A Prospective, Randomized, Multi-center Trial to Assess the Everolimus-Eluting Coronary Stent System (PROMUS Element) for Coronary Revascularization in a Population of Unrestricted Patients
- PLATINUM PLUS -

Jean Fajadet[1], Eulogio Garcia[2], David Hildick-Smith[3], Sonia Petronio[4], Sigmund Silber[5], Franz-Josef Neumann[6], Azfar Zaman[7], Jochen Wôhrle[8], Mark Spence[9], Simon Elhadad[10]. Clinique Pasteur[1], Toulouse, France; Hopital Clinico San Carlos[2], Madrid, Spain; Royal Sussex County Hospital[3], Brighton, UK; Az Osp. Universitaria Pisana[4], Pisa, Italia; Kardiologische Praxis[5], München, Germany; Herzzentrum Bad Krozingen[6], Germany; Freeman Hospital[7], Newcastle, UK; Universitätsklinikum Ulm[8], Germany; Royal Victoria Hospital[9], Belfast, UK; CH, Lagny[1], France

1. Background

A drug-eluting stent consists of 3 components of equal importance: a metallic platform, a polymer and a drug, all influencing acute and long term results both in safety and efficacy.

The Platinum Plus trial was designed to compare the PROMUS Element™ stent to the Xience Prime™ These stents have the same polymers poly (n butyl methacrylate) (PBMA) and poly (vinylidene fluoride co hexafluoropro-pylene) (PVDF-HFP)] and drug (Everolimus) but different platforms (platinum-chromium for the PROMUS Element™, cobalt chromium for the Xience Prime™) and distinct stent designs. It has been speculated that one of the stents was prone to longitudinal compression.

2. Objective

The objective of this trial is determine the safety and effectiveness of Boston Scientific's Everolimus-eluting coronary stent system (PROMUS Element ™) for coronary revascularization in an unrestricted population compared to the Xience™ Prime control of Abbot Vascular.

3. Methods

The trial was designed as a non-inferiority single blind randomized trial (2:1 randomization PROMUS Element™ : Xience Prime™).

Patient Population:

Patients with symptomatic ischemic heart disease due to stenotic lesions amenable to percutaneous treatment with a drug eluting stent in a consecutive unselected patient population, provided that the proposed research use of the product is consistent with the approved (labeled) uses of such product and with the reimbursed indications (in countries where reimbursement procedure applies, e.g. France) and does not violate any other applicable law, regulation or ethical directive/code.

From October 2010 to February 2012 2985 all-comer patients were consecutively recruited in 48 European centers .

4. Study Endpoints

Primary Endpoint

Target Vessel failure (TVF) of the PROMUS Element™ Everolimus-Eluting Coronary Stent at 12 months post-procedure.

TVF is defined as any ischemia-driven revascularization of the target Vessel (TVR), MI (Q-wave and non-Q-wave) related to the target vessel, or cardiac death related to the target vessel.

4. Study Endpoints (continued)

Secondary Endpoints:

Clinical endpoints measured at 30 days, 12 months and 2 years:

- Ischemia Driven Target Lesion Revascularization (TLR) rate
- Ischemia Driven Target Vessel Revascularization (TVR) rate
- Target Lesion Failure (TLF) rate: (TLR), MI (Q-wave and non-Q-wave) related to the target vessel, or cardiac death related to the target vessel
- Myocardial Infarction (MI) rate: Q-wave and non-Q-wave
- Cardiac death rate Non-cardiac death rate All death or MI rate
- All Death/MI/TVR rate Stent Thrombosis (ST).
- Major Adverse Cardiac Event (MACE) rate: composite of death, MI (Q wave or non-Q wave), CABG or TLR by repeat PTCA or CABG.

5. Results

Risk factors were well balanced between the two populations (Table 1).

Procedural success, procedural characteristics and mean number of implanted stents (1.5 / pt) was equal in both groups (Table 2 and 3).

30-days outcome is shown in Table 3.

