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TCTAP 2017
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Update on BVS

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What are the expectations from Bioabsorbable stents

Bioabsorbable stent would avoid or overcome the above-mentioned downsides of metal in the artery.

Bioabsorbable stents would avoid the loss of (and perhaps restore) normal vasomotion improve persistently abnormal endothelial function, and permit vessel remodeling not possible within the metallic stent cage.
Will not compromise future CABG if needed
Reduce late stent thrombosis

What About Recent Clinical Data ?

Meta-Analysis of 6 RCT

ABSORB Series and EVERBIO II and TROFI II

A Target lesion failure

TLF

	BVS Events	BVS Total	EES Events	EES Total	Weight (%)	Fixed-effects odds ratio (95% CI)
ABSORB China	8	238	10	237	9·3	0·79 (0·31–2·03)
ABSORB II	16	335	5	166	9·6	1·55 (0·61–3·92)
ABSORB III	102	1313	41	677	63·9	1·29 (0·09–1·85)
ABSORB Japan	11	265	5	133	7·3	1·11 (0·38–3·19)
EVERBIO II	9	78	11	80	9·4	0·82 (0·32–2·09)
TROFI II	1	95	0	96	0·5	7·47 (0·15–376·35)
Overall	**147**	**2324**	**72**	**1389**	**100**	**1·20 (0·90–1·60)**

Heterogeneity: χ^2=2·71, df=5; p=0·74; I^2=0%
Test for overall effect: Z=1·25; p=0·21
Random-effects odds ratio 1·20 (95% CI 0·90–1·60)

B Myocardial infarction

MI

	BVS Events	BVS Total	EES Events	EES Total	Weight (%)	Fixed-effects odds ratio (95% CI)
ABSORB China	5	238	4	237	6·1	1·25 (0·33–4·66)
ABSORB II	15	335	2	166	10·1	2·71 (0·97–7·56)
ABSORB III	90	1313	38	677	74·5	1·23 (0·84–1·79)
ABSORB Japan	9	265	3	133	7·2	1·48 (0·44–4·98)
EVERBIO II	1	78	1	80	1·4	1·03 (0·06–16·55)
TROFI II	1	95	0	96	0·7	7·47 (0·15–376·35)
Overall	**121**	**2324**	**48**	**1389**	**100**	**1·36 (0·98–1·89)**

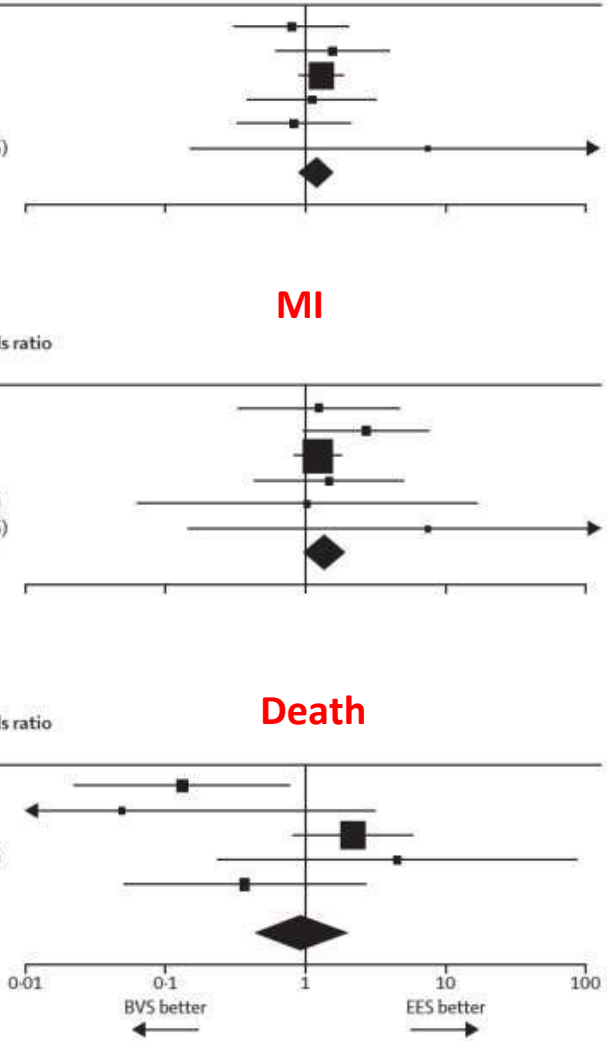
Heterogeneity: χ^2=2·80, df=5; p=0·73; I^2=0%
Test for overall effect: Z=1·86; p=0·06
Random-effects odds ratio 1·36 (95% CI 0·98–1·89)

C Death

Death

	BVS Events	BVS Total	EES Events	EES Total	Weight (%)	Fixed-effects odds ratio (95% CI)
ABSORB China	0	238	5	237	18·0	0·13 (0·02–0·77)
ABSORB II	0	335	1	166	3·2	0·05 (0·00–3·15)
ABSORB III	15	1313	3	677	58·1	2·18 (0·82–5·81)
ABSORB Japan	2	265	0	133	6·4	4·51 (0·24–85·41)
EVERBIO II	1	78	3	80	14·2	0·37 (0·05–2·68)
TROFI II	0	95	0	96		Not estimable
Overall	**18**	**2324**	**12**	**1389**	**100**	**0·95 (0·45–2·00)**

Heterogeneity: χ^2=11·47, df=4; p=0·02; I^2=65%
Test for overall effect: Z=0·14; p=0·89
Random-effects odds ratio 0·59 (95% CI 0·12–2·74)



Lancet 2016; 387: 537–44

Meta-Analysis of 6 RCT

ABSORB Series and EVERBIO II and TROFI II

A Target lesion revascularisation

	BVS Events	BVS Total	EES Events	EES Total	Weight (%)	Fixed-effects odds ratio (95% CI)
ABSORB China	7	238	7	237	13·2	1·00 (0·34–2·88)
ABSORB II	4	335	3	166	5·9	0·64 (0·13–3·12)
ABSORB III	42	1313	19	677	51·6	1·14 (0·67–1·95)
ABSORB Japan	7	265	5	133	10·1	0·68 (0·20–2·31)
EVERBIO II	8	78	11	80	16·3	0·72 (0·28–1·87)
TROFI II	2	95	1	96	2·9	1·98 (0·20–19·29)
Overall	**70**	**2324**	**46**	**1389**	**100**	**0·97 (0·66–1·43)**

Heterogeneity: χ^2=1·69, df=5; p=0·89; I^2=0%
Test for overall effect: Z=0·16; p=0·87
Random-effects odds ratio 0·97 (95% CI 0·66–1·43)

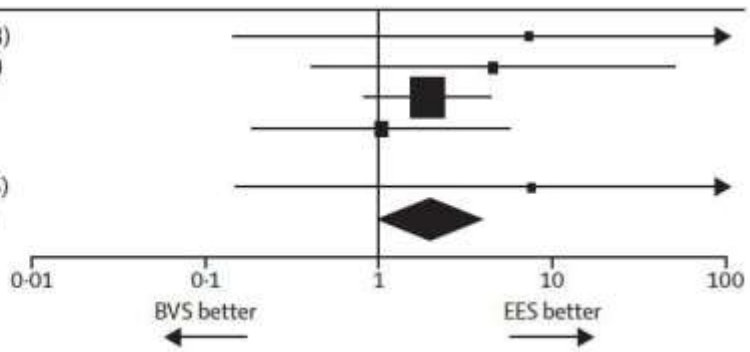
TLR

B Definite or probable stent thrombosis

	BVS Events	BVS Total	EES Events	EES Total	Weight (%)	Fixed-effects odds ratio (95% CI)
ABSORB China	1	238	0	232	3·1	7·21 (0·14–363·23)
ABSORB II	3	335	0	166	8·2	4·49 (0·04–49·92)
ABSORB III	20	1301	5	675	69·1	1·89 (0·82–4·34)
ABSORB Japan	4	262	2	133	16·5	1·02 (0·18–5·58)
EVERBIO II	0	78	0	80		Not estimable
TROFI II	1	95	0	96	3·1	7·47 (0·15–376·35)
Overall	**29**	**2309**	**7**	**1382**	**100**	**1·99 (1·00–3·98)**

Heterogeneity: χ^2=1·90, df=4; p=0·75; I^2=0%
Test for overall effect: Z=1·96; p=0·05
Random-effects odds ratio 1·99 (95% CI 1·00–3·98)

ST



Lancet 2016; 387: 537–44

Meta-Analysis of 6 RCT

ABSORB Series and EVERBIO II and TROFI II

A In-device late lumen loss

	BVS			EES			Weight	Mean difference
	Mean	(SD)	Total	Mean	(SD)	Total	(%)	(95% CI)
ABSORB China	0·24	(0·39)	240	0·10	(0·32)	246	33·3	0·14 (0·08 to 0·20)
ABSORB Japan	0·19	(0·31)	272	0·16	(0·33)	137	30·4	0·03 (–0·04 to 0·10)
EVERBIO II	0·28	(0·39)	75	0·24	(0·32)	103	11·6	0·04 (–0·07 to 0·15)
TROFI II	0·17	(0·24)	94	0·08	(0·28)	98	24·7	0·09 (0·02 to 0·16)
Overall			**681**			**584**	**100**	**0·08 (0·05–0·12)**

Heterogeneity: χ^2=6·19, df=3; p=0·10; I^2=52%

Test for overall effect: Z=4·42; p<0·0001

Random-effects mean difference 0·08 (95% CI 0·03–0·13)

