APPAC 6/7/8 JUIN 2018 Palais des Congrès BIARRITZ 20e édition

Stent actif ou Bioactif pour le SCA ?

A propos de l'étude TIDES-ACS

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Conflits d’intérêts

Aucun dans le cadre de cette présentation

TiTAN / OPTIMAX: Stent Biologiquement-Actif (BAS)

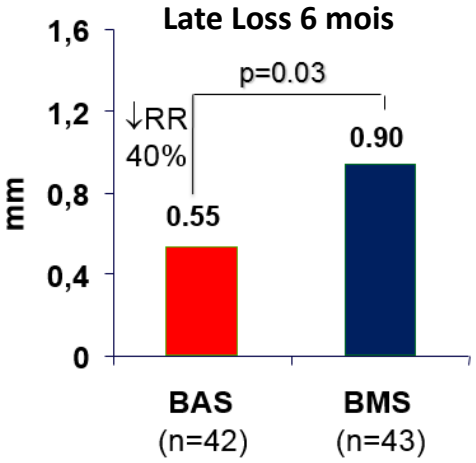
Etudes in Vitro

- Réduction du phénomène inflammatoire [1]
- Amélioration de la biocompatibilité [1]
- Réduction de l'agrégation plaquettaire et de la croissance fibrineuse [2]
- Accélération du phénomène de réendothélialisation [3]
- Réduction du processus thrombotique [4]
- Présence de NO de surface [5]

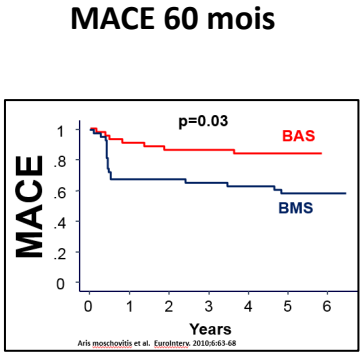
1-Steinemann ; Injury 1996 ; Vol.27 Supl.3 : SC16-22 Institut de physique expérimentale Université Lausanne
1-Williams; Journal of Med.Engineering and Technologies; 1997 Jul; 1(4) : 195-198
2-Zhang et col. Journal of Biomaterial Medical Research 1998; 42:, 128-133
2-Gotman. Journal of Endourology 1997; Vol.11 n°6 : 383-389
2-Tsyganov et col. Nuclear Instruments and methods in physics research 2007; - B257: 122-127
3-Yeh et col., Journal of Biomedical Material research, 2006; RES 76 A: 835-841
4-Zhang et col. ; Surface and Coatings Technology 84 (1996) 476-479
5-Windecker et col. ; Eurointervention 2006, 2: 146-148

Etudes cliniques - TiNOX

Efficacité du BAS (p=0.03) vs. le stent nu
sur la réduction du Late Loss (Perte lumière tardive)



