelet therapy
16. Patients on oral antiocoagulation therapy (including novel oral antiocoagulant such as dabigatran, rivaroxaban, apixaban and edoxaban)
17. Known Impaired left ventricular function (left ventricular ejection fraction <30%)
18. Patients at high bleeding risk who are not suitable for long-term DAPT
19. Following lesion characteristics:
    - Target lesion with reference vessel diameter (RVD) < 2.50 mm and > 4 mm
    - STEMI with RVD of >3.5mm of the culprit target lesion
    - Target lesion with in-stent/scaffold thrombosis
    - Graft lesions as target lesions
    - Lesion involving left main trunk
    - Severe tortuosity of target vessel
    - Aort-ostial lesion(s)
    - In-scaffold/in-stent restenosis
    - Bifurcation target lesion with intended 2 stent/scaffold strategy
20. Non-target lesion and target lesion in the same epicardial coronary artery (right coronary artery, left circumflex artery or left anterior descending artery)

Supplementary Table 3. Annual clinical outcomes.

1-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	7	0.8%	5	0.6%	1.36 (0.43-4.29)	0.60
Cardiac	6	0.7%	1	0.1%	5.83 (0.70-48.41)	0.06
Vascular	0	0.0%	0	0.0%	n.a.	NA
Non cardiovascular	1	0.1%	4	0.5%	0.24 (0.03-2.18)	0.17
All myocardial infarctions	34	4.0%	20	2.4%	1.67 (0.96-2.90)	0.07
Target vessel	34	4.0%	17	2.1%	1.96 (1.10-3.51)	0.021
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	17	2.0%	7	0.9%	2.38 (0.99-5.73)	0.047
Non target vessel	0	0.0%	4	0.5%	n.a.	0.043
Any revascularization	61	7.3%	61	7.5%	0.97 (0.68-1.39)	0.88
Target vessel	42	5.0%	39	4.8%	1.05 (0.68-1.62)	0.82
Clinically indicated	31	3.7%	32	3.9%	0.94 (0.57-1.54)	0.81
Non-clinically indicated	19	2.3%	14	1.7%	1.32 (0.66-2.64)	0.42
Target lesion	32	3.8%	31	3.8%	1.01 (0.62-1.65)	0.98
Clinically indicated	20	2.4%	24	2.9%	0.81 (0.45-1.47)	0.48
Non-clinically indicated	16	1.9%	13	1.6%	1.20 (0.58-2.49)	0.63
Non target lesion	14	1.7%	12	1.5%	1.13 (0.52-2.45)	0.75
Clinically indicated	11	1.3%	10	1.2%	1.07 (0.45-2.51)	0.88
Non-clinically indicated	4	0.5%	2	0.2%	1.95 (0.36-10.64)	0.43
Non target vessel	21	2.5%	27	3.3%	0.75 (0.43-1.33)	0.33
Covid (SARS-Cov-2) related to other adjudicated event	0	0.0%	0	0.0%	n.a.	NA
Composite endpoints						
Target vessel failure	55	6.5%	40	4.9%	1.35 (0.90-2.03)	0.15
Target lesion failure	44	5.2%	35	4.3%	1.23 (0.79-1.92)	0.36
Cardiac death or MI	38	4.5%	21	2.6%	1.78 (1.04-3.03)	0.032
MACE[2]	83	9.8%	72	8.8%	1.13 (0.83-1.56)	0.43
Device thrombosis						
Definite[3]	16	1.9%	5	0.6%	3.12 (1.14-8.51)	0.019
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Definite[3] or probable	17	2.0%	5	0.6%	3.31 (1.22-8.98)	0.012
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74

Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Any device thrombosis[3]	20	2.4%	6	0.7%	3.25 (1.31-8.10)	0.007
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Definite non-study device thrombosis	0	0.0%	1	0.1%	n.a.	0.31

2-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	17	2.0%	12	1.5%	1.38 (0.66-2.90)	0.39
Cardiac	12	1.4%	4	0.5%	2.93 (0.94-9.08)	0.051
Vascular	0	0.0%	0	0.0%	n.a.	NA
Non cardiovascular	5	0.6%	8	1.0%	0.61 (0.20-1.87)	0.38
All myocardial infarctions	48	5.7%	31	3.8%	1.53 (0.97-2.40)	0.06
Target vessel	43	5.1%	24	2.9%	1.76 (1.07-2.91)	0.024
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	26	3.1%	14	1.7%	1.82 (0.95-3.49)	0.07
Non target vessel	5	0.6%	8	1.0%	0.61 (0.20-1.86)	0.38
Any revascularization	84	10.0%	84	10.3%	0.97 (0.72-1.32)	0.87
Target vessel	61	7.3%	51	6.3%	1.17 (0.81-1.70)	0.41
Clinically indicated	47	5.6%	43	5.3%	1.06 (0.70-1.61)	0.77
Non-clinically indicated	23	2.7%	18	2.2%	1.25 (0.67-2.31)	0.48
Target lesion	49	5.9%	42	5.2%	1.14 (0.76-1.72)	0.53
Clinically indicated	35	4.2%	34	4.2%	1.00 (0.62-1.60)	1.00
Non-clinically indicated	20	2.4%	16	2.0%	1.22 (0.63-2.36)	0.55
Non target lesion	17	2.0%	16	2.0%	1.03 (0.52-2.05)	0.92
Clinically indicated	14	1.7%	13	1.6%	1.05 (0.49-2.23)	0.90
Non-clinically indicated	4	0.5%	3	0.4%	1.30 (0.29-5.81)	0.73
Non target vessel	30	3.6%	41	5.1%	0.71 (0.44-1.14)	0.15

Covid (SARS-Cov-2) related to other adjudicated event	0	0.0%	0	0.0%	n.a.	NA
Composite endpoints						
Target vessel failure	79	9.4%	55	6.8%	1.41 (1.00-1.99)	0.048
Target lesion failure	68	8.1%	51	6.3%	1.31 (0.91-1.88)	0.15
Cardiac death or MI	57	6.8%	34	4.2%	1.65 (1.08-2.53)	0.019
MACE[2]	118	14.0%	102	12.5%	1.14 (0.88-1.49)	0.33
Device thrombosis						
Definite[3]	19	2.3%	6	0.7%	3.09 (1.23-7.74)	0.011
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	3	0.4%	1	0.1%	2.94 (0.31-28.22)	0.33
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	7	0.8%	3	0.4%	2.28 (0.59-8.81)	0.22
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	4	0.5%	2	0.2%	1.96 (0.36-10.69)	0.43
Definite[3] or probable	20	2.4%	6	0.7%	3.26 (1.31-8.11)	0.007
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	3	0.4%	1	0.1%	2.94 (0.31-28.22)	0.33
Any device thrombosis[3]	27	3.2%	9	1.1%	2.94 (1.38-6.25)	0.003
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	7	0.8%	3	0.4%	2.28 (0.59-8.83)	0.22
Definite non-study device thrombosis	1	0.1%	2	0.2%	0.49 (0.04-5.39)	0.55

3-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	20	2.4%	18	2.2%	1.09 (0.57-2.05)	0.80
Cardiac	12	1.4%	8	1.0%	1.47 (0.60-3.59)	0.40
Vascular	0	0.0%	0	0.0%	n.a.	NA
Non cardiovascular	8	1.0%	10	1.2%	0.78 (0.31-1.98)	0.60
All myocardial infarctions	50	6.0%	35	4.3%	1.41 (0.91-2.17)	0.12
Target vessel	44	5.2%	27	3.3%	1.61 (0.99-2.59)	0.050
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	27	3.2%	17	2.1%	1.56 (0.85-2.86)	0.15
Non target vessel	6	0.7%	9	1.1%	0.65 (0.23-1.83)	0.41
Any revascularization	103	12.4%	101	12.5%	0.99 (0.76-1.31)	0.97
Target vessel	72	8.6%	65	8.0%	1.08 (0.78-1.52)	0.63
Clinically indicated	58	7.0%	54	6.7%	1.05 (0.72-1.52)	0.81
Non-clinically indicated	24	2.9%	25	3.1%	0.94 (0.54-1.64)	0.83
Target lesion	57	6.8%	52	6.4%	1.07 (0.74-1.56)	0.71
Clinically indicated	43	5.2%	41	5.1%	1.02 (0.67-1.57)	0.92
Non-clinically indicated	21	2.5%	23	2.8%	0.89 (0.49-1.61)	0.71
Non target lesion	23	2.8%	25	3.1%	0.90 (0.51-1.58)	0.71
Clinically indicated	20	2.4%	21	2.6%	0.93 (0.50-1.72)	0.82
Non-clinically indicated	4	0.5%	4	0.5%	0.98 (0.24-3.90)	0.97
Non target vessel	42	5.1%	49	6.1%	0.83 (0.55-1.25)	0.38
Covid (SARS-Cov-2) related to other adjudicated event	0	0.0%	0	0.0%	n.a.	NA
Composite endpoints						
Target vessel failure	90	10.7%	71	8.8%	1.25 (0.92-1.71)	0.16
Target lesion failure	75	9.0%	62	7.6%	1.19 (0.85-1.66)	0.32
Cardiac death or MI	59	7.0%	42	5.2%	1.39 (0.93-2.06)	0.10
MACE[2]	139	16.6%	125	15.3%	1.10 (0.86-1.40)	0.44
Device thrombosis						
Definite[3]	19	2.3%	9	1.1%	2.06 (0.93-4.56)	0.07
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	3	0.4%	4	0.5%	0.74 (0.16-3.29)	0.69
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	7	0.8%	7	0.9%	0.98 (0.34-2.79)	0.97
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	4	0.5%	6	0.7%	0.65 (0.18-2.32)	0.51
Definite[3] or probable	20	2.4%	9	1.1%	2.17 (0.99-4.77)	0.047
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	3	0.4%	4	0.5%	0.74 (0.16-3.29)	0.69
Any device thrombosis[3]	27	3.2%	16	2.0%	1.66 (0.89-3.07)	0.11
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	7	0.8%	10	1.2%	0.69 (0.26-1.80)	0.44
Definite non-study device thrombosis	1	0.1%	2	0.2%	0.49 (0.04-5.39)	0.55

