SUPPLEMENTARY DATA

METHODS OF THE SUPPLEMENTARY DATA

Inclusion and exclusion criteria

Inclusion criteria:

- Patients > 18 years with STEMI < 12 hours undergoing primary percutaneous coronary intervention.
- ST-segment elevation of > 1 mm in > 2 contiguous leads, or (presumably new) left bundle branch block, or true posterior myocardial infarction with ST depression of > 1 mm in > 2 contiguous anterior leads.
- Presence of at least 1 acute infarct artery target vessel with 1 or more de novo coronary artery stenosis in a native coronary artery within 2.75–3.75 mm reference vessel diameter and < 24 mm length (visually estimated).
- Participant agrees to not participate in any other investigational or invasive clinical study for a period of 12 months following the index procedure.

Exclusion criteria:

- Inability to provide informed consent.
- Woman of childbearing potential, who did not undergo tubal ligation, ovariectomy or hysterectomy.
- Known intolerance to aspirin, heparin, bioresorbable polymers, everolimus, or contrast material.

- Cardiogenic shock or mechanical complications of acute myocardial infarction.
- Unprotected left main coronary artery stenosis.
- Significant angiographic lesion located distally to the target lesion.
- Acute myocardial infarction secondary to stent thrombosis.
- Severe tortuous calcified or angulated coronary anatomy of the study vessel that in the opinion of the investigator would result in suboptimal imaging or excessive risk of complications in the follow-up procedure.
- Active bleeding or coagulopathy or patients under chronic anticoagulation therapy.
- Chronic renal dysfunction with creatinine clearance < 45 mL/min.
- Participant is currently participating in another clinical trial that has not yet completed its primary endpoint.

Vasomotor test

Patients were requested to stop all vasomotor drugs at least 24 hours before coronary angiography. Nonstudy vasomotor drugs were also not allowed before the vasomotor test. Operators were requested to repeat the same angiographic views as in the index procedure. A conventional workhorse guidewire was advanced up to the stent segment. Then, a single lumen microcatheter (Teleport, OrbusNeich, United Stated) was positioned 5-mm proximal to the stent edge.

The endothelial-dependent function test was then performed by the infusion of intracoronary acetylcholine M^{-6} via microcatheter using an infusion pump. Intracoronary acetylcholine was infused at 2 mL/min for 2 minutes. A cine-fluoroscopy was performed at the end of the infusion and was properly labeled. In the absence of vasospasm (> 90% diameter stenosis and symptoms)

or atrioventricularl block, and after a washout period of 2 mm, the following incremental dose of acetylcholine (acetylcholine M^{-4}) was given and properly recorded with cine-fluoroscopy.

The endothelial independent function test was performed with at least 200 µg of intracoronary nitroglycerin via the guiding catheter after removal of all intracoronary material. A cine-fluoroscopy recording was then performed and properly labeled.

Quantitative optical coherence tomography analysis

Quantitative optical coherence tomography analysis was performed each 1 mm according to standard core-laboratory procedures using the specific offline software (LightLab Imaging, United States). In summary, the software drew the lumen contour automatically of all proximal stent and distal segments. Stent contour was performed semiautomatically by pointing the inner strut surface of the stent struts. Taking into account the different strut thickness of the bioactive sirolimus-eluting stent (100 µm) and polymer-free biolimus-eluting stent (112 µm) and the optical coherence tomography axial resolution (15 µm); strut malapposition was defined as distances between the inner strut surface and the lumen contour ≥ 120 µm for bioactive sirolimus-eluting stentand ≥ 130 µm for polymer-free biolimus-eluting stent.