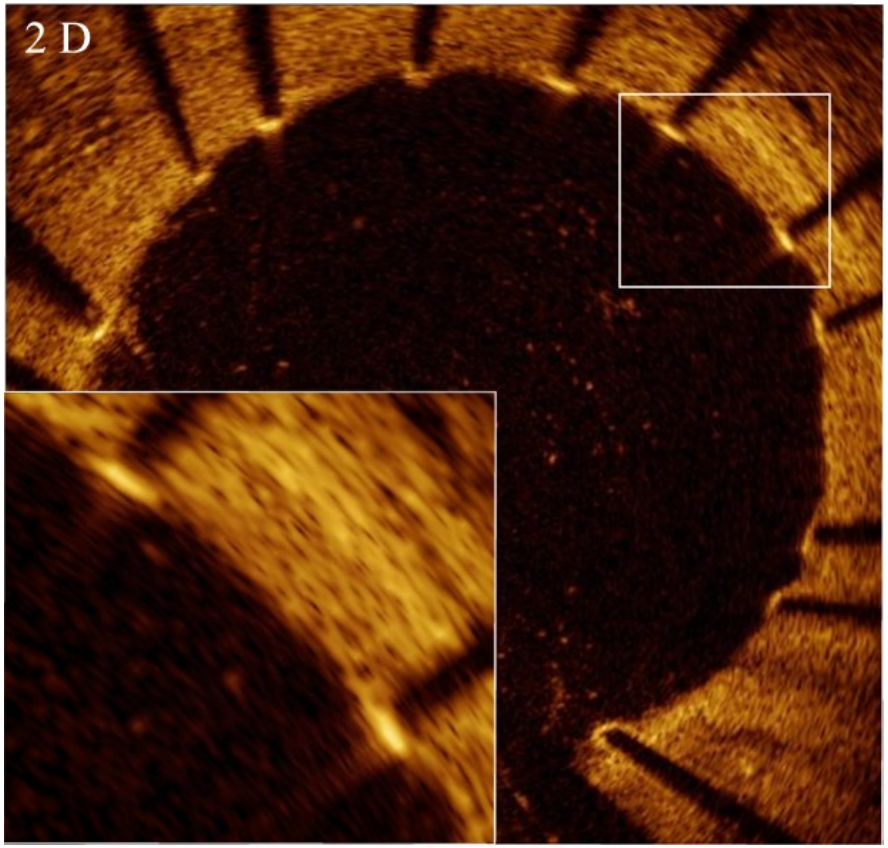
Windecker Circulation 2005

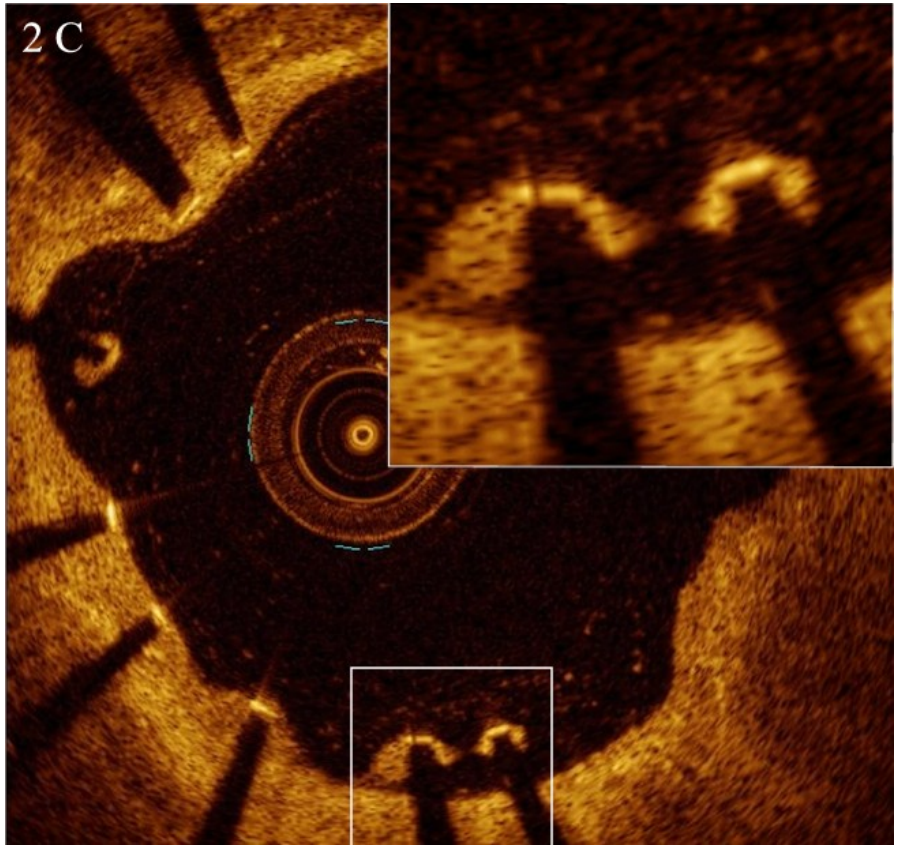