5-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	42	5.1%	39	4.8%	1.05 (0.68-1.63)	0.82
Cardiac	21	2.5%	14	1.8%	1.47 (0.75-2.88)	0.26
Vascular	0	0.0%	3	0.4%	n.a.	0.08
Non cardiovascular	21	2.6%	22	2.7%	0.93 (0.51-1.70)	0.82
All myocardial infarctions	64	7.7%	50	6.2%	1.26 (0.87-1.83)	0.21
Target vessel	53	6.4%	36	4.5%	1.45 (0.95-2.22)	0.08
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	37	4.5%	26	3.3%	1.40 (0.85-2.31)	0.19
Non target vessel	12	1.5%	17	2.1%	0.69 (0.33-1.44)	0.32
Any revascularization	138	16.7%	136	17.0%	0.99 (0.78-1.25)	0.93
Target vessel	97	11.8%	82	10.2%	1.16 (0.87-1.56)	0.32
Clinically indicated	79	9.6%	71	8.9%	1.09 (0.79-1.50)	0.61
Non-clinically indicated	28	3.4%	28	3.5%	0.98 (0.58-1.65)	0.93
Target lesion	77	9.3%	63	7.8%	1.20 (0.86-1.67)	0.28
Clinically indicated	61	7.4%	50	6.2%	1.19 (0.82-1.73)	0.36
Non-clinically indicated	23	2.8%	26	3.2%	0.86 (0.49-1.52)	0.61
Non target lesion	30	3.7%	35	4.4%	0.84 (0.51-1.36)	0.47
Clinically indicated	25	3.0%	31	3.9%	0.79 (0.46-1.33)	0.37
Non-clinically indicated	6	0.7%	5	0.6%	1.17 (0.36-3.84)	0.79
Non target vessel	63	7.7%	73	9.1%	0.84 (0.60-1.17)	0.30
Covid (SARS-Cov-2) related to other adjudicated event	2	0.3%	2	0.3%	0.97 (0.14-6.91)	0.98
Composite endpoints						
Target vessel failure	116	14.0%	95	11.8%	1.21 (0.92-1.59)	0.17
Target lesion failure	98	11.8%	81	10.1%	1.19 (0.89-1.60)	0.24
Cardiac death or MI	79	9.5%	63	7.8%	1.24 (0.89-1.73)	0.20
MACE[2]	188	22.5%	179	22.0%	1.04 (0.85-1.28)	0.71
Device thrombosis						
Definite[3]	21	2.5%	12	1.5%	1.71 (0.84-3.48)	0.13
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	5	0.6%	7	0.9%	0.70 (0.22-2.20)	0.54
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	14	1.7%	13	1.6%	1.05 (0.50-2.24)	0.89
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	11	1.4%	12	1.5%	0.90 (0.40-2.03)	0.79
Definite[3] or probable	22	2.6%	12	1.5%	1.80 (0.89-3.63)	0.10
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	5	0.6%	7	0.9%	0.70 (0.22-2.20)	0.54
Any device thrombosis[3]	35	4.2%	25	3.1%	1.38 (0.82-2.30)	0.22
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	16	2.0%	19	2.4%	0.82 (0.42-1.60)	0.57
Definite non-study device thrombosis	3	0.4%	4	0.5%	0.73 (0.16-3.28)	0.68

6-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	55	6.7%	55	6.8%	0.98 (0.67-1.42)	0.91
Cardiac	26	3.2%	24	3.1%	1.06 (0.61-1.85)	0.84
Vascular	0	0.0%	5	0.6%	n.a.	0.024
Non cardiovascular	29	3.6%	26	3.3%	1.09 (0.64-1.85)	0.75
All myocardial infarctions	70	8.5%	58	7.3%	1.19 (0.84-1.69)	0.32
Target vessel	57	6.9%	40	5.0%	1.41 (0.94-2.11)	0.09
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	41	5.0%	30	3.8%	1.35 (0.84-2.16)	0.21
Non target vessel	14	1.7%	21	2.7%	0.65 (0.33-1.28)	0.21
Any revascularization	155	18.9%	148	18.6%	1.02 (0.82-1.28)	0.85
Target vessel	108	13.2%	93	11.7%	1.14 (0.86-1.51)	0.35
Clinically indicated	90	11.0%	82	10.3%	1.07 (0.80-1.45)	0.65
Non-clinically indicated	30	3.6%	29	3.6%	1.01 (0.61-1.69)	0.96
Target lesion	85	10.4%	68	8.5%	1.23 (0.89-1.69)	0.21
Clinically indicated	69	8.5%	55	6.9%	1.23 (0.86-1.75)	0.26
Non-clinically indicated	24	2.9%	27	3.4%	0.87 (0.50-1.51)	0.62
Non target lesion	36	4.4%	42	5.3%	0.84 (0.54-1.30)	0.43
Clinically indicated	30	3.7%	38	4.8%	0.77 (0.48-1.24)	0.28
Non-clinically indicated	7	0.9%	5	0.6%	1.37 (0.43-4.31)	0.59
Non target vessel	76	9.4%	83	10.5%	0.89 (0.65-1.21)	0.45
Covid (SARS-Cov-2) related to other adjudicated event	3	0.4%	3	0.4%	0.98 (0.20-4.83)	0.98
Composite endpoints						
Target vessel failure	132	16.0%	112	14.0%	1.17 (0.91-1.50)	0.22
Target lesion failure	112	13.6%	96	12.0%	1.15 (0.88-1.51)	0.31
Cardiac death or MI	90	10.9%	79	9.9%	1.13 (0.83-1.53)	0.44
MACE[2]	216	26.0%	200	24.6%	1.07 (0.88-1.30)	0.49
Device thrombosis						
Definite[3]	22	2.6%	13	1.6%	1.66 (0.83-3.29)	0.14
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	6	0.7%	8	1.0%	0.73 (0.25-2.11)	0.56
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	17	2.1%	20	2.5%	0.83 (0.44-1.59)	0.58
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	14	1.7%	19	2.4%	0.72 (0.36-1.44)	0.35
Definite[3] or probable	23	2.8%	13	1.6%	1.73 (0.88-3.42)	0.11
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	6	0.7%	8	1.0%	0.73 (0.25-2.11)	0.56
Any device thrombosis[3]	39	4.7%	33	4.2%	1.16 (0.73-1.85)	0.53
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	20	2.5%	27	3.4%	0.72 (0.41-1.29)	0.27
Definite non-study device thrombosis	4	0.5%	4	0.5%	0.98 (0.24-3.91)	0.97

7-year outcomes

	BRS (N = 848)		Xience (N = 822)			
Outcome	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Patients with an event**	**Cumulative event rate (KM-estimates)**	**Hazard ratio (95% Confidence Interval)**	**p-Value[1]**
Clinical events						
Death from any cause	68	8.3%	67	8.4%	0.99 (0.71-1.39)	0.96
Cardiac	30	3.7%	29	3.7%	1.01 (0.61-1.69)	0.96
Vascular	1	0.1%	6	0.8%	0.16 (0.02-1.36)	0.055
Non cardiovascular	37	4.6%	32	4.1%	1.13 (0.70-1.81)	0.61
All myocardial infarctions	76	9.3%	64	8.1%	1.17 (0.84-1.64)	0.34
Target vessel	59	7.2%	43	5.4%	1.36 (0.92-2.01)	0.13
Peri-procedural	17	2.0%	10	1.2%	1.65 (0.76-3.61)	0.20
Spontaneous or other	43	5.3%	33	4.2%	1.28 (0.82-2.02)	0.28
Non target vessel	18	2.3%	24	3.1%	0.73 (0.40-1.35)	0.31
Any revascularization	167	20.6%	154	19.4%	1.06 (0.85-1.32)	0.60
Target vessel	117	14.4%	95	12.0%	1.21 (0.92-1.59)	0.16
Clinically indicated	98	12.2%	84	10.6%	1.14 (0.85-1.53)	0.37
Non-clinically indicated	33	4.0%	30	3.7%	1.08 (0.66-1.76)	0.77
Target lesion	91	11.2%	70	8.8%	1.28 (0.94-1.75)	0.12
Clinically indicated	75	9.3%	57	7.2%	1.29 (0.91-1.82)	0.15
Non-clinically indicated	24	2.9%	28	3.5%	0.84 (0.49-1.45)	0.52
Non target lesion	42	5.2%	43	5.5%	0.95 (0.62-1.46)	0.82
Clinically indicated	35	4.4%	39	5.0%	0.88 (0.55-1.38)	0.57
Non-clinically indicated	10	1.3%	5	0.6%	1.96 (0.67-5.72)	0.21
Non target vessel	85	10.6%	88	11.2%	0.94 (0.70-1.26)	0.67
Covid (SARS-Cov-2) related to other adjudicated event	4	0.5%	4	0.5%	0.98 (0.24-3.90)	0.97
Composite endpoints						
Target vessel failure	143	17.5%	119	14.9%	1.19 (0.94-1.52)	0.15
Target lesion failure	123	15.1%	104	13.1%	1.17 (0.90-1.52)	0.24
Cardiac death or MI	100	12.2%	90	11.4%	1.10 (0.83-1.46)	0.51
MACE[2]	234	28.3%	217	26.8%	1.07 (0.89-1.29)	0.46
Device thrombosis						
Definite[3]	22	2.6%	13	1.6%	1.66 (0.83-3.29)	0.14
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.93 (0.30-28.13)	0.33
Very late (after 1 year)	6	0.7%	8	1.0%	0.73 (0.25-2.11)	0.56
Probable	1	0.1%	0	0.0%	n.a.	0.32
Acute (<= 24 hrs.)	0	0.0%	0	0.0%	n.a.	NA
Sub-acute (24 hrs. to 30 days)	0	0.0%	0	0.0%	n.a.	NA
Late (30 days to 1 year)	1	0.1%	0	0.0%	n.a.	0.32
Very late (after 1 year)	0	0.0%	0	0.0%	n.a.	NA
Possible	20	2.5%	25	3.2%	0.78 (0.43-1.41)	0.41
Late (30 days to 1 year)	3	0.4%	1	0.1%	2.92 (0.30-28.07)	0.33
Very late (after 1 year)	17	2.1%	24	3.1%	0.69 (0.37-1.29)	0.25
Definite[3] or probable	23	2.8%	13	1.6%	1.73 (0.88-3.42)	0.11
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	4	0.5%	1	0.1%	3.91 (0.44-34.95)	0.19
Very late (after 1 year)	6	0.7%	8	1.0%	0.73 (0.25-2.11)	0.56
Any device thrombosis[3]	42	5.1%	38	4.8%	1.09 (0.70-1.68)	0.71
Acute (<= 24 hrs.)	4	0.5%	3	0.4%	1.29 (0.29-5.77)	0.74
Sub-acute (24 hrs. to 30 days)	11	1.3%	1	0.1%	10.71 (1.38-82.95)	0.004
Late (30 days to 1 year)	7	0.8%	2	0.2%	3.42 (0.71-16.44)	0.10
Very late (after 1 year)	23	2.9%	32	4.1%	0.70 (0.41-1.20)	0.19
Definite non-study device thrombosis	5	0.6%	5	0.6%	0.98 (0.28-3.38)	0.97

Supplementary Table 4. Medication usage up to 7-year follow-up.