In -device LL

B In-segment late lumen loss

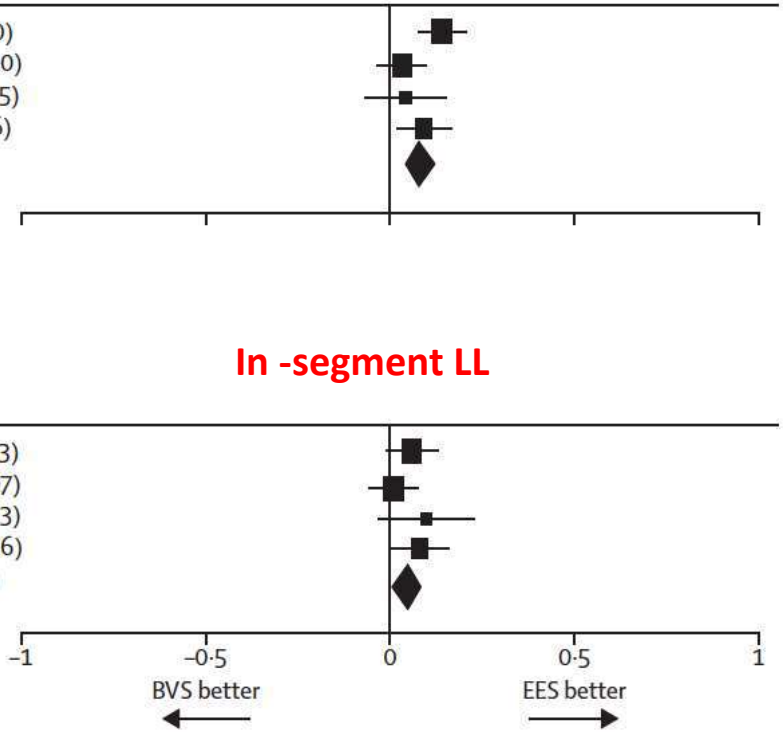
	BVS			EES			Weight	Mean difference
	Mean	(SD)	Total	Mean	(SD)	Total	(%)	(95% CI)
ABSORB China	0·19	(0·40)	240	0·13	(0·37)	246	31·9	0·06 (–0·01 to 0·13)
ABSORB Japan	0·13	(0·30)	272	0·12	(0·32)	137	36·2	0·01 (–0·05 to 0·07)
EVERBIO II	0·30	(0·44)	75	0·20	(0·43)	103	8·9	0·10 (–0·03 to 0·23)
TROFI II	0·14	(0·28)	94	0·06	(0·29)	98	23·0	0·08 (–0·00 to 0·16)
Overall			**681**			**584**	**100**	**0·05 (0·01–0·09)**

Heterogeneity: χ^2=2·67, df=3; p=0·45; I^2=0%

Test for overall effect: Z=2·54; p=0·01

Random-effects mean difference 0·05 (95% CI 0·01–0·09)

In -segment LL



Lancet 2016; 387: 537–44

Interventional cardiology

openheart

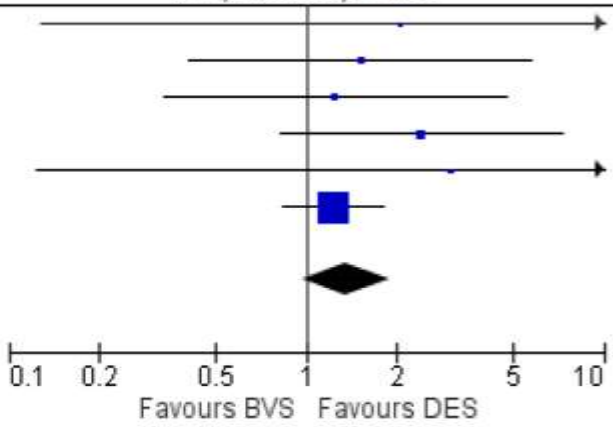
Use of bioresorbable vascular scaffold: a meta-analysis of patients with coronary artery disease

Mohamed Farag,[1,2] Nikolaos Spinthakis,[1] Diana A Gorog,[1,2,3] Abhiram Prasad,[4] Keith Sullivan,[2] Zaki Akhtar,[1] Neville Kukreja,[1] Manivannan Srinivasan[1]

C **MI**

Study or Subgroup	BVS Events	BVS Total	DES Events	DES Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
EVERBIO II	1	78	1	160	1.5%	2.06 [0.13, 33.46]	2014
ABSORB JAPAN	9	265	3	133	6.5%	1.52 [0.41, 5.72]	2015
ABSORB CHINA	5	238	4	237	6.5%	1.25 [0.33, 4.71]	2015
ABSORB II	19	335	4	166	9.5%	2.44 [0.81, 7.28]	2015
ABSORB STEMI TROFI II ST	1	95	0	96	1.1%	3.06 [0.12, 76.15]	2015
ABSORB III	90	1313	38	677	74.8%	1.24 [0.84, 1.83]	2015
Total (95% CI)		**2324**		**1469**	**100.0%**	**1.36 [0.97, 1.91]**	
Total events	125		50				

Heterogeneity: Tau² = 0.00; Chi² = 1.69, df = 5 (P = 0.89); I² = 0%
Test for overall effect: Z = 1.79 (P = 0.07)



Test for overall effect using fixed-effect model: Z = 1.87 (P = 0.06)

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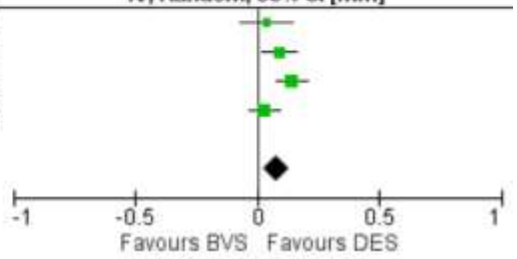
C : LLL

Study or Subgroup	BVS Mean [mm]	BVS SD [mm]	BVS Total	DES Mean [mm]	DES SD [mm]	DES Total	Weight	Mean Difference IV, Random, 95% CI [mm]	Year
EVERBIO II	0.28	0.39	75	0.24	0.32	103	16.7%	0.04 [-0.07, 0.15]	2014
ABSORB STEMI TROFI II ST	0.17	0.24	94	0.08	0.28	98	25.7%	0.09 [0.02, 0.16]	2015
ABSORB CHINA	0.24	0.39	240	0.1	0.32	246	29.3%	0.14 [0.08, 0.20]	2015
ABSORB JAPAN	0.19	0.31	272	0.16	0.33	137	28.3%	0.03 [-0.04, 0.10]	2015
Total (95% CI)			**681**			**584**	**100.0%**	**0.08 [0.03, 0.13]**	

Heterogeneity: Tau² = 0.00; Chi² = 6.19, df = 3 (P = 0.10); I² = 52%

Test for overall effect: Z = 2.88 (P = 0.004)



International Journal of Cardiology 221 (2016) 1087–1094

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Review

Safety and efficacy of everolimus-eluting bioresorbable vascular scaffolds versus durable polymer everolimus-eluting metallic stents assessed at 1-year follow-up: A systematic review and meta-analysis of studies☆

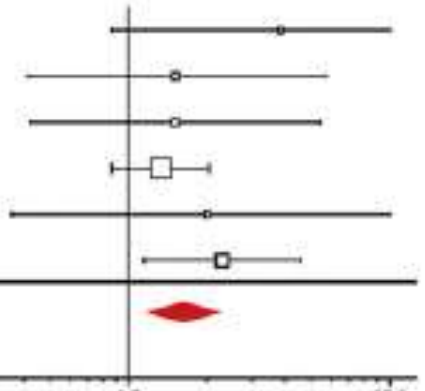
Bertrand N. Mukete [a,1], Liefke C. van der Heijden [b,1], Kenneth Tandjung [b], Hassan Baydoun [a], Kapil Yadav [a], Qusai A. Saleh [a], Carine J.M. Doggen [c], Nidal Abi Rafeh [a], Thierry H. Le Jemtel [a], Clemens von Birgelen [b,c,*]

C) Target vessel myocardial infarction

Study	Events / Total		Odds ratio (95%-CI)	p-value	Weight
	BVS	EES			
ABSORB-II	15 / 335	2 / 166	3.84 (0.87 – 17.01)	0.08	4.71
ABSORB Japan	9 / 266	3 / 133	1.52 (0.41 – 5.72)	0.53	5.94
BVS-EXAMINATION	6 / 290	4 / 290	1.51 (0.42 – 5.41)	0.53	6.40
ABSORB-III	70 / 1313	31 / 677	1.33 (0.87 – 2.04)	0.19	57.33
ABSORB China	4 / 238	2 / 237	2.01 (0.36 – 11.07)	0.42	3.57
ABSORB Extend	27 / 812	12 / 812	2.29 (1.15 – 4.56)	0.02	22.05
Fixed			1.63 (1.18 – 2.25)	<0.01	
Random			1.63 (1.18 – 2.25)	<0.01	

Heterogeneity: $I^2 = 0$; $Q = 3.16$, $df = 5$; $p = 0.68$

Test for overall effect: $Z = 2.96$ ($p < 0.01$)



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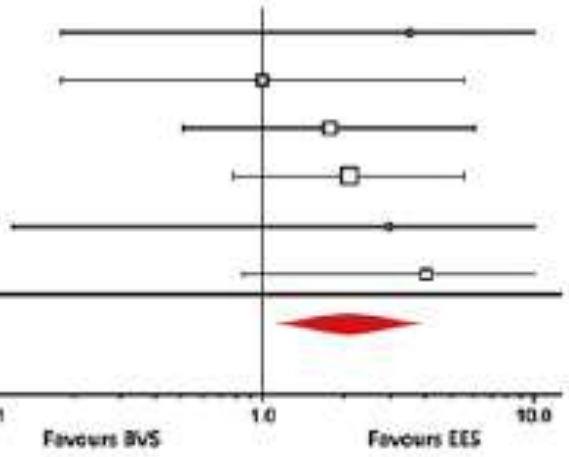
F) Definite-or-probable scaffold/stent thrombosis