EuroIntervention 2010

OPTIMAX-OCT

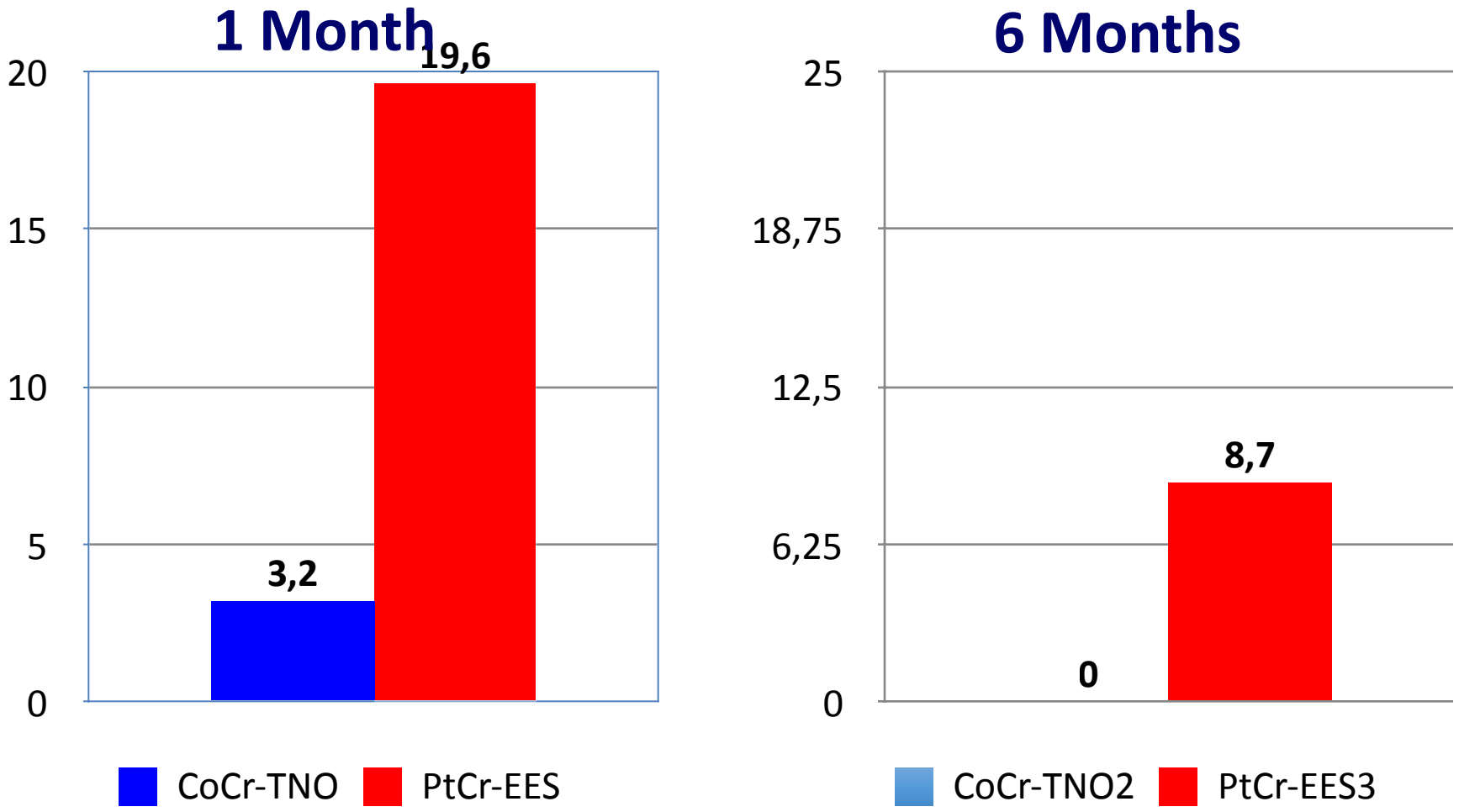
Uncovered Struts