Characteristic	BRS (N = 848)	Xience (N = 822)	Difference (95% CI)	p-Value
Discharge				
ASA	98.3% (834/848)	98.9% (813/822)	-0.6% [-1.7%, 0.6%]	0.40
Clopidogrel	48.9% (415/848)	57.5% (473/822)	-8.6% [-13.4%, -3.8%]	<0.001
Prasugrel	12.3% (104/848)	8.8% (72/822)	3.5% [0.6%, 6.4%]	0.021
Ticagrelor	37.5% (318/848)	34.2% (281/822)	3.3% [-1.3%, 7.9%]	0.17
DAPT (ASA + Clopi)	48.5% (411/848)	56.9% (468/822)	-8.5% [-13.2%, -3.7%]	<0.001
DAPT (ASA + Tica or Prasu)	49.3% (418/848)	42.5% (349/822)	6.8% [2.1%, 11.6%]	0.005
DAPT (ASA + Clopi or Tica or Prasu)	96.9% (822/848)	98.2% (807/822)	-1.2% [-2.7%, 0.2%]	0.11
OAC	1.2% (10/848)	1.9% (16/822)	-0.8% [-2.0%, 0.4%]	0.24
OAC and (ASA or Clopi or Tica or Prasu)	1.2% (10/848)	1.9% (16/822)	-0.8% [-2.0%, 0.4%]	0.24
ATII Antagonist	16.3% (138/848)	16.4% (135/822)	-0.1% [-3.7%, 3.4%]	0.95
Beta Blocker	77.7% (659/848)	74.5% (612/822)	3.3% [-0.8%, 7.4%]	0.12
CA++ Antagonist	20.3% (172/848)	21.2% (174/822)	-0.9% [-4.8%, 3.0%]	0.67
Nitrates/NO donors	15.8% (134/848)	14.8% (122/822)	1.0% [-2.5%, 4.4%]	0.59
ACE Inhibitor	61.8% (524/848)	62.3% (512/822)	-0.5% [-5.2%, 4.2%]	0.84
Diuretics	24.6% (209/848)	22.1% (182/822)	2.5% [-1.6%, 6.6%]	0.25
Statins	91.4% (775/848)	90.1% (741/822)	1.2% [-1.5%, 4.0%]	0.40
Other lipid lowering drugs	5.9% (50/848)	5.7% (47/822)	0.2% [-2.1%, 2.4%]	0.92
Gastric Protective Medication	58.0% (492/848)	55.4% (455/822)	2.7% [-2.1%, 7.4%]	0.28
1 Month				
ASA	98.4% (809/822)	98.8% (792/802)	-0.3% [-1.5%, 0.8%]	0.68
Clopidogrel	50.2% (413/822)	57.5% (461/802)	-7.2% [-12.1%, -2.4%]	0.004
Prasugrel	12.4% (102/822)	9.1% (73/802)	3.3% [0.3%, 6.3%]	0.037
Ticagrelor	37.1% (305/822)	33.5% (269/802)	3.6% [-1.1%, 8.2%]	0.15
DAPT (ASA + Clopi)	49.4% (406/822)	56.9% (456/802)	-7.5% [-12.3%, -2.6%]	0.003
DAPT (ASA + Tica or Prasu)	49.0% (403/822)	41.9% (336/802)	7.1% [2.3%, 12.0%]	0.004
DAPT (ASA + Clopi or Tica or Prasu)	97.4% (801/822)	98.0% (786/802)	-0.6% [-2.0%, 0.9%]	0.51
OAC	2.2% (18/822)	2.0% (16/802)	0.2% [-1.2%, 1.6%]	0.86
OAC and (ASA or Clopi or Tica or Prasu)	2.2% (18/822)	2.0% (16/802)	0.2% [-1.2%, 1.6%]	0.86
ATII Antagonist	17.4% (143/822)	17.1% (137/802)	0.3% [-3.4%, 4.0%]	0.90
Beta Blocker	78.0% (641/822)	75.2% (603/802)	2.8% [-1.3%, 6.9%]	0.20
CA++ Antagonist	20.7% (170/822)	21.2% (170/802)	-0.5% [-4.5%, 3.4%]	0.81
Nitrates/NO donors	15.9% (131/822)	15.1% (121/802)	0.8% [-2.7%, 4.4%]	0.68
ACE Inhibitor	61.9% (509/822)	61.5% (493/802)	0.5% [-4.3%, 5.2%]	0.88
Diuretics	26.0% (214/822)	22.1% (177/802)	4.0% [-0.2%, 8.1%]	0.06
Statins	92.2% (758/822)	91.0% (730/802)	1.2% [-1.5%, 3.9%]	0.42
Other lipid lowering drugs	6.2% (51/822)	6.1% (49/802)	0.1% [-2.2%, 2.4%]	1.00
Gastric Protective Medication	57.9% (476/822)	54.5% (437/802)	3.4% [-1.4%, 8.2%]	0.18

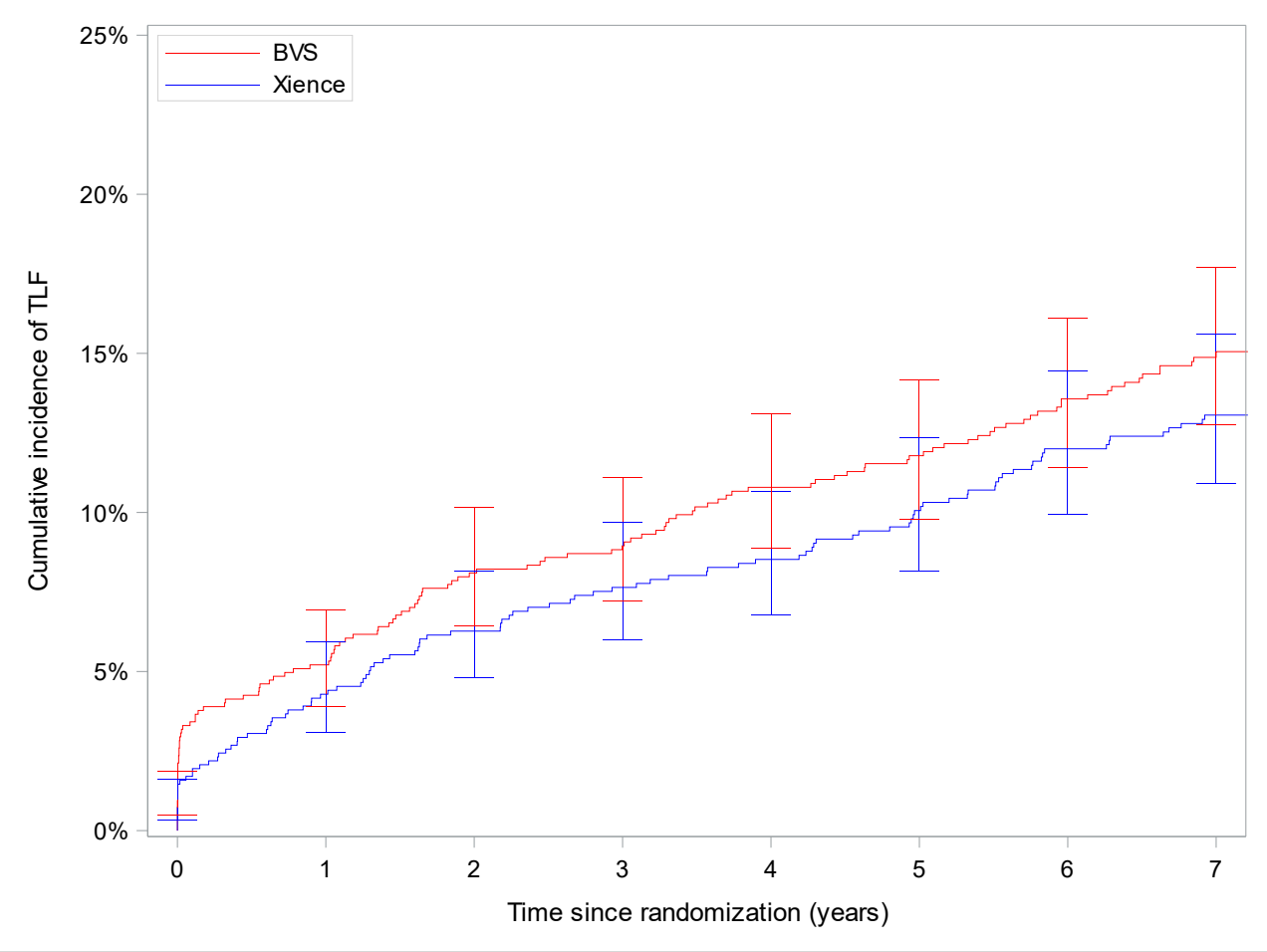
Characteristic	BRS (N = 848)	Xience (N = 822)	Difference (95% CI)	p-Value
6 Month				
ASA	98.0% (795/811)	98.5% (771/783)	-0.4% [-1.7%, 0.8%]	0.57
Clopidogrel	52.2% (423/811)	56.7% (444/783)	-4.5% [-9.4%, 0.3%]	0.07
Prasugrel	11.5% (93/811)	8.0% (63/783)	3.4% [0.5%, 6.3%]	0.023
Ticagrelor	35.3% (286/811)	32.1% (251/783)	3.2% [-1.4%, 7.8%]	0.19
DAPT (ASA + Clopi)	50.7% (411/811)	55.7% (436/783)	-5.0% [-9.9%, -0.1%]	0.050
DAPT (ASA + Tica or Prasu)	46.4% (376/811)	39.6% (310/783)	6.8% [1.9%, 11.6%]	0.007
DAPT (ASA + Clopi or Tica or Prasu)	96.3% (781/811)	95.1% (745/783)	1.2% [-0.8%, 3.1%]	0.27
OAC	2.6% (21/811)	2.0% (16/783)	0.5% [-0.9%, 2.0%]	0.51
OAC and (ASA or Clopi or Tica or Prasu)	2.3% (19/811)	2.0% (16/783)	0.3% [-1.1%, 1.7%]	0.73
ATII Antagonist	18.7% (152/811)	18.5% (145/783)	0.2% [-3.6%, 4.0%]	0.95
Beta Blocker	76.3% (619/811)	73.7% (577/783)	2.6% [-1.6%, 6.9%]	0.25
CA++ Antagonist	21.5% (174/811)	23.4% (183/783)	-1.9% [-6.0%, 2.2%]	0.37
Nitrates/NO donors	15.9% (129/811)	14.6% (114/783)	1.3% [-2.2%, 4.9%]	0.49
ACE Inhibitor	59.9% (486/811)	60.0% (470/783)	-0.1% [-4.9%, 4.7%]	1.00
Diuretics	25.9% (210/811)	21.2% (166/783)	4.7% [0.5%, 8.9%]	0.029
Statins	92.1% (747/811)	90.8% (711/783)	1.3% [-1.4%, 4.0%]	0.37
Other lipid lowering drugs	7.5% (61/811)	7.9% (62/783)	-0.4% [-3.0%, 2.2%]	0.78
Gastric Protective Medication	59.4% (482/811)	55.0% (431/783)	4.4% [-0.5%, 9.2%]	0.09
12 Month				
ASA	96.8% (787/813)	96.9% (769/794)	-0.0% [-1.8%, 1.7%]	1.00
Clopidogrel	47.0% (382/813)	41.9% (333/794)	5.0% [0.2%, 9.9%]	0.045
Prasugrel	7.0% (57/813)	5.4% (43/794)	1.6% [-0.8%, 4.0%]	0.22
Ticagrelor	27.1% (220/813)	22.8% (181/794)	4.3% [0.0%, 8.5%]	0.050
DAPT (ASA + Clopi)	45.3% (368/813)	39.9% (317/794)	5.3% [0.5%, 10.2%]	0.034
DAPT (ASA + Tica or Prasu)	33.7% (274/813)	28.0% (222/794)	5.7% [1.2%, 10.2%]	0.013
DAPT (ASA + Clopi or Tica or Prasu)	76.9% (625/813)	67.5% (536/794)	9.4% [5.0%, 13.7%]	<0.001
OAC	3.2% (26/813)	2.3% (18/794)	0.9% [-0.7%, 2.5%]	0.29
OAC and (ASA or Clopi or Tica or Prasu)	2.6% (21/813)	1.6% (13/794)	0.9% [-0.5%, 2.3%]	0.23
ATII Antagonist	19.4% (158/813)	18.8% (149/794)	0.7% [-3.2%, 4.5%]	0.75
Beta Blocker	75.2% (611/813)	73.3% (582/794)	1.9% [-2.4%, 6.1%]	0.42
CA++ Antagonist	22.5% (183/813)	23.4% (186/794)	-0.9% [-5.0%, 3.2%]	0.68
Nitrates/NO donors	16.1% (131/813)	15.6% (124/794)	0.5% [-3.1%, 4.1%]	0.84
ACE Inhibitor	58.5% (476/813)	58.8% (467/794)	-0.3% [-5.1%, 4.5%]	0.92
Diuretics	25.6% (208/813)	21.4% (170/794)	4.2% [0.0%, 8.3%]	0.052
Statins	91.8% (746/813)	90.2% (716/794)	1.6% [-1.2%, 4.4%]	0.30
Other lipid lowering drugs	9.2% (75/813)	9.9% (79/794)	-0.7% [-3.6%, 2.2%]	0.67
Gastric Protective Medication	60.1% (489/813)	55.9% (444/794)	4.2% [-0.6%, 9.1%]	0.10
24 Month				
ASA	93.9% (756/805)	94.9% (750/790)	-1.0% [-3.3%, 1.2%]	0.38