Study	Events / Total		Odds ratio (95%-CI)	p-value	Weight
	BVS	EES			
ABSORB-II	3 / 335	0 / 166	3.51 (0.18 – 68.26)	0.41	4.28
ABSORB Japan	4 / 265	2 / 133	1.00 (0.18 – 5.55)	1.00	12.90
BVS-EXAMINATION	7 / 290	4 / 290	1.77 (0.51 – 6.11)	0.37	24.56
ABSORB-III	20 / 1301	5 / 675	2.08 (0.78 – 5.56)	0.15	38.04
ABSORB China	1 / 238	0 / 232	3.00 (0.12 – 74.02)	0.50	3.67
ABSORB Extend	8 / 812	2 / 812	4.03 (0.85 – 19.04)	0.08	15.65
Fixed			2.10 (1.13 – 3.87)	0.02	
Random			2.10 (1.13 – 3.87)	0.02	

Heterogeneity: $I^2 = 0$; $Q = 1.63$, df = 5; p = 0.90

Test for overall effect: Z = 2.35 (p = 0.02)

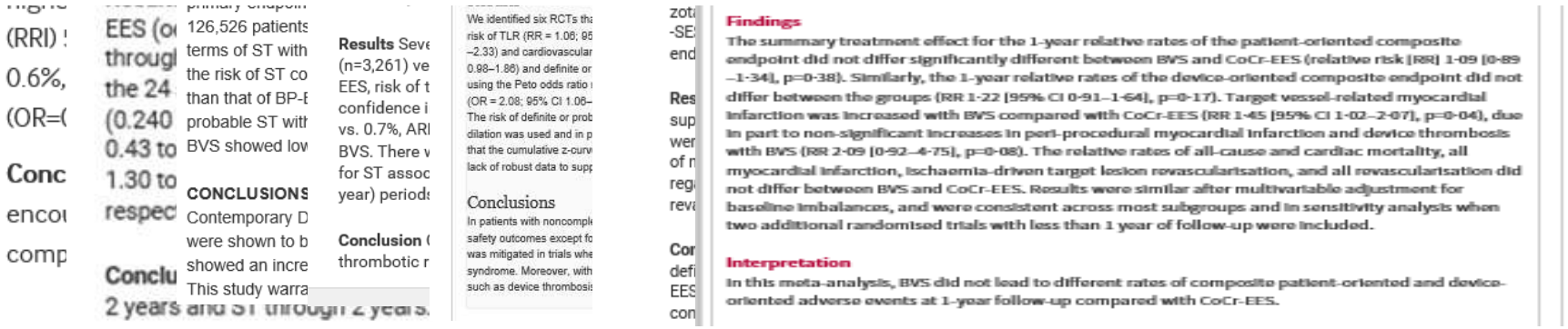


2016-2017 :

7 meta-analysis (mostly at study level) :

Efficacy is comparable to Mettalic DES

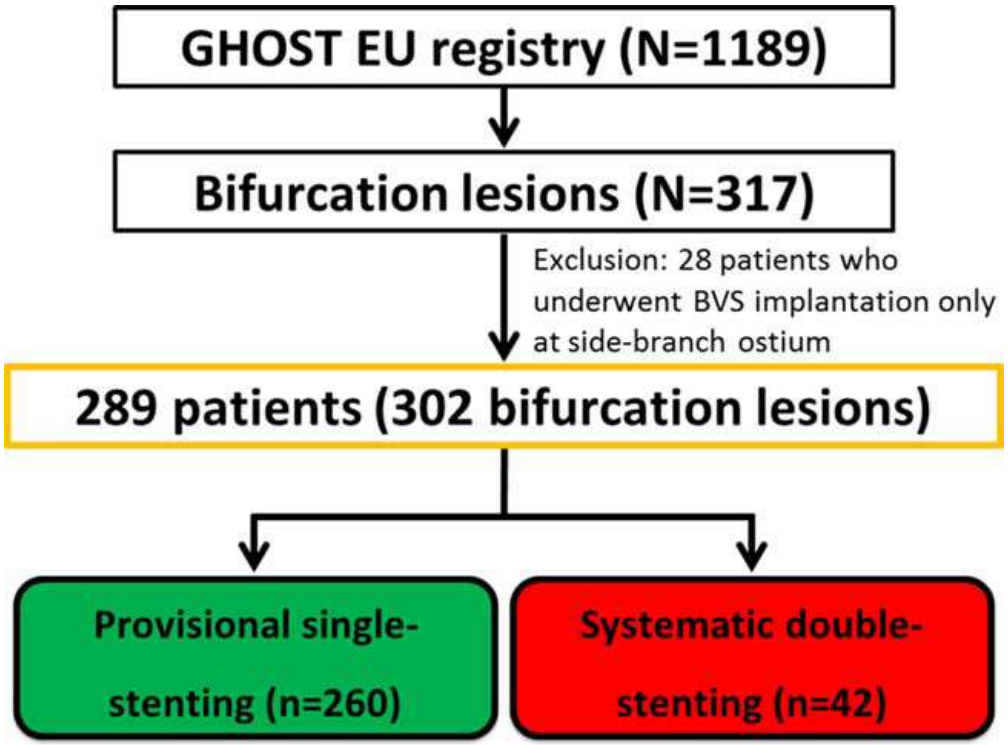
Safety : BVS are associated with significantly higher stent thrombosis

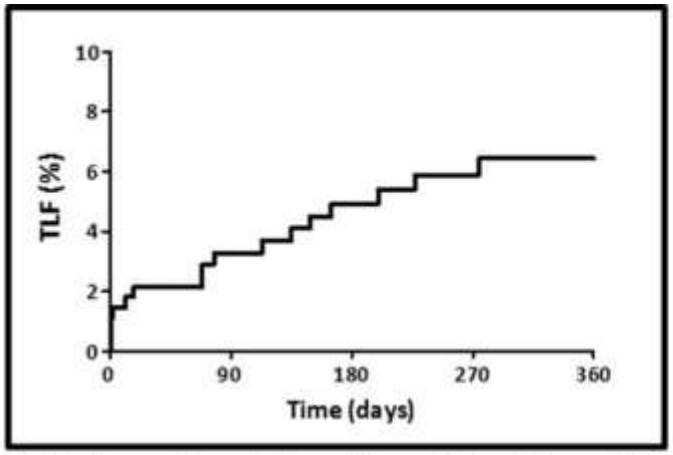


Catheterization and Cardiovascular Interventions 89:47–56 (2017)

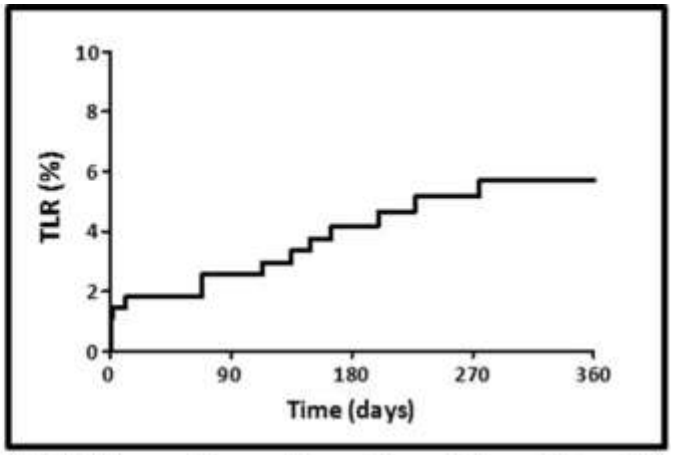
Bioresorbable Vascular Scaffold Use for Coronary Bifurcation Lesions: A Substudy from GHOST EU Registry

Toru Naganuma,[1,2] MD, Antonio Colombo,[1] MD, Maciej Lesiak,[3] MD, Davide Capodanno,[4] MD, PhD, Tommaso Gori,[5] MD, PhD, Holger Nef,[6] MD, Giuseppe Caramanno,[7] MD, Christoph Naber,[8] MD, Carlo Di Mario,[9] MD, Neil Ruparelia,[1] MD, Piera Capranzano,[4] MD, Jens Wiebe,[6] MD, Aleksander Araszkiewicz,[3] MD, Salvatore Geraci,[7] MD, Hiroyoshi Kawamoto,[1,2] MD, Stelios Pyxaras,[8] MD, Alessio Mattesini,[9] MD, Thomas Münzel,[5] MD, Corrado Tamburino,[4] MD, PhD, and Azeem Latib,[1]* MD