Table 1 of the supplementary data

Comparison of the angiographic lumen and diameter stenosis of current drug-eluting stents

Device type	Device	Trial	Publication year	Mean LLL	SD of LLL	Lesions with DS ≥ 5 0% (%)	Month angiographic FU	Number of lesions
Durable polymer DES	XIENCE	SPIRIT II	2006	0.11	0.27	1.3	6	201
	Xience	SPIRIT III	2009	0.16	0.41	2.3	8	669
	XIENCE	Resolute AC	2010	0.19	0.40	3.8	13	177
	XIENCE	ESSENCE-DIABETES	2011	0.11	0.26	0.0	8	149
	XIENCE	EXCELLENT	2011	0.19	0.35	2.0	9	708
	XIENCE	LONG-DES-III	2011	0.22	0.42	3.9	9	224
	XIENCE	RESET	2012	0.16	0.36	5.1	8	274
	XIENCE	NEXT	2013	0.14	0.36	7.5	8	293
	XIENCE	ABSORB JAPAN	2015	0.16	0.33	1.6	13	129
	XIENCE	BIOFLOW II	2015	0.11	0.29	1.3	9	149
	XIENCE	CENTURY II	2016	0.18	0.31	NR	9	237
	XIENCE	TROFI II	2016	0.08	0.28	1.1	6	98
	XIENCE	RESEVOIR	2016	0.24	0.57	4.0	9	50
	XIENCE	PRISON IV	2017	0.07	0.46	2.1	9	143
	XIENCE	NeoVas	2018	0.16	0.28	1.6	12	245
	XIENCE	Merit V	2018	0.15	0.29	NR	9	70
	XIENCE	TARGET	2018	0.11	0.52	4.4	13	90
	XIENCE	HARMONEE	2018	0.22	0.35	NR	12	80
	XIENCE	LONG-DES VI	2019	0.27	0.35	5.3	12	76
	XIENCE	BVS-FLOW	2020	0.11	0.16	0.0	13	30
	XIENCE	BIOFLOW VI	2020	0.07	0.22	0.5	9	220
	Resolute	Resolute AC	2010	0.27	0.43	4.2	13	183
	Resolute	ISAR-TEST-5	2011	0.29	0.56	NR	6	1131
	Resolute	LONG-DES IV	2012	0.26	0.36	4.0	7	250
	Resolute	ESSENCE-DIABETES II	2013	0.22	0.29	1.2	9	127
	Resolute	Resolute China	2013	0.16	0.38	2.5	9	264
	Resolute	DIRECT II	2016	0.13	0.27	0.0	6	40
	Resolute	Bionics	2017	0.23	0.39	7.5	13	96
	Resolute	ORIENT	2017	0.16	0.39	1.3	9	77
	Resolute	PIONEER	2017	0.14	0.37	4.4	9	101
	Resolute	LONG-DES VI	2019	0.33	0.50	8.1	12	74
	ALL	**ALL**	**-**	**0.17**	**0.36**	**2.9**	**6 to 13**	**6655**

Bioresorbable polymer DES	Supraflex	PIONEER	2017	0.29	0.33	3.3	9	95
	Orsiro	BIOFLOW II	2015	0.10	0.32	2.2	9	278
	Orsiro	ORIENT	2017	0.10	0.35	1.7	9	180
	Orsiro	PRISON IV	2017	0.12	0.59	8.0	9	138
	Orsiro	MAGSTEMI	2019	0.06	0.21	0.0	12	76
	Orsiro	BIOFLOW VI	2020	0.05	0.21	0.4	9	224
	SYNERGY	EVOLVE	2012	0.10	0.25	0.0	6	94
	SYNERGY	EVOLVE II QCA	2015	0.22	0.23	1.8	9	110
	SYNERGY	EVOLVE China	2017	0.20	0.32	2.0	9	195
	Biomine	Merit V	2018	0.15	0.27	NR	9	146
	Firehawk	TARGET	2018	0.17	0.48	6.4	13	94
	Ultimaster	CENTURY II	2016	0.26	0.35	NR	9	247
	ALL	**ALL**	-	**0.15**	**0.33**	**2.6**	**9 to 13**	**1877**
Polymer-free DES	BioFreedom	BIOFREEDOM FIM	2016	0.17	NR	6.7	12	31
	BioFreedom	BIOFREEDOM USA	2017	0.32	0.53	6.2	9	66
	BioFreedom	EGO-BIOFREEDOM	2018	0.21	0.30	NR	9	110
	BioFreedom	**ALL**	-	**0.23**	**0.42**	**6.5**	**9 to 12**	**207**
Bioactive DES	COMBO	REMEDEE	2013	0.39	0.45	5.5	9	109
	COMBO	EGO-COMBO	2016	0.23	0.36	1.6	9	74
	COMBO	HARMONEE	2018	0.29	0.44	1.3	12	86
	COMBO	**ALL**	-	**0.30**	**0.42**	**2.8**	**9 to 12**	**269**

DES, drug-eluting stents; DS, diameter stenosis; FU, follow-up; NR, not reported; LLL, late lumen loss; SD, standard deviation.