Characteristic	BRS (N = 848)	Xience (N = 822)	Difference (95% CI)	p-Value
Clopidogrel	35.7% (287/805)	12.3% (97/790)	23.4% [19.4%, 27.4%]	<0.001
Prasugrel	2.2% (18/805)	0.5% (4/790)	1.7% [0.6%, 2.9%]	0.004
Ticagrelor	13.0% (105/805)	5.9% (47/790)	7.1% [4.2%, 9.9%]	<0.001
DAPT (ASA + Clopi)	32.9% (265/805)	10.0% (79/790)	22.9% [19.1%, 26.8%]	<0.001
DAPT (ASA + Tica or Prasu)	14.5% (117/805)	6.3% (50/790)	8.2% [5.2%, 11.2%]	<0.001
DAPT (ASA + Clopi or Tica or Prasu)	47.2% (380/805)	16.2% (128/790)	31.0% [26.7%, 35.3%]	<0.001
OAC	4.3% (35/805)	3.2% (25/790)	1.2% [-0.7%, 3.0%]	0.24
OAC and (ASA or Clopi or Tica or Prasu)	3.0% (24/805)	1.5% (12/790)	1.5% [0.0%, 2.9%]	0.06
ATII Antagonist	19.8% (159/805)	19.7% (156/790)	0.0% [-3.9%, 3.9%]	1.00
Beta Blocker	72.4% (583/805)	70.3% (555/790)	2.2% [-2.3%, 6.6%]	0.35
CA++ Antagonist	22.7% (183/805)	24.8% (196/790)	-2.1% [-6.3%, 2.1%]	0.35
Nitrates/NO donors	15.4% (124/805)	16.1% (127/790)	-0.7% [-4.2%, 2.9%]	0.73
ACE Inhibitor	57.0% (459/805)	56.8% (449/790)	0.2% [-4.7%, 5.0%]	0.96
Diuretics	25.6% (206/805)	22.8% (180/790)	2.8% [-1.4%, 7.0%]	0.20
Statins	89.8% (723/805)	87.5% (691/790)	2.3% [-0.8%, 5.5%]	0.16
Other lipid lowering drugs	11.3% (91/805)	11.4% (90/790)	-0.1% [-3.2%, 3.0%]	1.00
Gastric Protective Medication	58.5% (471/805)	53.0% (419/790)	5.5% [0.6%, 10.3%]	0.030
36 Month				
ASA	91.9% (738/803)	93.7% (733/782)	-1.8% [-4.4%, 0.7%]	0.17
Clopidogrel	28.0% (225/803)	9.6% (75/782)	18.4% [14.7%, 22.2%]	<0.001
Prasugrel	1.2% (10/803)	0.4% (3/782)	0.9% [-0.0%, 1.7%]	0.09
Ticagrelor	9.0% (72/803)	3.3% (26/782)	5.6% [3.3%, 8.0%]	<0.001
DAPT (ASA + Clopi)	24.7% (198/803)	6.5% (51/782)	18.1% [14.7%, 21.6%]	<0.001
DAPT (ASA + Tica or Prasu)	9.8% (79/803)	3.5% (27/782)	6.4% [4.0%, 8.8%]	<0.001
DAPT (ASA + Clopi or Tica or Prasu)	34.4% (276/803)	10.0% (78/782)	24.4% [20.5%, 28.3%]	<0.001
OAC	5.0% (40/803)	3.6% (28/782)	1.4% [-0.6%, 3.4%]	0.17
OAC and (ASA or Clopi or Tica or Prasu)	2.1% (17/803)	1.4% (11/782)	0.7% [-0.6%, 2.0%]	0.34
ATII Antagonist	21.2% (170/803)	20.2% (158/782)	1.0% [-3.0%, 5.0%]	0.66
Beta Blocker	71.7% (576/803)	69.8% (546/782)	1.9% [-2.6%, 6.4%]	0.41
CA++ Antagonist	23.2% (186/803)	26.6% (208/782)	-3.4% [-7.7%, 0.8%]	0.12
Nitrates/NO donors	16.1% (129/803)	15.7% (123/782)	0.3% [-3.3%, 3.9%]	0.89
ACE Inhibitor	55.3% (444/803)	56.4% (441/782)	-1.1% [-6.0%, 3.8%]	0.69
Diuretics	26.4% (212/803)	22.9% (179/782)	3.5% [-0.7%, 7.7%]	0.12
Statins	89.0% (715/803)	87.9% (687/782)	1.2% [-2.0%, 4.3%]	0.48
Other lipid lowering drugs	13.4% (108/803)	12.8% (100/782)	0.7% [-2.7%, 4.0%]	0.71
Gastric Protective Medication	58.3% (468/803)	54.6% (427/782)	3.7% [-1.2%, 8.6%]	0.14
48 Month				
ASA	90.3% (707/783)	92.2% (707/767)	-1.9% [-4.7%, 0.9%]	0.21
Clopidogrel	12.4% (97/783)	9.1% (70/767)	3.3% [0.2%, 6.3%]	0.041
Prasugrel	0.8% (6/783)	0.4% (3/767)	0.4% [-0.4%, 1.1%]	0.51