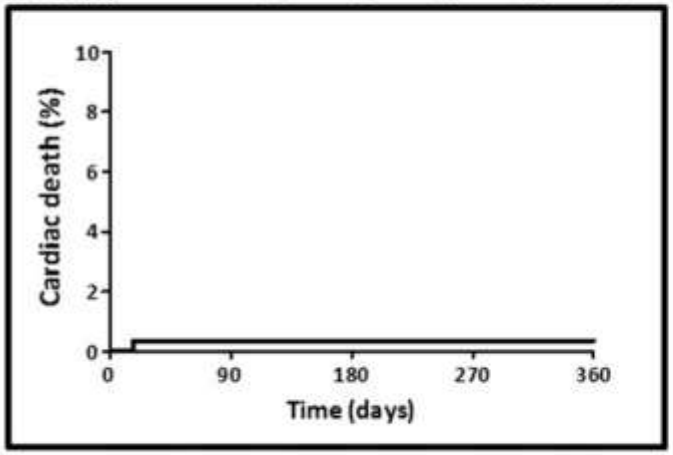




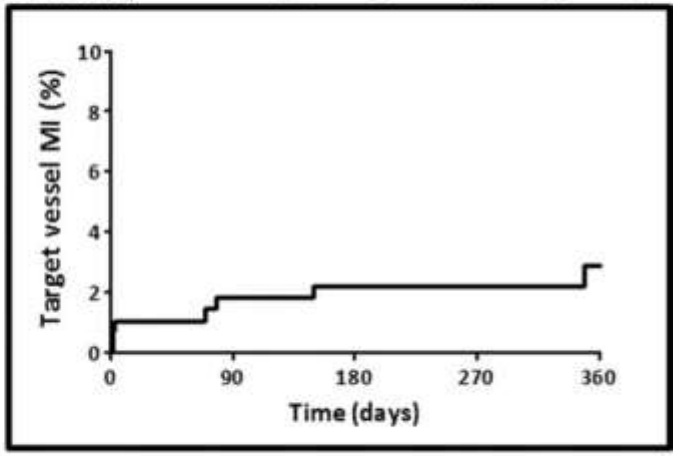
Time (days)	0	30	90	180	270	360
Number at risk	289	271	251	217	175	135
Event rate (%)		2.2	3.3	4.9	5.9	6.4



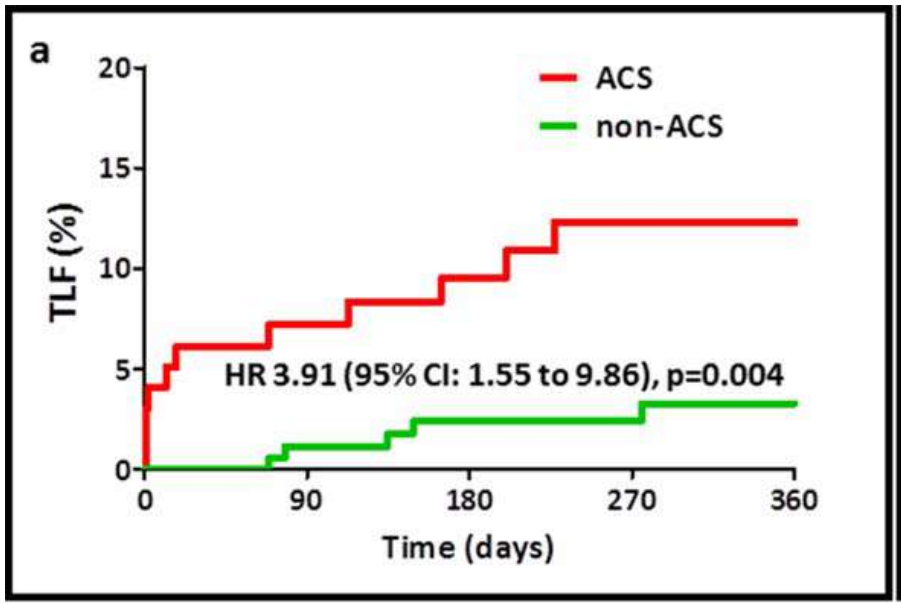
Time (days)	0	30	90	180	270	360
Number at risk	289	272	253	219	174	134
Event rate (%)		1.8	2.5	4.2	5.2	5.7

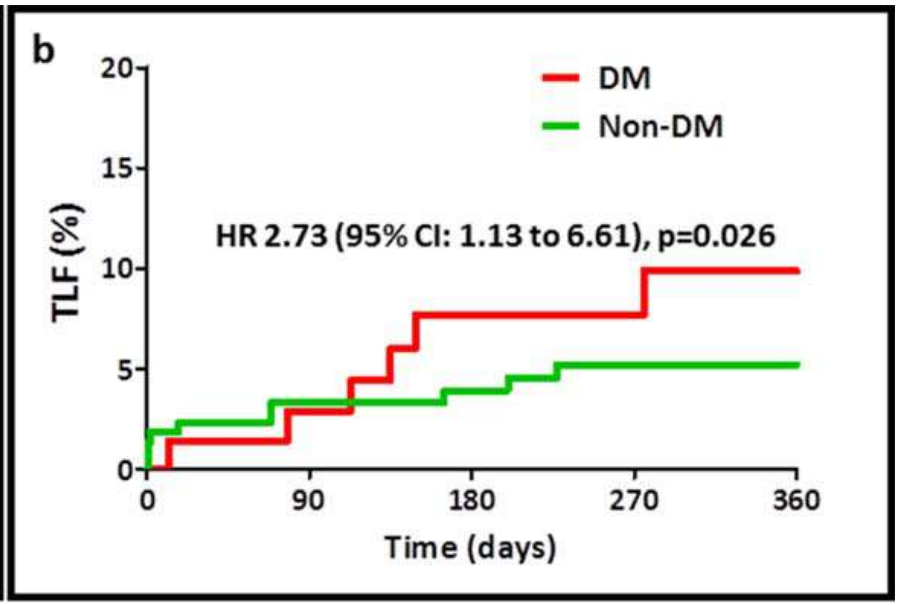


Time (days)	0	30	90	180	270	360
Number at risk	289	276	259	229	186	143
Event rate (%)		0.4	0.4	0.4	0.4	0.4



Time (days)	0	30	90	180	270	360
Number at risk	289	274	255	224	180	139
Event rate (%)		1.1	1.8	2.2	2.2	2.9





Time (days)	0	30	90	180	270	360
Number at risk						
ACS	99	90	85	73	59	49
Non-ACS	190	190	167	145	117	87
Event rate (%)						
ACS		6.1	7.2	9.5	12.3	12.3
Non-ACS		0	1.1	2.4	2.4	3.3

Time (days)	0	30	90	180	270	360
Number at risk						
DM	73	70	64	54	43	35
Non-DM	216	202	188	164	134	101
Event rate (%)						
DM		1.4	2.9	7.7	7.7	9.9
Non-DM		1.9	3.4	3.9	5.2	5.2

ISAR-ABSORB Registry

- 419 patients
- Routine angiographic surveillance 6–8 months.

	Patients
	419
Age (years)	66.6 ± 10.9
Male sex	321 (76.6)
Diabetes	132 (31.5)
Diabetes (insulin-treated)	43 (10.3)
Hypertension	361 (86.2)
Hypercholesterolemia	281 (67.1)
Current smoker	90 (21.5)
Glomerular filtration rate < 60 mL/min	98 (23.8)
Body mass index (kg/m^2)	27.8 ± 4.8
Left ventricular ejection fraction (%)	55.2 ± 9.4[a]
Previous MI	109 (26.0)
History of coronary bypass surgery	18 (4.3)
Multivessel disease	319 (76.1)
Clinical presentation	
Stable coronary artery disease	256 (61.1)
Unstable angina	48 (11.5)
Non-ST-elevation MI	80 (19.1)
ST-elevation MI	35 (8.4)

	Patients		
	419	6-month rate	12-month rate
Death	15	2.7	4.0
Cardiac death	9	1.7	2.4
MI	11	2.4	2.7
Death or MI	24	4.9	6.2
Definite stent thrombosis	10	2.0	2.6
Definite or probable stent thrombosis	12	2.4	3.1
Target lesion revascularization	33	4.2	9.1
Composite of death, MI, target lesion revascularization	49	7.3	13.1

CCI 2016;87:822-829

The NEW ENGLAND JOURNAL of MEDICINE

March 29, 2017DOI: 10.1056/NEJMoa1614954

ORIGINAL ARTICLE

Bioresorbable Scaffolds versus Metallic Stents in Routine PCI

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Table 1. Characteristics of the Patients at Baseline*

Characteristic	Scaffold Group (N=924)	Stent Group (N=921)
Age — yr	64.3±10.6	64.0±10.5
Male sex — no. (%)	670 (72.5)	700 (76.0)
Risk factors — no./total no. (%)		
Diabetes mellitus	171/924 (18.5)	153/921 (16.6)
Treated with oral medication	95/171 (55.6)	97/153 (63.4)
Treated with insulin	65/171 (38.0)	45/153 (29.4)
Hypertension	468/920 (50.9)	464/919 (50.5)
Hypercholesterolemia	344/915 (37.6)	350/914 (38.3)
Family history of coronary artery disease	451/886 (50.9)	469/886 (52.9)
Current smoker	248/867 (28.6)	273/861 (31.7)
History — no./total no. (%)		
Chronic renal failure	70/924 (7.6)	91/921 (9.9)
Ejection fraction <30%	22/910 (2.4)	17/900 (1.9)
Previous stroke or transient ischemic attack	46/923 (5.0)	58/921 (6.3)
Peripheral vascular disease	65/924 (7.0)	56/918 (6.1)
Previous myocardial infarction	166/924 (18.0)	172/921 (18.7)
Previous percutaneous coronary intervention	202/924 (21.9)	184/921 (20.0)
Previous bypass surgery	38/924 (4.1)	26/921 (2.8)
Clinical presentation — no. (%)		
ST-segment elevation myocardial infarction	240 (26.0)	225 (24.4)
Non–ST-segment elevation myocardial infarction	185 (20.0)	192 (20.8)
Unstable angina	70 (7.6)	87 (9.4)
Stable angina, documented ischemia, or both	361 (39.1)	370 (40.2)
Angiographically driven indication for PCI†	51 (5.5)	36 (3.9)
Other	17 (1.8)	11 (1.2)
SYNTAX score‡		
Mean	13.2±8.6	12.6±8.4