Table 2 of the supplementary data

Comparison of the vasomotor function of different DES in STEMI patients

	Stent type	Bioactive SES (n = 25; 6-m FU)	Polymer-free BES (n = 24; 6-m FU)	Bioresorbable polymer SES[1] (n = 35; 1-y FU)	Durable polymer EES[2] (n = 16; 3-y FU)
Distal segment length, mm	Baseline	30.93 ± 6.40	30.92 ± 8.52	33.77 ± 5.37	32.01 ± 5.95
	Ach M^{-6}	31.36 ± 6.54	30.87 ± 9.07	33.93 ± 6.11	32.19 ± 6.09
	Ach M^{-4}	30.83 ± 6.50	31.67 ± 8.39	33.37 ± 7.71	32.24 ± 5.42
	Nitroglycerin	30.97 ± 6.43	30.76 ± 8.15	33.92 ± 5.41	32.30 ± 5.69
Minimal lumen diameter. mm (relative change, %)	Baseline	1.67 ± 0.41	1.59 ± 0.33	1.44 ± 0.43	1.40 ± 0.24
	Ach M^{-6}	1.53 ± 0.62 (−8.1 ± 27.6)	1.42 ± 0.52 (−11.6 ± 24.1)	1.23 ± 0.51 (−15.3 ± 19.5)	1.39 ± 0.39 (−0.4 ± 20.3)
	Ach M^{-4}	1.27 ± 0.59 (−24.9 ± 24.9)	1.19 ± 0.54 (−24.9 ± 29.3)	1.01 ± 0.43 (−28.7 ± 24.1)	1.12 ± 0.46 (−21.1 ± 23.4)
	Nitroglycerin	1.83 ± 0.48 (10.8 ± 16.4)	1.79 ± 0.39 (13.8 ± 15.3)	1.59 ± 0.48 (12.1 ± 20.4)	1.53 ± 0.33 (9.8 ± 15.4)
Mean lumen diameter. mm (relative change, %)	Baseline	2.18 ± 0.47	2.09 ± 0.37	1.96 ± 0.42	1.84 ± 0.32
	Ach M^{-6}	2.00 ± 0.65 (−8.3 ± 20.1)	1.94 ± 0.46 (−7.6 ± 14.2)	1.8 ± 0.48 (−8.3 ± 12.6)	1.89 ± 0.34 (3.3 ± 11.8)
	Ach M^{-4}	1.84 ± 0.65 (−16.0 ± 20.2)	1.75 ± 0.54 (−16.1 ± 21.6)	1.61 ± 0.47 (−18.1 ± 15.4)	1.68 ± 0.43 (−8.7 ± 14.8)
	Nitroglycerin	2.38 ± 0.52 (9.7 ± 9.5)	2.31 ± 0.36 (11.2 ± 8.7)	2.20 ± 0.46 (13.5 ± 13.2)	2.07 ± 0.39 (13.1 ± 11.4)

Ach, acetylcholine; BES, biolimus-eluting stent; DES, drug-eluting stent; FU, follow-up; SES, sirolimus-eluting stent; STEMI, ST-elevation myocardial infarction.

–

REFERENCES OF THE SUPPLEMENTARY DATA

1. Sabate M, Alfonso F, Cequier A, et al. Magnesium-Based Resorbable Scaffold Versus Permanent Metallic Sirolimus-Eluting Stent in Patients With ST-Segment Elevation Myocardial Infarction: The MAGSTEMI Randomized Clinical Trial. *Circulation.* 2019;140:1904-1916.

2. Gomez-Lara J, Brugaletta S, Ortega-Paz L, et al. Long-Term Coronary Functional Assessment of the Infarct-Related Artery Treated With Everolimus-Eluting Bioresorbable Scaffolds or Everolimus-Eluting Metallic Stents: Insights of the TROFI II Trial. *JACC Cardiovasc Interv.* 2018;11:1559-1571.