Characteristic	BRS (N = 848)	Xience (N = 822)	Difference (95% CI)	p-Value
Ticagrelor	3.1% (24/783)	1.4% (11/767)	1.6% [0.2%, 3.1%]	0.039
DAPT (ASA + Clopi)	8.7% (68/783)	5.7% (44/767)	2.9% [0.4%, 5.5%]	0.031
DAPT (ASA + Tica or Prasu)	3.4% (27/783)	1.6% (12/767)	1.9% [0.3%, 3.4%]	0.022
DAPT (ASA + Clopi or Tica or Prasu)	12.1% (95/783)	7.3% (56/767)	4.8% [1.9%, 7.8%]	0.001
OAC	6.4% (50/783)	4.3% (33/767)	2.1% [-0.2%, 4.3%]	0.07
OAC and (ASA or Clopi or Tica or Prasu)	2.4% (19/783)	1.4% (11/767)	1.0% [-0.4%, 2.4%]	0.20
ATII Antagonist	21.3% (167/783)	21.3% (163/767)	0.1% [-4.0%, 4.2%]	1.00
Beta Blocker	71.9% (563/783)	68.7% (527/767)	3.2% [-1.4%, 7.7%]	0.18
CA++ Antagonist	24.3% (190/783)	28.0% (215/767)	-3.8% [-8.1%, 0.6%]	0.09
Nitrates/NO donors	15.8% (124/783)	15.6% (120/767)	0.2% [-3.4%, 3.8%]	0.94
ACE Inhibitor	54.4% (426/783)	55.7% (427/767)	-1.3% [-6.2%, 3.7%]	0.65
Diuretics	26.4% (207/783)	23.7% (182/767)	2.7% [-1.6%, 7.0%]	0.24
Statins	88.4% (692/783)	87.9% (674/767)	0.5% [-2.7%, 3.7%]	0.81
Other lipid lowering drugs	14.6% (114/783)	14.5% (111/767)	0.1% [-3.4%, 3.6%]	1.00
Gastric Protective Medication	59.4% (465/783)	55.1% (423/767)	4.2% [-0.7%, 9.2%]	0.10
60 Month				
ASA	88.5% (686/775)	90.3% (676/749)	-1.7% [-4.8%, 1.4%]	0.28
Clopidogrel	9.8% (76/775)	9.2% (69/749)	0.6% [-2.4%, 3.5%]	0.73
Prasugrel	0.6% (5/775)	0.7% (5/749)	-0.0% [-0.8%, 0.8%]	1.00
Ticagrelor	1.5% (12/775)	1.3% (10/749)	0.2% [-1.0%, 1.4%]	0.83
DAPT (ASA + Clopi)	5.8% (45/775)	5.5% (41/749)	0.3% [-2.0%, 2.6%]	0.82
DAPT (ASA + Tica or Prasu)	1.8% (14/775)	1.7% (13/749)	0.1% [-1.3%, 1.4%]	1.00
DAPT (ASA + Clopi or Tica or Prasu)	7.6% (59/775)	7.2% (54/749)	0.4% [-2.2%, 3.0%]	0.77
OAC	7.6% (59/775)	6.3% (47/749)	1.3% [-1.2%, 3.9%]	0.32
OAC and (ASA or Clopi or Tica or Prasu)	2.7% (21/775)	2.3% (17/749)	0.4% [-1.1%, 2.0%]	0.62
ATII Antagonist	21.3% (165/775)	21.6% (162/749)	-0.3% [-4.5%, 3.8%]	0.90
Beta Blocker	71.4% (553/775)	69.3% (519/749)	2.1% [-2.5%, 6.6%]	0.40
CA++ Antagonist	25.0% (194/775)	28.8% (216/749)	-3.8% [-8.3%, 0.6%]	0.11
Nitrates/NO donors	15.6% (121/775)	15.6% (117/749)	-0.0% [-3.7%, 3.6%]	1.00
ACE Inhibitor	54.2% (420/775)	55.1% (413/749)	-0.9% [-5.9%, 4.1%]	0.72
Diuretics	26.3% (204/775)	24.7% (185/749)	1.6% [-2.8%, 6.0%]	0.48
Statins	88.8% (688/775)	88.4% (662/749)	0.4% [-2.8%, 3.6%]	0.87
Other lipid lowering drugs	15.6% (121/775)	15.4% (115/749)	0.3% [-3.4%, 3.9%]	0.94
Gastric Protective Medication	58.2% (451/775)	54.6% (409/749)	3.6% [-1.4%, 8.6%]	0.16
72 Month				
ASA	88.3% (649/735)	90.0% (637/708)	-1.7% [-4.9%, 1.5%]	0.31
Clopidogrel	9.8% (72/735)	7.5% (53/708)	2.3% [-0.6%, 5.2%]	0.13
Prasugrel	0.3% (2/735)	0.7% (5/708)	-0.4% [-1.2%, 0.3%]	0.28
Ticagrelor	1.5% (11/735)	1.6% (11/708)	-0.1% [-1.3%, 1.2%]	1.00
DAPT (ASA + Clopi)	5.2% (38/735)	3.8% (27/708)	1.4% [-0.8%, 3.5%]	0.25

Characteristic	BRS (N = 848)	Xience (N = 822)	Difference (95% CI)	p-Value
DAPT (ASA + Tica or Prasu)	1.5% (11/735)	1.8% (13/708)	-0.3% [-1.7%, 1.0%]	0.68
DAPT (ASA + Clopi or Tica or Prasu)	6.7% (49/735)	5.6% (40/708)	1.0% [-1.5%, 3.5%]	0.45
OAC	7.3% (54/735)	6.8% (48/708)	0.6% [-2.1%, 3.2%]	0.68
OAC and (ASA or Clopi or Tica or Prasu)	2.6% (19/735)	2.7% (19/708)	-0.1% [-1.8%, 1.6%]	1.00
ATII Antagonist	21.4% (157/735)	22.6% (160/708)	-1.2% [-5.5%, 3.0%]	0.61
Beta Blocker	72.5% (533/735)	68.8% (487/708)	3.7% [-1.0%, 8.4%]	0.13
CA++ Antagonist	25.6% (188/735)	29.5% (209/708)	-3.9% [-8.5%, 0.7%]	0.10
Nitrates/NO donors	15.4% (113/735)	15.0% (106/708)	0.4% [-3.3%, 4.1%]	0.88
ACE Inhibitor	54.8% (403/735)	54.2% (384/708)	0.6% [-4.5%, 5.7%]	0.83
Diuretics	26.4% (194/735)	25.0% (177/708)	1.4% [-3.1%, 5.9%]	0.55
Statins	88.4% (650/735)	88.1% (624/708)	0.3% [-3.0%, 3.6%]	0.87
Other lipid lowering drugs	18.5% (136/735)	17.1% (121/708)	1.4% [-2.5%, 5.4%]	0.49
Gastric Protective Medication	57.1% (420/735)	53.7% (380/708)	3.5% [-1.7%, 8.6%]	0.19
84 Month				
ASA	87.4% (639/731)	88.9% (625/703)	-1.5% [-4.8%, 1.9%]	0.41
Clopidogrel	9.6% (70/731)	7.7% (54/703)	1.9% [-1.0%, 4.8%]	0.22
Prasugrel	0.7% (5/731)	0.6% (4/703)	0.1% [-0.7%, 0.9%]	1.00
Ticagrelor	1.1% (8/731)	1.4% (10/703)	-0.3% [-1.5%, 0.8%]	0.64
DAPT (ASA + Clopi)	4.9% (36/731)	4.0% (28/703)	0.9% [-1.2%, 3.1%]	0.44
DAPT (ASA + Tica or Prasu)	1.5% (11/731)	1.7% (12/703)	-0.2% [-1.5%, 1.1%]	0.84
DAPT (ASA + Clopi or Tica or Prasu)	6.4% (47/731)	5.7% (40/703)	0.7% [-1.7%, 3.2%]	0.58
OAC	7.9% (58/731)	7.3% (51/703)	0.7% [-2.1%, 3.4%]	0.69
OAC and (ASA or Clopi or Tica or Prasu)	3.0% (22/731)	2.3% (16/703)	0.7% [-0.9%, 2.4%]	0.41
ATII Antagonist	22.2% (162/731)	22.3% (157/703)	-0.2% [-4.5%, 4.1%]	0.95
Beta Blocker	72.6% (531/731)	68.3% (480/703)	4.4% [-0.4%, 9.1%]	0.07
CA++ Antagonist	26.1% (191/731)	30.2% (212/703)	-4.0% [-8.7%, 0.6%]	0.10
Nitrates/NO donors	15.6% (114/731)	14.4% (101/703)	1.2% [-2.5%, 4.9%]	0.55
ACE Inhibitor	53.8% (393/731)	54.3% (382/703)	-0.6% [-5.7%, 4.6%]	0.83
Diuretics	26.1% (191/731)	25.2% (177/703)	1.0% [-3.6%, 5.5%]	0.72
Statins	87.8% (642/731)	88.2% (620/703)	-0.4% [-3.7%, 3.0%]	0.87
Other lipid lowering drugs	19.6% (143/731)	19.2% (135/703)	0.4% [-3.7%, 4.5%]	0.89
Gastric Protective Medication	57.6% (421/731)	54.2% (381/703)	3.4% [-1.7%, 8.5%]	0.20

Supplementary Figure 1. Kaplan-Meier plot for the primary endpoint: target lesion failure, the combined clinical outcome of cardiac death, target vessel myocardial infarction, and clinically indicated target lesion revascularisation.

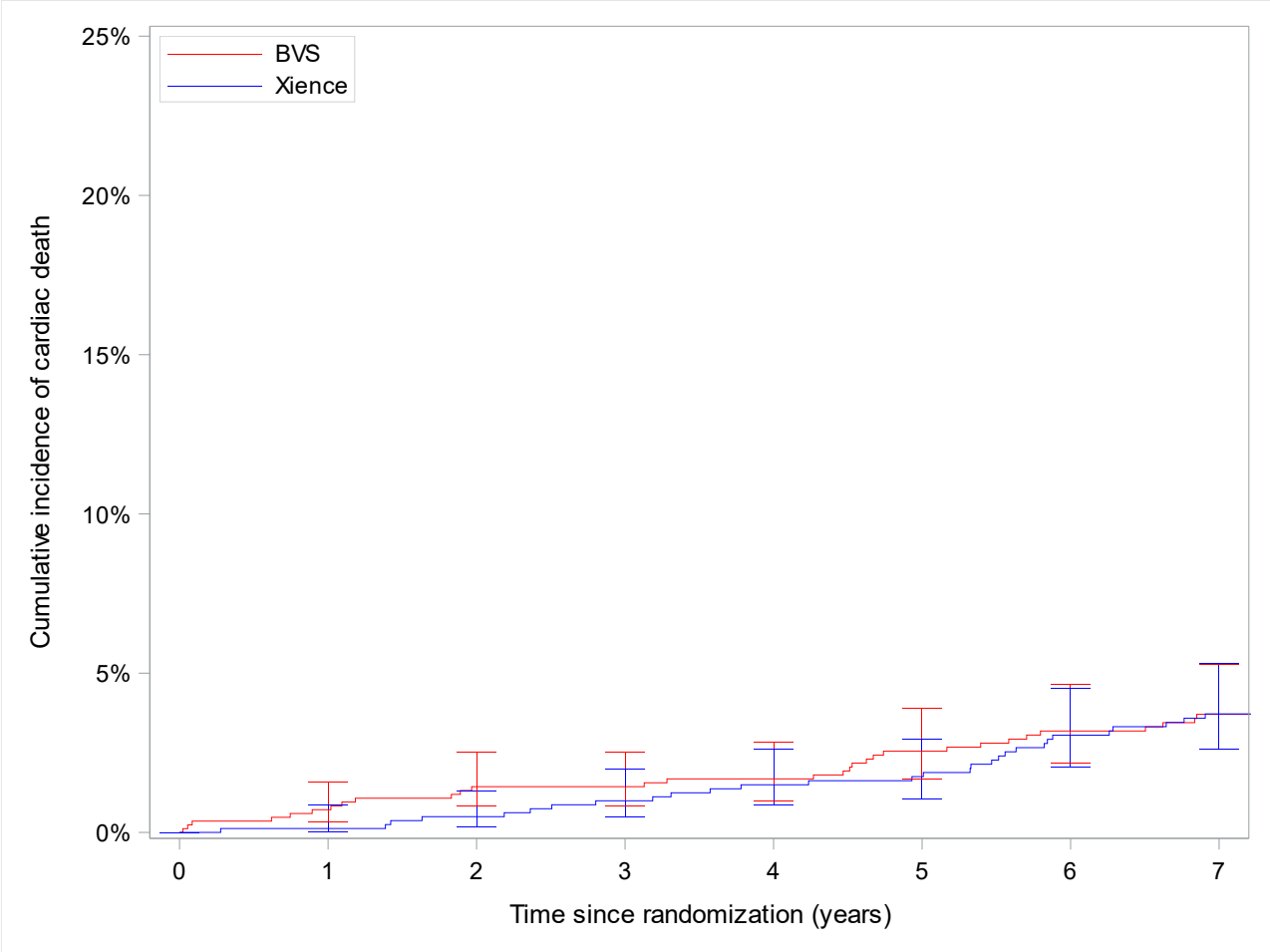


		Time in years							
		0	1	2	3	4	5	6	7
BVS	# At risk	848	791	760	747	726	702	670	471
	# Censored	0	13	7	6	7	17	16	212
	# Events	8	36	24	7	15	8	14	11
	Cumul. Event (%)	0.9	5.2	8.1	9.0	10.8	11.8	13.6	15.1
Xience	# At risk	822	775	752	739	722	702	677	493
	# Censored	0	13	6	2	10	9	9	200
	# Events	6	29	16	11	7	12	15	8
	Cumul. Event (%)	0.7	4.3	6.3	7.6	8.5	10.1	12.0	13.1

Test	Chi-Square	DF	p-value
Log-Rank	1.3882	1	0.2387

Supplementary Figure 2. Kaplan-Meier curves for 0-7 years of follow-up.