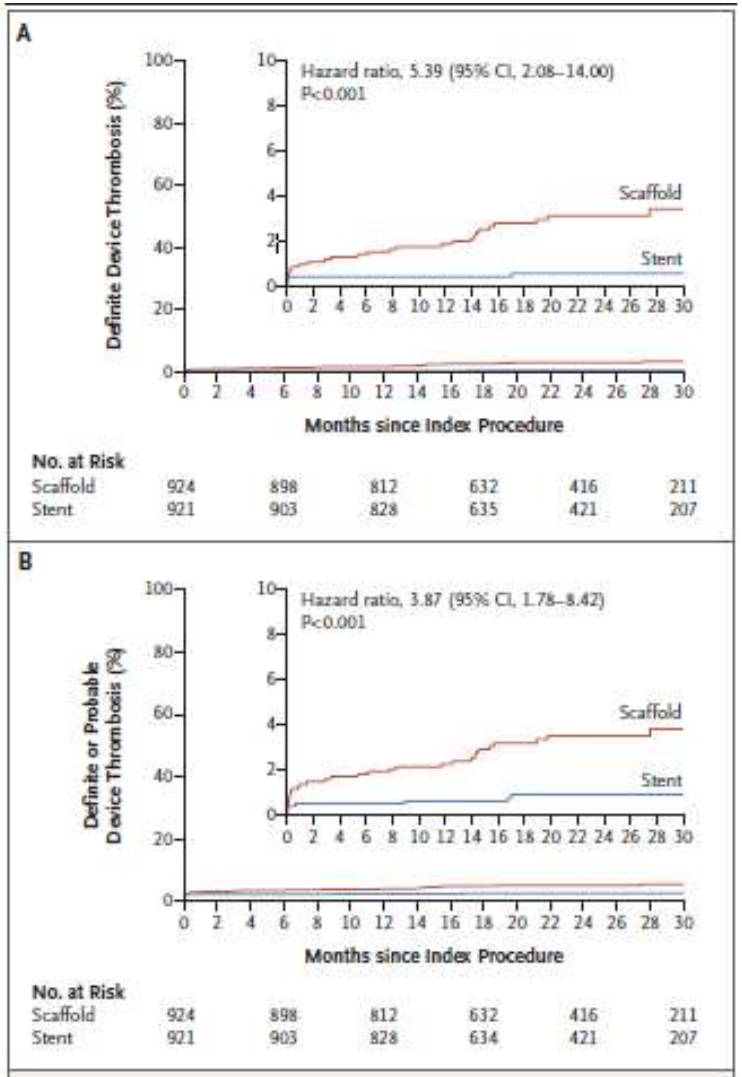
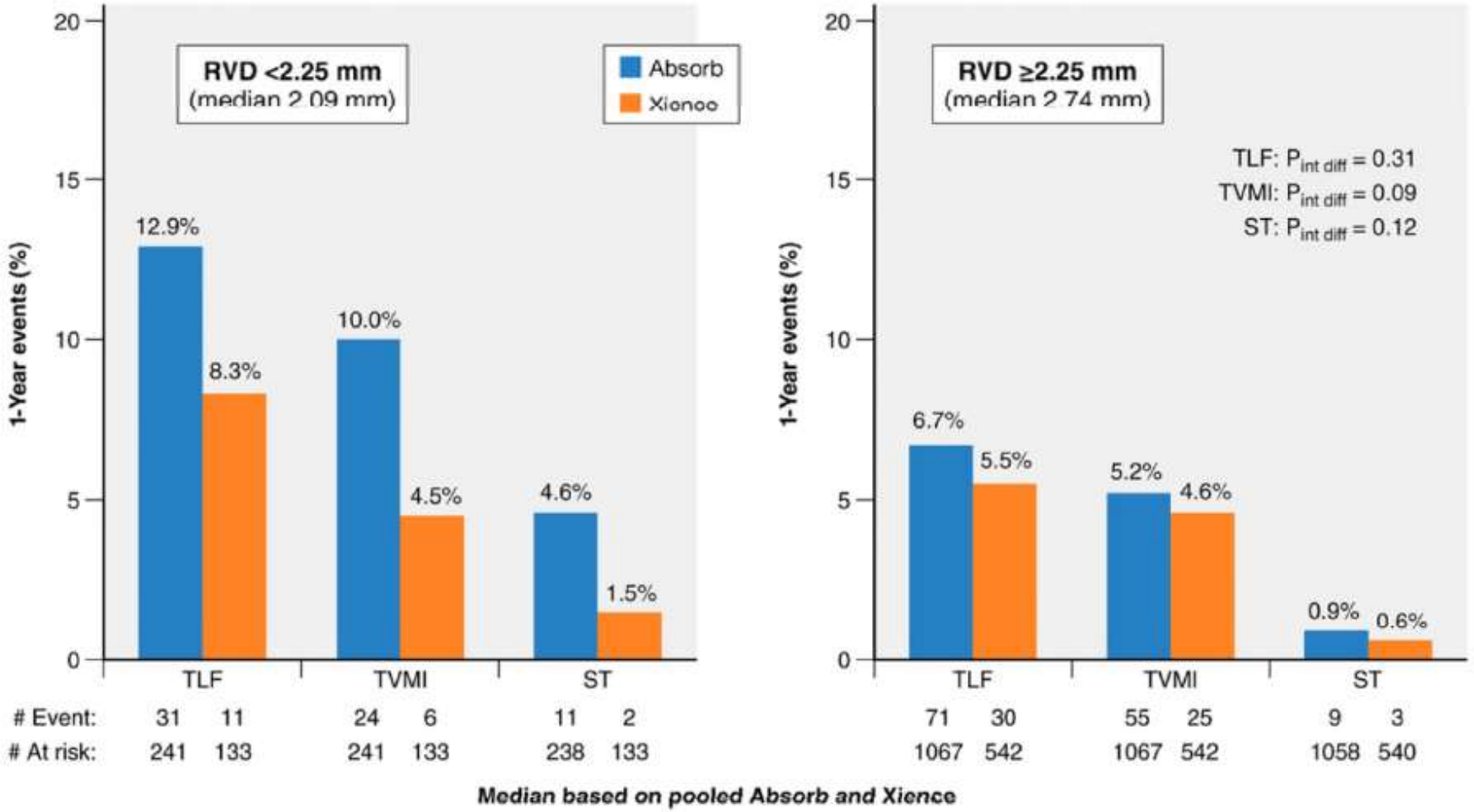


Figure 2. Kaplan–Meier Curves for Definite or Probable Device Thrombosis.

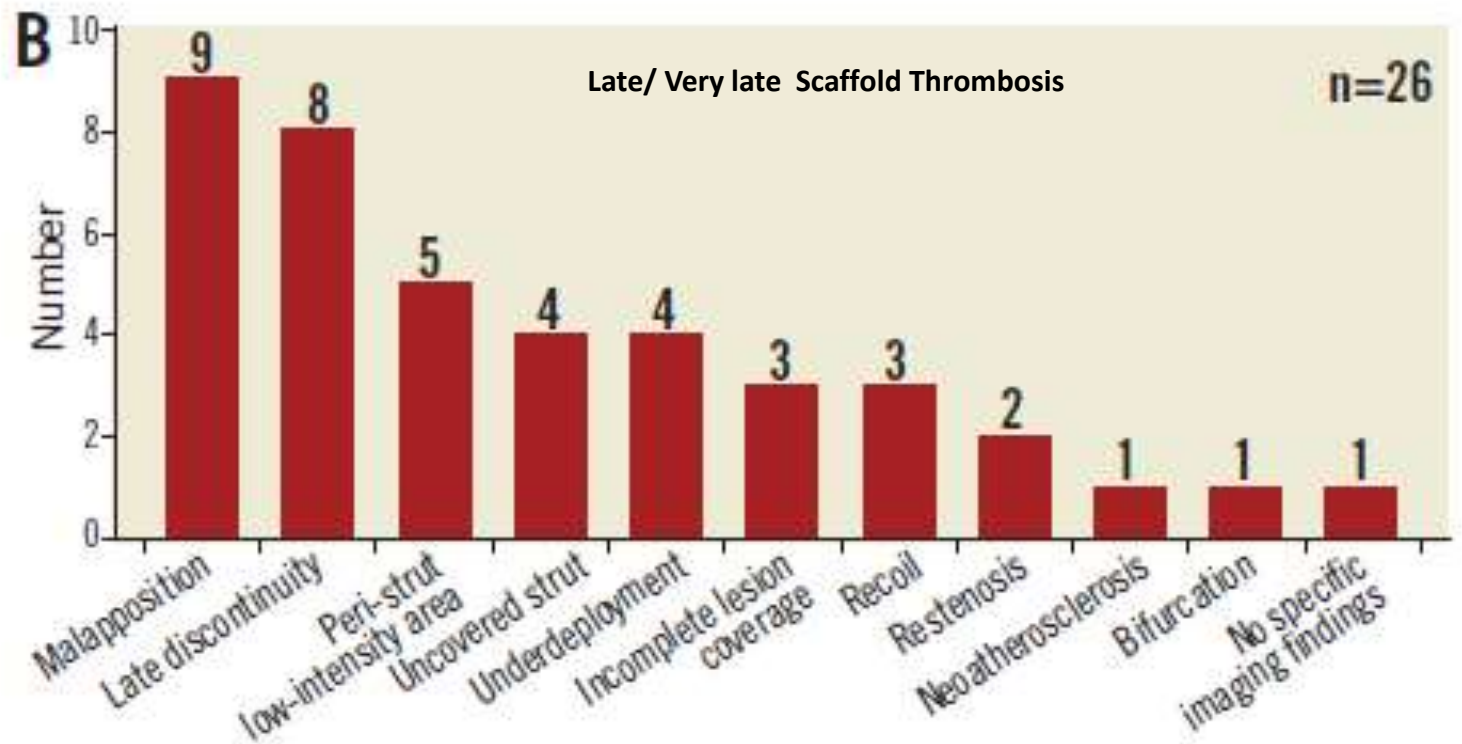
Shown are the event rates of definite device thrombosis (Panel A) and definite or probable device thrombosis (Panel B) through 30 months among the patients randomly assigned to receive bioresorbable vascular scaffolds or metallic stents. In each panel, the inset shows the same data on an enlarged y axis.