Table 1. Patients' Characteristics

	Total	PROMUS Element™	Xience Prime™
Patient number	**2985**	**1955**	**1030**
Age, Years	65.8 ± 10.6	65.7 ± 10.5	66.1 ± 10.7
Male gender	2325 (77.9%)	1517 (77.6%)	808 (77.9%)
Indication			
A.S.C ST-	740 (24.8%)	487 (24.9%)	253 (24.6%)
A.S.C ST+	247 (8.3%)	157 (8.0%)	90 (8.7%)
A.S.C (A.S.C ST+ and A.S	987 (33.1%)	644 (32.9%)	343 (33.3%)
Silent ischemia	324 (10.9%)	208 (10.6%)	116 (11.3%)
Stable angina	1337 (44.8%)	882 (45.1%)	455 (44.2%)
Other	324 (10.9%)	210 (10.7%)	114 (11.1%)
BMI, kg/m^2	27.6 ± 4.9	27.6 ± 4.7	27.7 ± 5.2
Risk factors			
Hypertension	2052 (68.7%)	1333 (68.2%)	719 (69.8%)
Hypercholesteromlemia	2025 (67.8%)	1331 (68.1%)	694 (67.4%)
Family history	1005 (33.7%)	658 (33.7%)	347 (33.7%)
Diabetes II	734 (24.6%)	497 (25.4%)	237 (23.0%)
Insulin treated diabetes	222 (7.4%)	151 (7.7%)	71 (6.9%)
Diabetes I	115 (3.9%)	73 (3.7%)	42 (4.1%)
Current smoker	622 (20.8%)	413 (21.1%)	209 (20.3%)

p= NS

6. Conclusion

At 30d (secondary endpoint) there is no difference in TVF between the two stents. At one year FU (primary endpoint) the stent thrombosis rate will be carefully assessed as there is a significant difference at 30 d.

Table 2. Procedural Characteristics

	Total	PROMUS Element™	Xience Prime™
Patient number	**2985**	**1955**	**1030**
Mean number of procedure per patient	1.0 ± 0.2	1.1 ± 0.2	1.0 ± 0.2
Vascular access			
Femoral	1170 (37.6%)	768 (37.6%)	402 (37.5%)
Humeral	2 (0.1%)	2 (0.1%)	0 (0.0%)
Radial	1931 (62.0%)	1266 (62.0%)	665 (62.1%)
Access Sheath size			
5F	174 (5.6%)	123 (6.0%)	51 (4.8%)
6F	2784 (89.4%)	1828 (89.5%)	956 (89.3%)
7F	129 (4.1%)	76 (3.7%)	53 (4.9%)
Other	26 (0.8%)	15 (0.7%)	11 (1.0%)
Procedure Success	3042 (97.7%)	1996 (97.7%)	1046 (97.7%)
Mean number of stent implanted per patient	1.5 ± 0.8	1.5 ± 0.8	1.5 ± 0.8

Table 3. 30d outcome (preliminary results)

MACE/Stent Thrombosis	Total (2 985 pts)	PROMUS Element™ (1955 pts)	Xience Prime™ (1030 pts)	Two tailed p
Target Vessel Failure	29	21	8	0,430877578
	0,97%	1,07%	0,78%	
Cardiac Death	13	9	4	1
	0,44%	0,46%	0,39%	
All death (including cardiac death)	15	11	4	0,521996809
	0,50%	0,56%	0,39%	
M.I. Related to target vessel	14	11	3	0,404
	0,47%	0,56%	0,29%	
All M.I. (including M.I. related to target vessel)	18	12	6	0,916407189
	0,60%	0,61%	0,58%	
Target Lesion Revascularisation	4	4	0	0,3055
	0,13%	0,20%	0,00%	
Target Vessel Revascularisation	8	6	2	0,7224
	0,27%	0,31%	0,19%	
Stent thrombosis	9	9	0	0,0322
	0,30%	0,46%	0,00%	
definite	4	4	0	0,3055
	0,13%	0,20%	0,00%	
probable	5	5	0	0,1715
	0,17%	0,26%	0,00%	

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