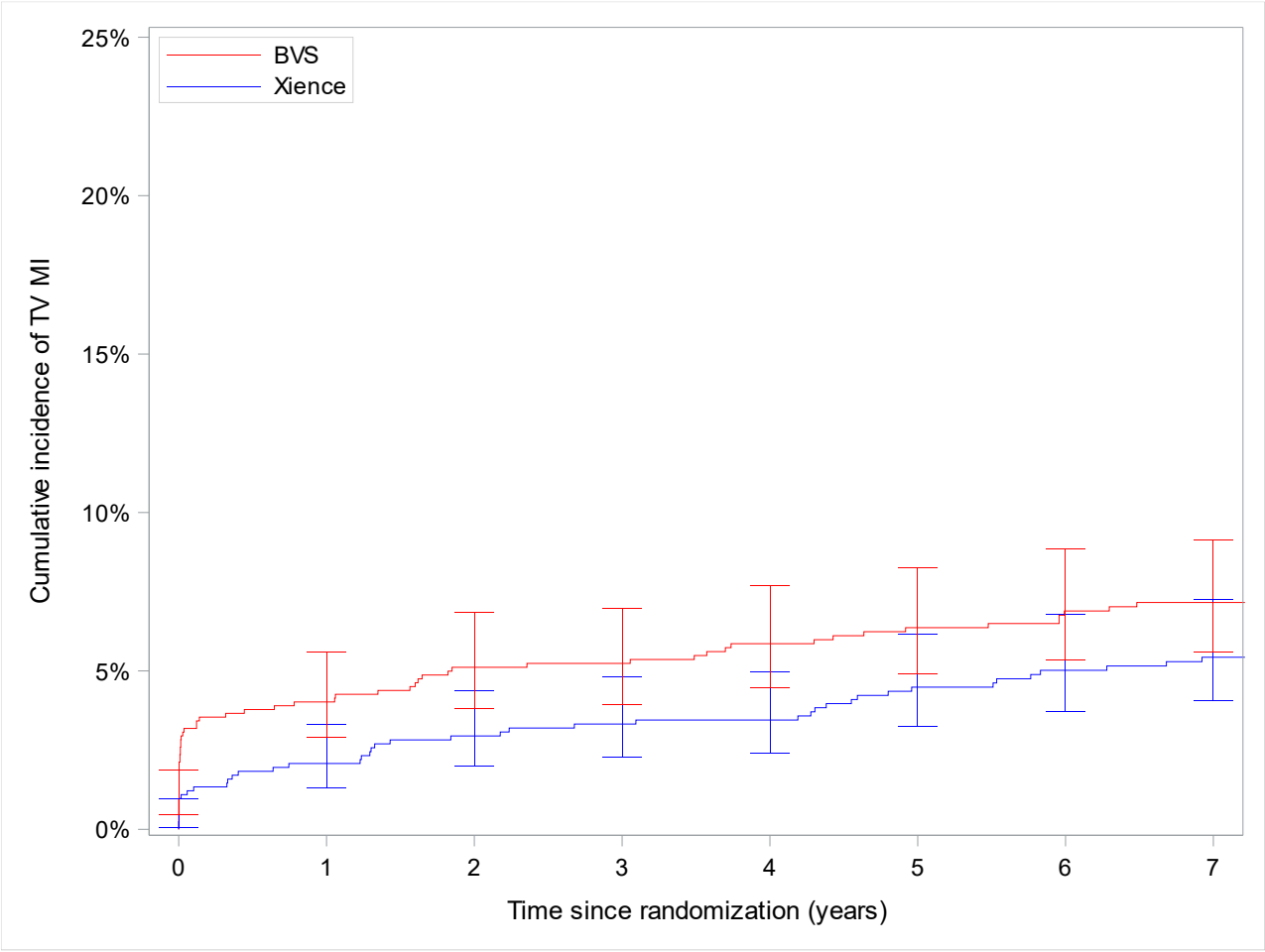
2A. Kaplan-Meier-Plot Secondary Endpoint: Cardiac Death (ITT, Number of Patients: 1670)
Cumulative incidence for cardiac death



		Time in years							
		0	1	2	3	4	5	6	7
BVS	# At risk	848	828	815	809	800	777	753	530
	# Censored	0	14	7	7	7	17	17	244
	# Events	0	6	6	0	2	7	5	4
	Cumul. Event (%)	0.0	0.7	1.4	1.4	1.7	2.5	3.2	3.7
Xience	# At risk	822	809	799	793	779	764	740	541
	# Censored	0	13	6	2	10	14	13	219
	# Events	0	1	3	4	4	2	10	5
	Cumul. Event (%)	0.0	0.1	0.5	1.0	1.5	1.8	3.1	3.7

Test	Chi-Square	DF	p-value
Log-Rank	0.0020	1	0.9639

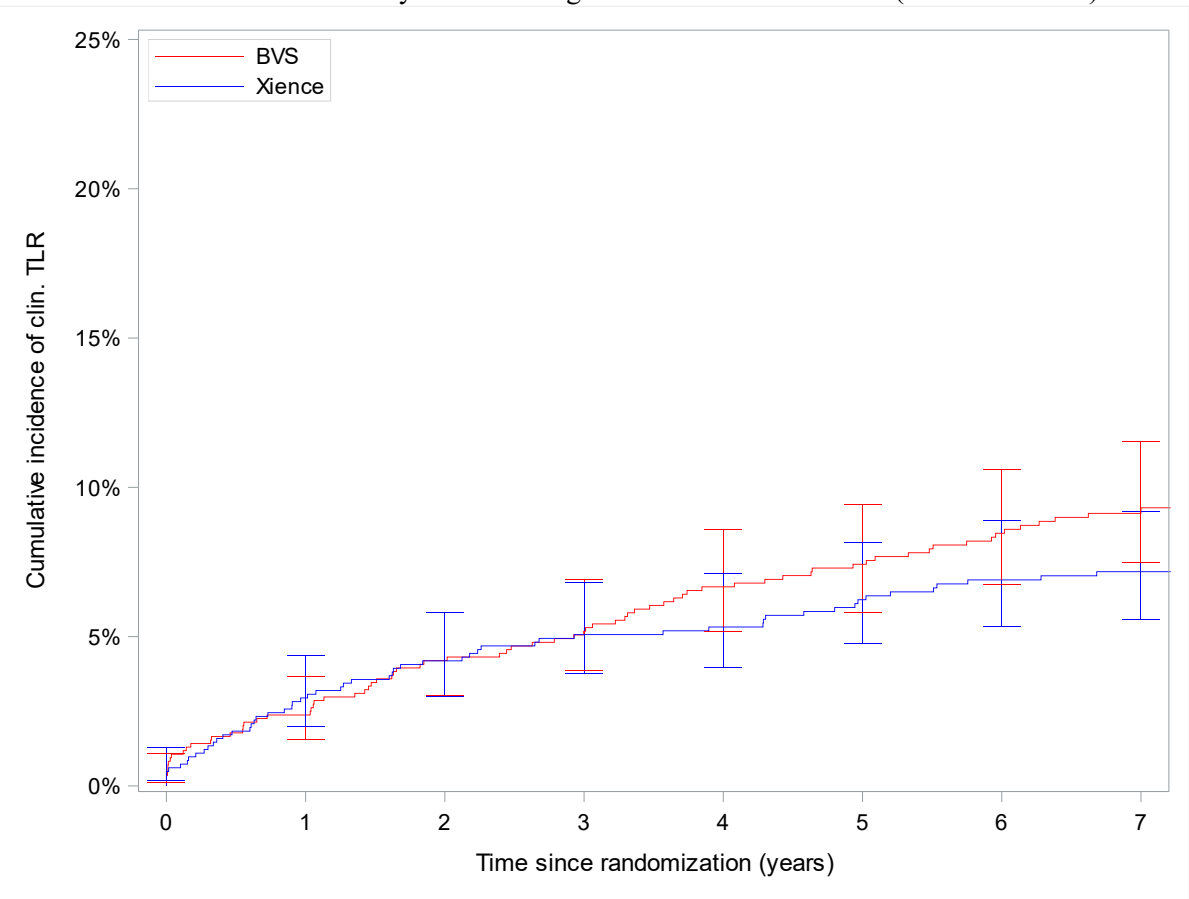
2B. Kaplan-Meier-Plot Secondary Endpoint: Target Vessel Myocardial Infarction (ITT, Number of Patients: 1670)
Cumulative incidence for target vessel myocardial infarction (SCAI/TUD)



		Time in years							
		0	1	2	3	4	5	6	7
BVS	# At risk	848	797	776	769	755	731	704	497
	# Censored	0	17	12	7	9	21	21	230
	# Events	8	26	9	1	5	4	4	2
	Cumul. Event (%)	0.9	4.0	5.1	5.2	5.9	6.4	6.9	7.2
Xience	# At risk	822	792	776	767	752	733	710	516
	# Censored	0	14	8	6	14	12	18	216
	# Events	2	15	7	3	1	8	4	3
	Cumul. Event (%)	0.2	2.1	2.9	3.3	3.4	4.5	5.0	5.4