More Clinical Events to 1 year in smaller vessels - ABSORB III trial.



Circulation. 2016;134:168–182.

Possible mechanical causes of scaffold thrombosis: insights from case reports with intracoronary imaging



Y Sotomi et al ; EuroIntervention 2017; 12:1747-1756

RCT	pre- post-dilatation	ACS	B2/C	Calc.	Bif.	TLR	ScT
EVERBIO II (N=78)		37	30			8 (10)***	0 (0.0)
ABSORB TROFI II (N=95)		100		§		1 (1.1)	1 (1.1)
ABSORB II (N=335)		20	46	13§	#	4 (1.0)	3 (0.9)
ABSORB China (N=238)		65	75	18§	50#	7 (2.9)	1 (0.4)
ABSORB III (N=1,322)		27	69	§	#	42 (3.2)	20 (1.5)
ABSORB Japan (N=266)		10	76	35§	#	7 (2.6)	4 (1.5)
Cohort study	**pre- post-dilatation**	**ACS**	**B2/C**	**Calc.**	**Bif.**	**TLR**	**ScT**
ASSURE (N=183)			65	16	3	5 (2.8)	0 (0.0)
Gori et al (N=150)		100					3 (2.0)*
BVS-EXAMINATION (N=290)		100				5 (1.7)	7 (2.4)
POLAR-ACS (N=100)		100	58			1 (1.0)	1 (1.0)‡
GHOST-EU (N=1,189)		47	51		23	25 (2.5)**	23 (2.1)**
MICAT (N=1,305)		69	38		11		32 (3.0)
BVS EXPAND (N=249)		59	38	42	21	NA (3.4)	NA (1.7)
AMC registry (N=135)		50	67	11	15	8 (6.3)**	0 (0.0)**
ABSORB EXTEND (N=768)		27	44	13		11 (1.5)¶	4 (0.7)
ISAR-ABSORB (N=419)		39	49		13	33 (9.1)	12 (3.1)
Markovic et al (N=236)		44	81			7 (2.2)	0 (0.0)
Costopoulous et al (N=108)		48		35	18	1 (0.9)	1 (0.9)
RAI registry (N=122)		100			4	5 (4.1)**	3 (2.5)**
ESHC-BVS (N=100)		44	56	16	4	4 (4.0)	1 (1.0)
Tanaka et al (N=264)		14	75	23	47	14 (6.6)¶	3 (1.2)

0 25 50 75 100 (%)

What determines long-term outcomes using fully bioresorbable scaffolds - the device, the operator or the lesion?

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Optimised implantation strategy		
Correctable	**Uncertain whether correctable**	**Not correctable**
Malapposition Incomplete lesion coverage Underexpansion Acute disruption Overlap Acute recoil Uncovered struts Bifurcation	Late discontinuity Late recoil Restenosis	Peri-strut low intensity area Neoatherosclerosis

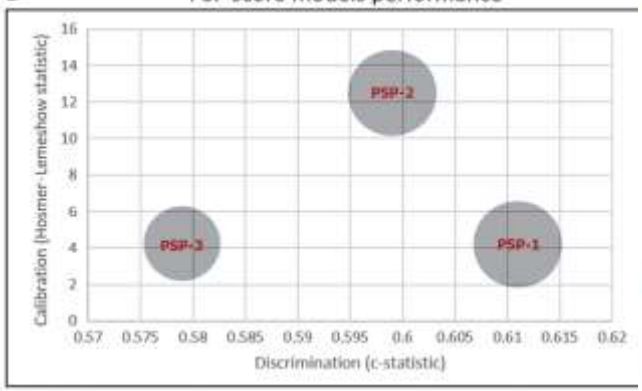
Euro**Intervention** 2017;12-online publish-ahead-of-print January 2017

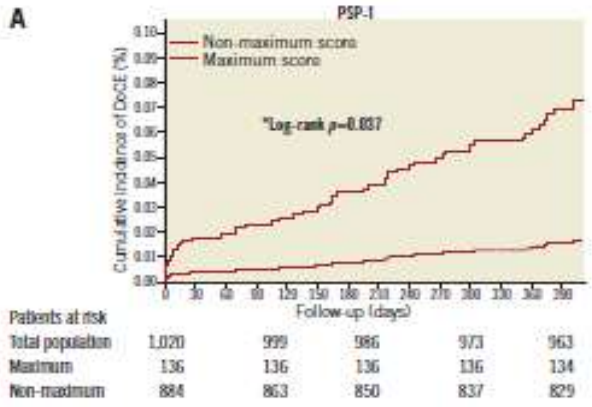
Predilation, sizing and post-dilation scoring in patients undergoing everolimus-eluting bioresorbable scaffold implantation for prediction of cardiac adverse events: development and internal validation of the PSP score

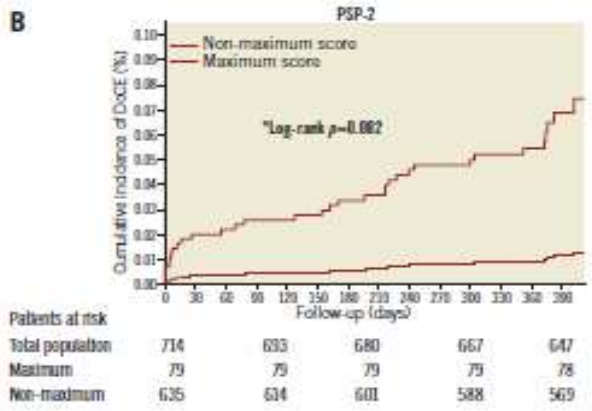
A PSP score models estimation

	PSP-1	PSP-2	PSP-3
Predilation	Not performed=0 Performed=0.63	Not performed or residual stenosis ≥30%=0 Residual stenosis <30%=1.56	Not performed=0 Performed=0.63
Scaffold sizing	Incorrect=0 Correct*=1.96		
Post-dilation	Not performed, over-expanded† or performed with a 1:1 NC balloon*=0 Performed with a NC balloon >1:1‡=1.93	Not performed, over-expanded† or performed with a 1:1 NC balloon*=0 Performed with a NC balloon >1:1‡=1.93	Not performed, over-expanded†, or performed with a 1:1 NC balloon pressure <16 atm=0 Performed with a NC balloon pressure ≥16 atm=1.06
Maximum score	4.52	5.49	3.65

B PSP score models performance







L Ortega Paz et al ; EuroIntervention 2017; 12 (online published ahead March 2017)

Clinical outcomes of a real-world cohort following bioresorbable vascular scaffold implantation utilising an optimised implantation strategy

Table 4. Clinical outcomes at 1 and 2 years.

N=264 patients	1 year	2 years
TLF	17 (7.9%)	22 (11.6%)
Cardiac death	3 (1.3%)	4 (2.0%)
Target vessel MI	4 (1.8%)	4 (1.8%)
TLR	14 (6.6%)	19 (10.4%)
All-cause death	6 (2.8%)	7 (3.5%)
Any myocardial infarction	5 (2.3%)	5 (2.3%)
TVR	17 (8.0%)	25 (13.8%)
Definite/probable ST	3 (1.2%)	3 (1.2%)

Event rates estimated using Kaplan-Meier analysis. MI: myocardial infarction; ST: scaffold thrombosis; TLF: target lesion failure; TLR: target lesion revascularisation; TVR: target vessel revascularisation

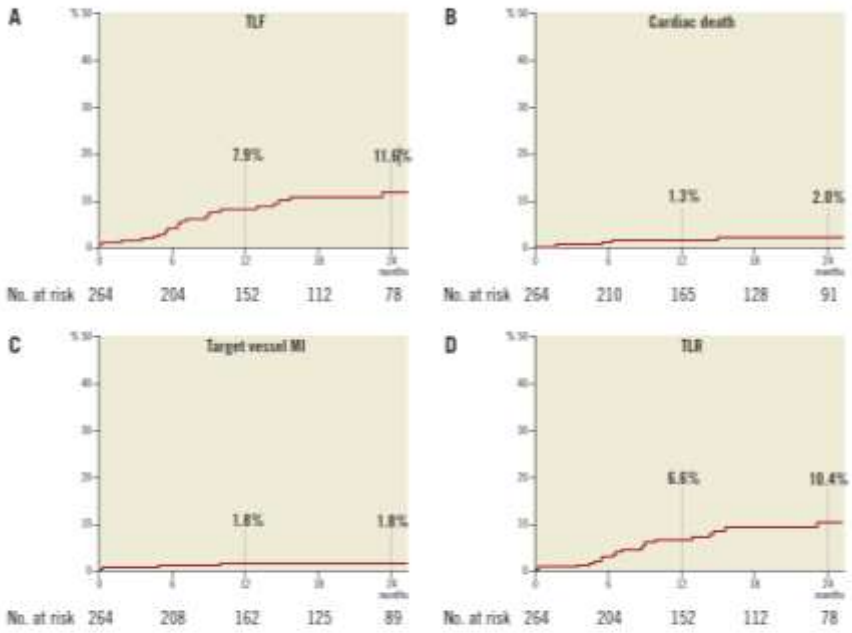


Figure 1. *Kaplan-Meier curves. A) Target lesion failure. B) Cardiac death. C) Target vessel myocardial infarction. D) Target lesion revascularisation.*

A Tanaka et al ; EuroIntyervention 2017;12:1730-1737

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Vasomotor Response to Nitroglycerine Over 5 Years Follow-up After Everolimus Eluting Bioresorbable Scaffold Implantation