Test	Chi-Square	DF	p-value
Log-Rank	2.3535	1	0.1250

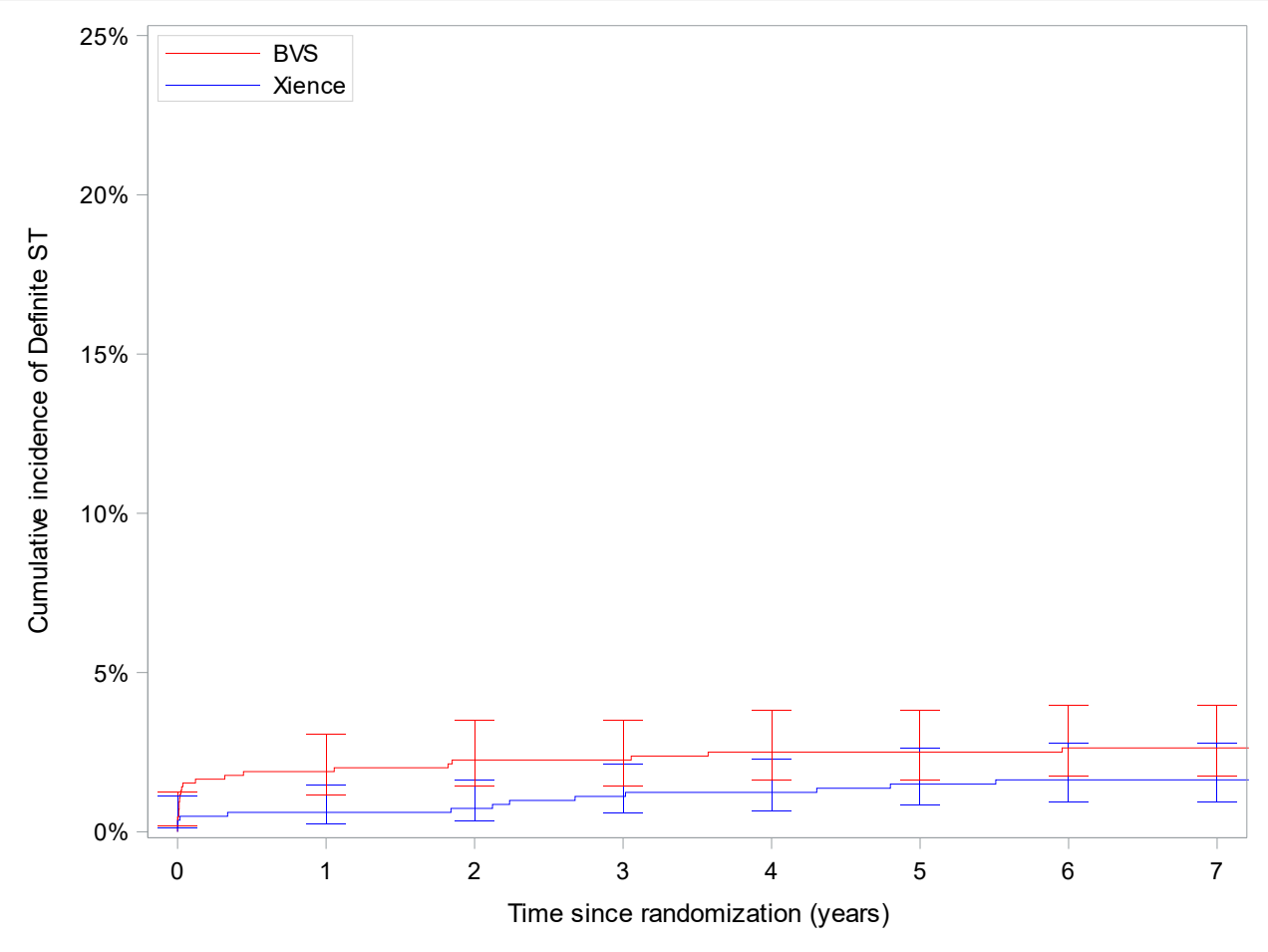
2C. Kaplan-Meier-Plot Secondary Endpoint: Clinically indicated Target Lesion Revascularization (ITT, Number of Patients: 1670)
Cumulative incidence for clinically indicated target lesion revascularization (CABG and PCI)



		Time in years							
		0	1	2	3	4	5	6	7
BVS	# At risk	848	811	784	770	750	725	693	487
	# Censored	0	17	12	6	9	20	22	224
	# Events	3	17	15	8	12	6	8	6
	Cumul. Event (%)	0.4	2.4	4.2	5.2	6.7	7.4	8.5	9.3
Xience	# At risk	822	785	766	753	737	716	690	505
	# Censored	0	14	8	6	14	15	20	207
	# Events	4	20	10	7	2	7	5	2
	Cumul. Event (%)	0.5	2.9	4.2	5.1	5.3	6.2	6.9	7.2

Test	Chi-Square	DF	p-value
Log-Rank	2.0750	1	0.1497

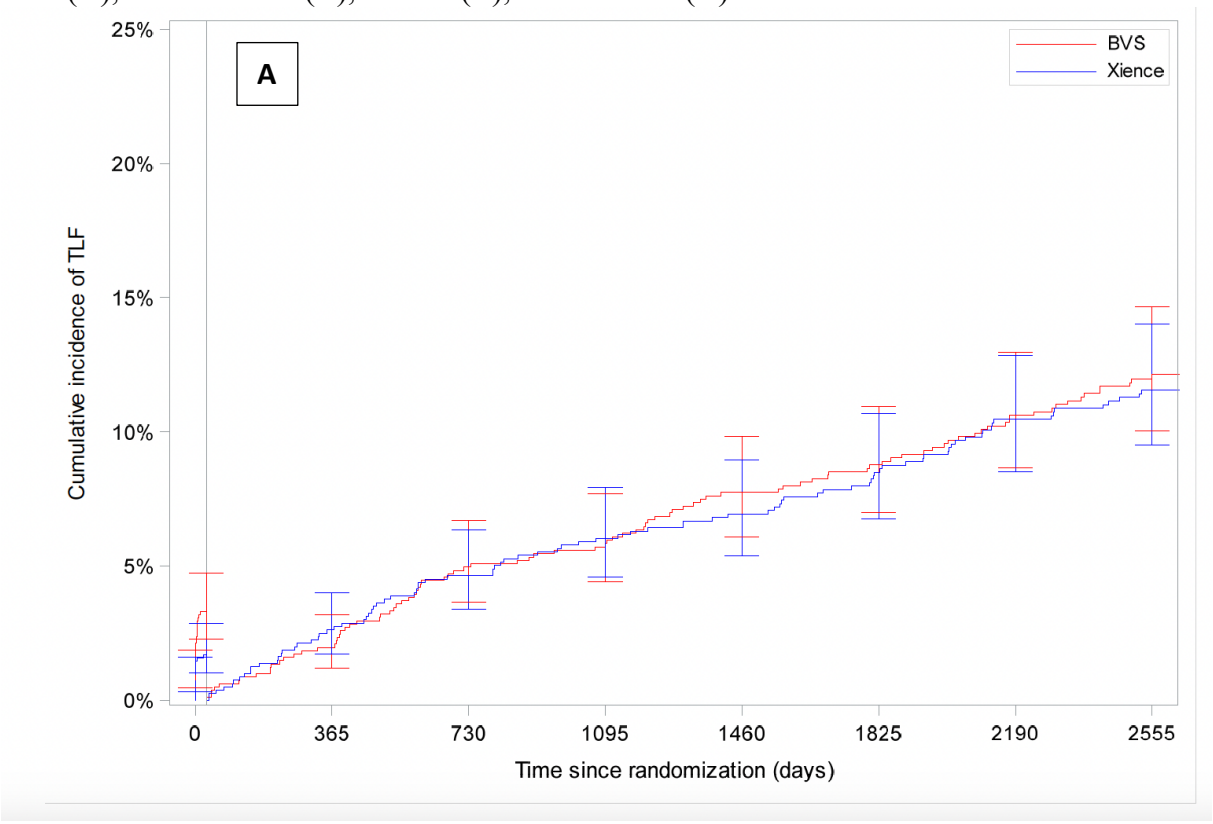
2D. Kaplan-Meier-Plot Definite Stent/Scaffold Thrombosis (ITT, Number of Patients: 1670)
Cumulative incidence for definite stent thrombosis (ARC Definition)

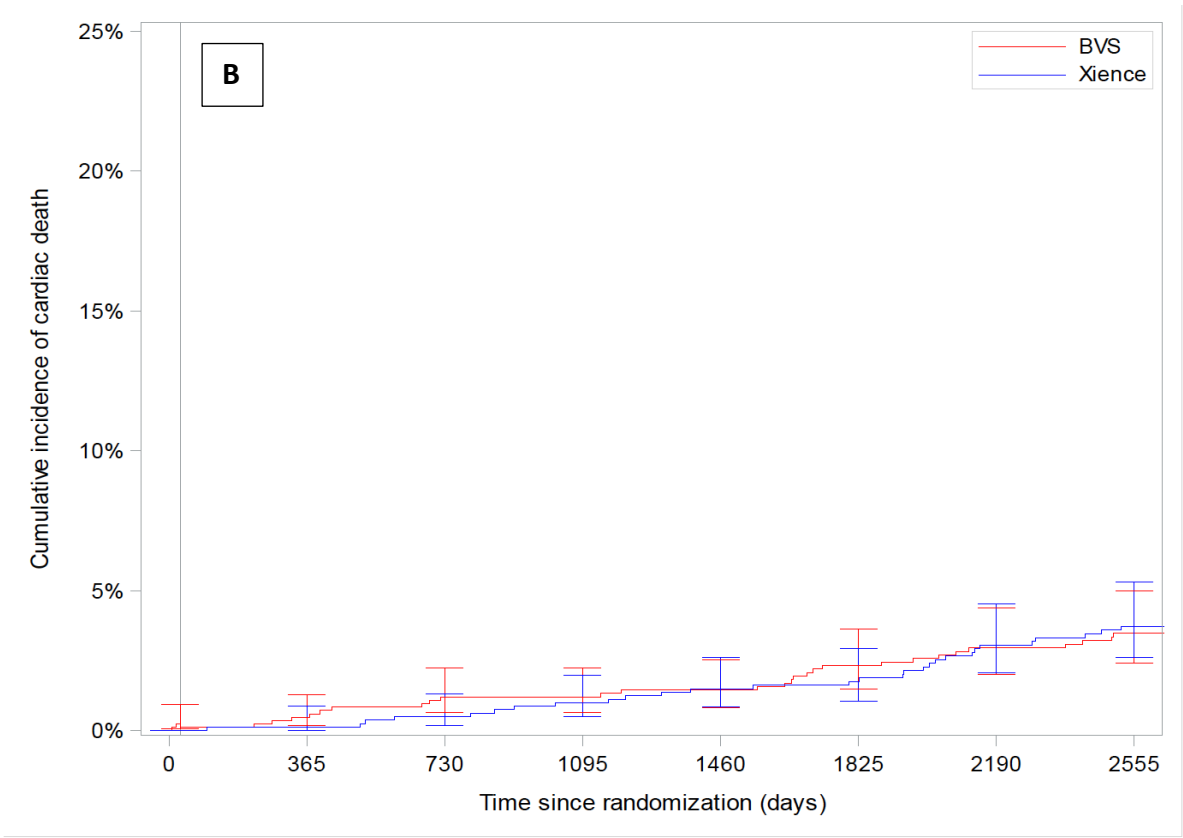


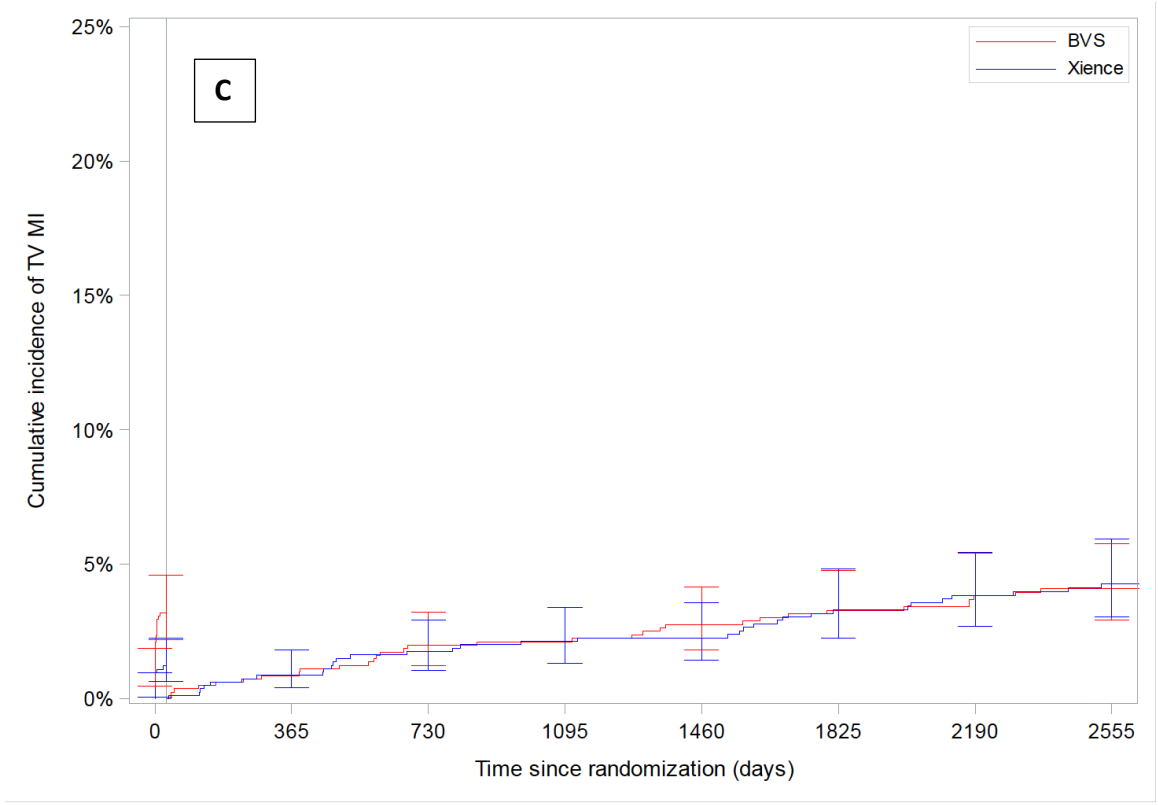
		Time in years							
		0	1	2	3	4	5	6	7
BVS	# At risk	848	816	801	795	784	763	738	522
	# Censored	0	16	12	7	9	22	22	241
	# Events	4	12	3	0	2	0	1	0
	Cumul. Event (%)	0.5	1.9	2.3	2.3	2.5	2.5	2.6	2.6
Xience	# At risk	822	804	793	784	769	752	729	533
	# Censored	0	14	9	6	14	16	21	221
	# Events	3	2	1	3	1	2	1	0
	Cumul. Event (%)	0.4	0.6	0.7	1.1	1.2	1.5	1.6	1.6

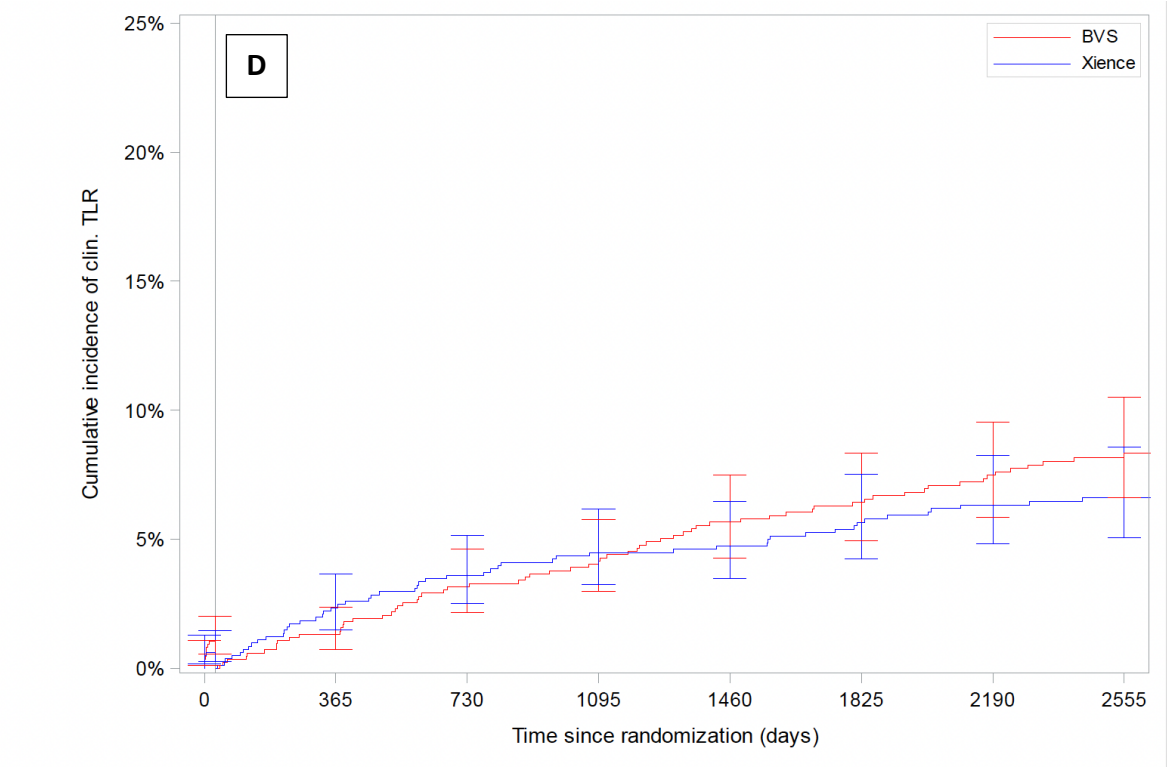
Test	Chi-Square	DF	p-value
Log-Rank	2.1283	1	0.1446

Supplementary Figure 3. Landmark analysis of TLF, cardiac death, TVMI, and CI-TLR after 30 days.
TLF (A), cardiac death (B), TV-MI (C), and CI-TLR (D).

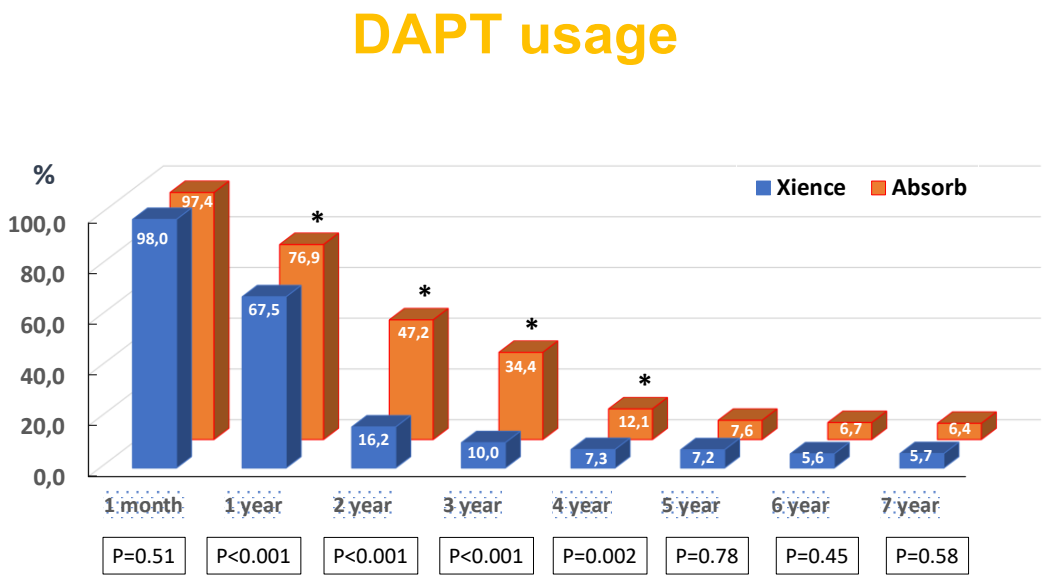





C
BVS
Xience
Cumulative incidence of TV MI
25%
20%
15%
10%
5%
0%
0
365
730
1095
1460
1825
2190
2555
Time since randomization (days)


D
BVS
Xience
Cumulative incidence of clin. TLR
25%
20%
15%
10%
5%
0%
0
365
730
1095
1460
1825
2190
2555
Time since randomization (days)

Supplementary Figure 4. DAPT usage up to 7-year follow-up.



Supplementary Figure 5. Spline analysis demonstrating the hazard ratio of target lesion failure over time with BVS compared with EES up to 7-year follow-up.

The solid blue line represents the hazard risk, while the gray shadow represents the 95% CI. The red dots indicate the selected time knots at 30 days, 3-, 4-, 5- and 6-years follow-up.