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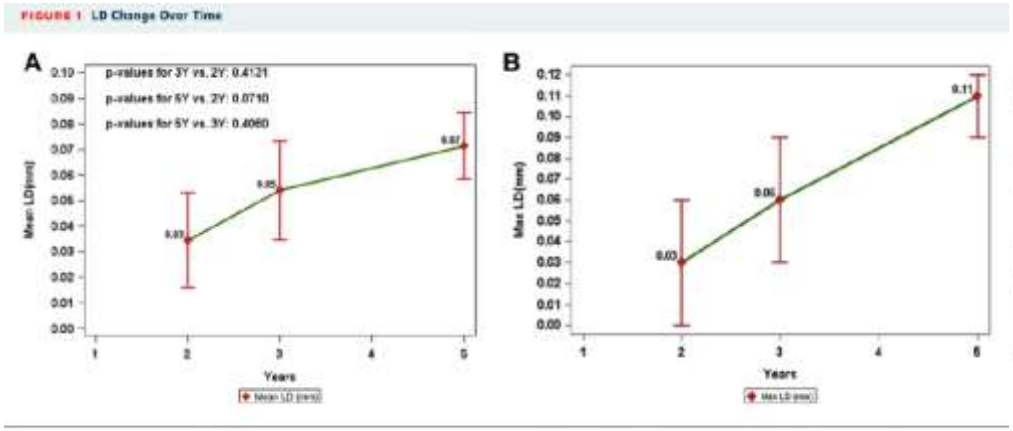
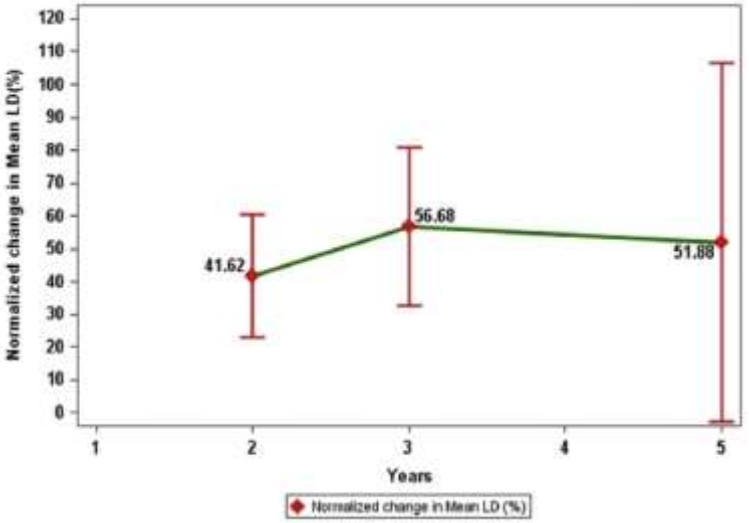


(A) Progression of mean lumen diameter (LD) change after nitroglycerin injection over time. Plot with CIs. (B) Progression of maximal LD change after nitroglycerin injection over time. Plot with CIs. CI = confidence interval.



At 5 years : No improvement in response to NTG using mean lumen diameter change by QCA. Only the maximal LD change increased significantly.

Moreover , the degree of response to NTG remained lower than in adjacent segments.

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EuroIntervention 2017;12:2031

Neoatherosclerosis: an emerging and conceptually unexpected cause of very late bioresorbable vascular scaffold failure

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This paper also includes supplementary data published online at: http://www.pcronline.com/eurointervention/113th_issue/331

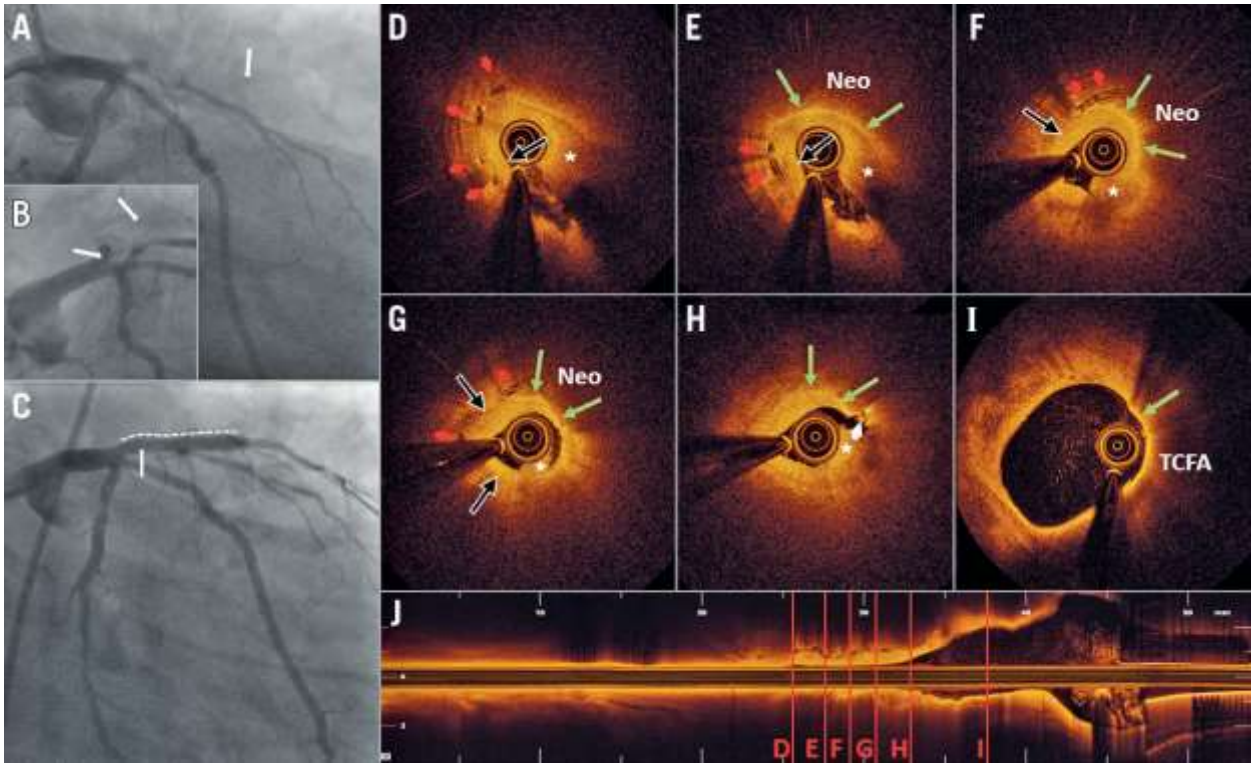

IMAGE IN CARDIOLOGY
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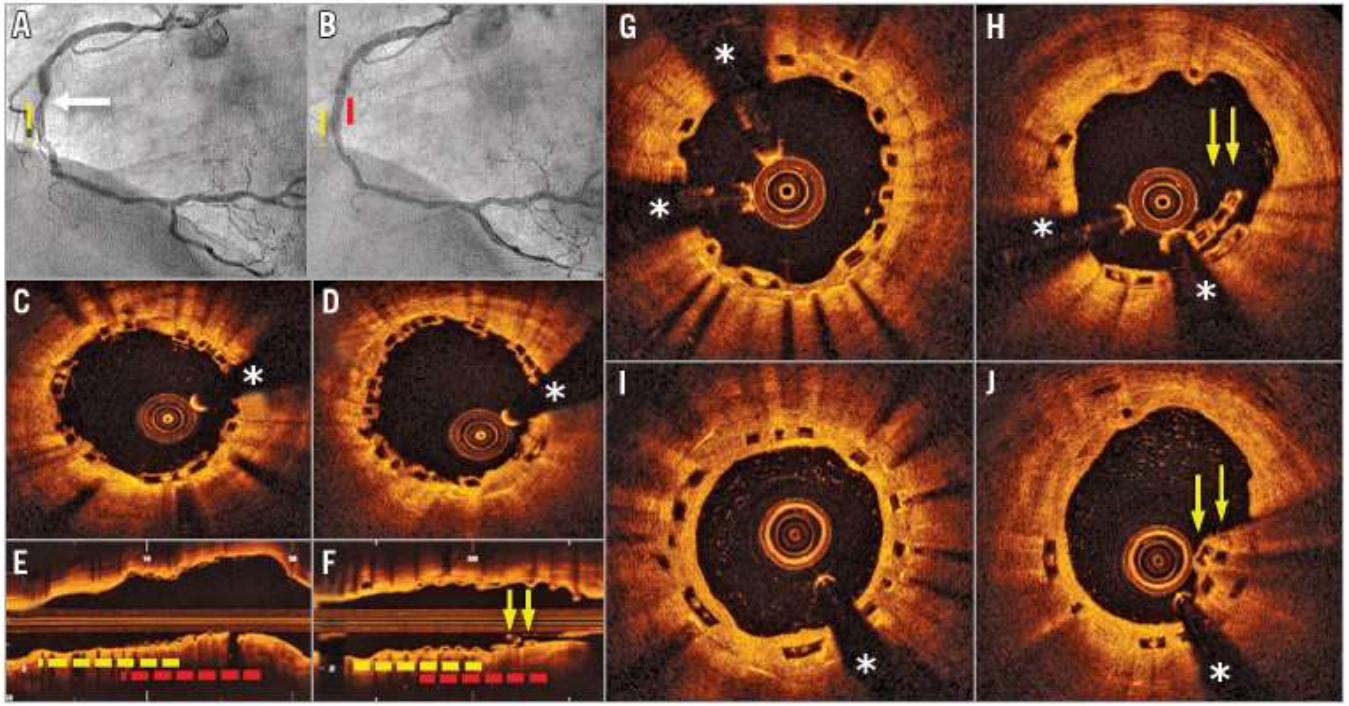
EuroIntervention 2017;12:1643

Delayed fracture of a bioresorbable vascular scaffold implanted for in-stent restenosis

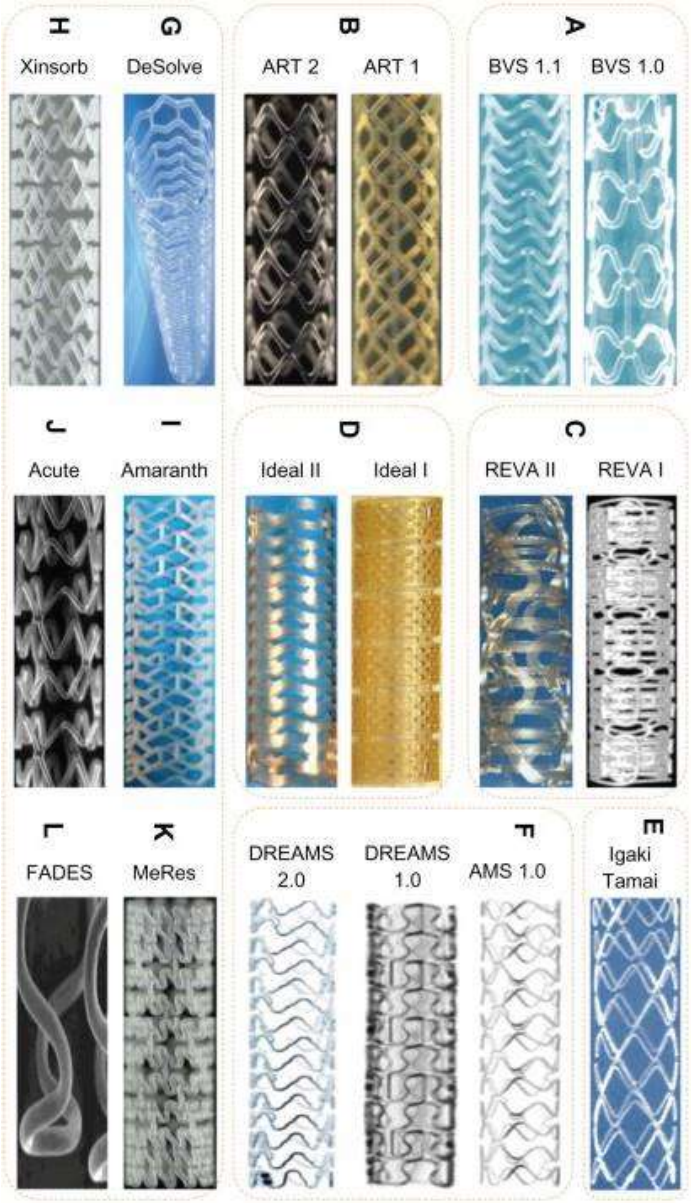
Teresa Bastante, MD; Javier Cuesta, MD; Fernando Rivero, MD; Marcos García-Guimaraes, MD; Amparo Benedicto, MD; Fernando Alfonso*, MD, PhD

Department of Cardiology, Hospital Universitario de La Princesa, Madrid, Spain



A 61-year-old woman presented with effort angina one year

complete neointimal coverage of the fractured BVS (**Panel I**,


H
Xinsorb
G
DeSolve
B
ART 2
ART 1
A
BVS 1.1
BVS 1.0
J
Acute
I
Amaranth
D
Ideal II
Ideal I
C
REVA II
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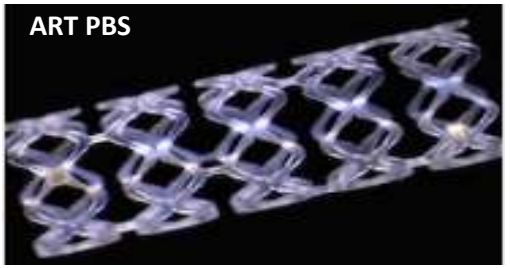
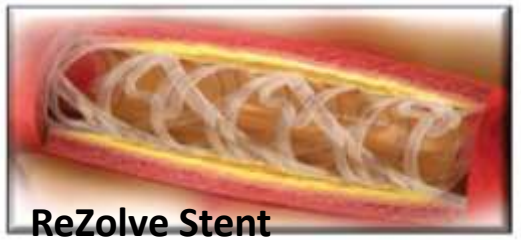
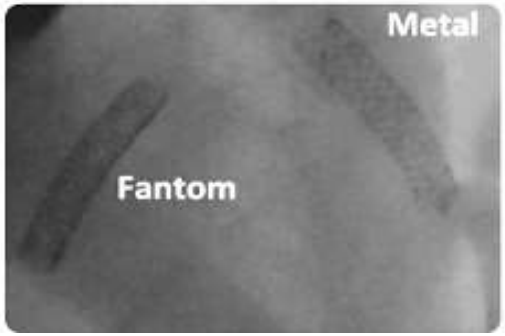
MeRes
DREAMS 2.0
DREAMS 1.0
F
AMS 1.0
E
Igaki Tamai

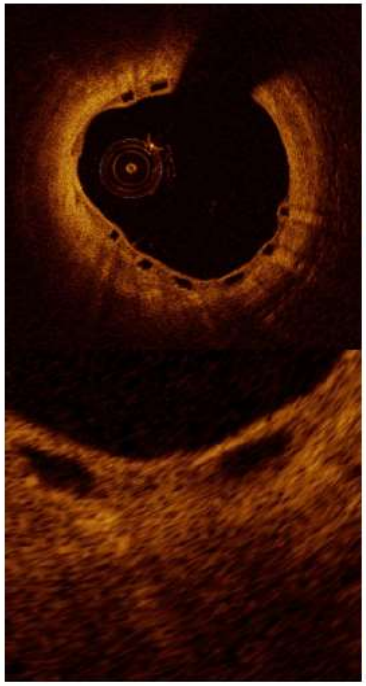
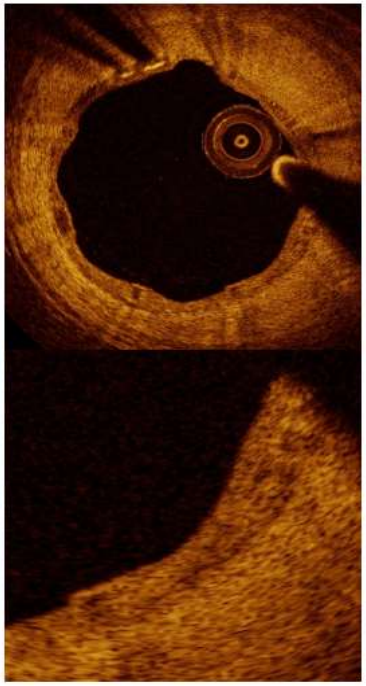
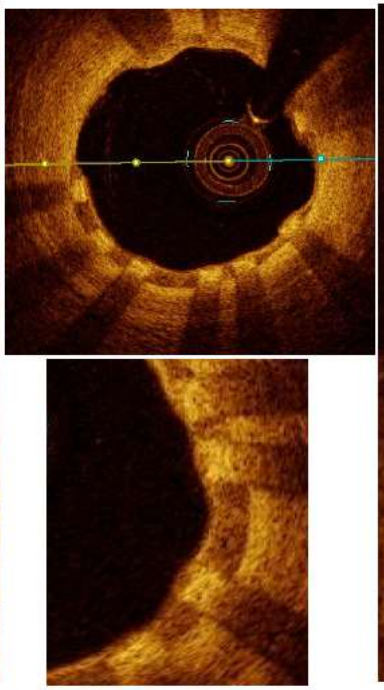
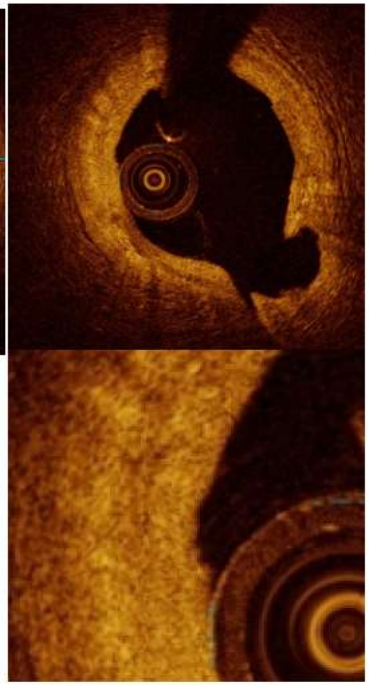

ART PBS


ReZolve Stent


Reva Fantom


Metal
Fantom

BVS technology advancment is expected to further improve the clinical outcome

ABSORB	DESolve	Fantom	Mirage
			
• Preserved box appearance • Low backscattering strut core is easily identified embedded into the NIH tissue.	• Most struts retain their box-shaped appearance. • Some struts present advanced degradation w/ diffuse boundaries.	• Low backscattering long strips, locking system and backbone are easily recognized embedded into the NIH tissue.	• High backstattering struts have an optical signal intensity close to that of fibrotic tissue, their identification difficult when embedded into NIH

Courtesy of A Abizzaid

Closing Remarks

- **Data Confirm that efficacy of BVS is comparable to II generation metallic DES**
- **Safety (ST) still a concern (nearly 3%). However; the improvement of our knowledge about scaffolding and particularly about the appropriate implantation technique seems to reduce significantly ST –**
- **There is a trend toward vasomotor recovery over time which is consistent with the progressive degradation and bioresorption of the scaffold; however, the degree of response to NTG remained lower than in adjacent segments.**
- **Next generation is expected to improve mechanical characteristics and consequenly the clinical outcome**
- **At the present time , with the available devices expansion of angiographic indications should be considered as investigational and should not be encouraged**