OPTIMAX-OCT Results

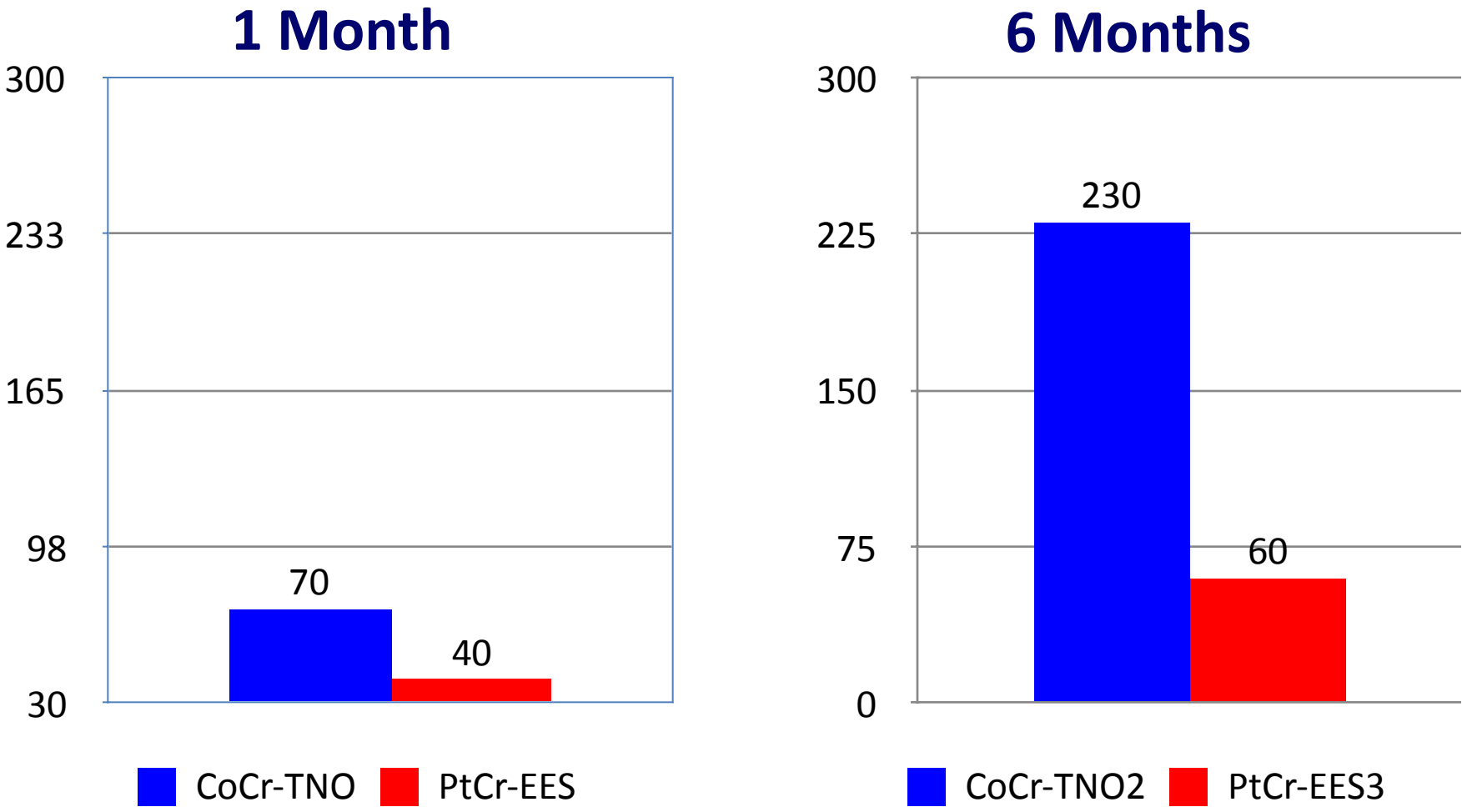
Uncovered Struts (% of pts)



De Bruyne Euro PCR 2018

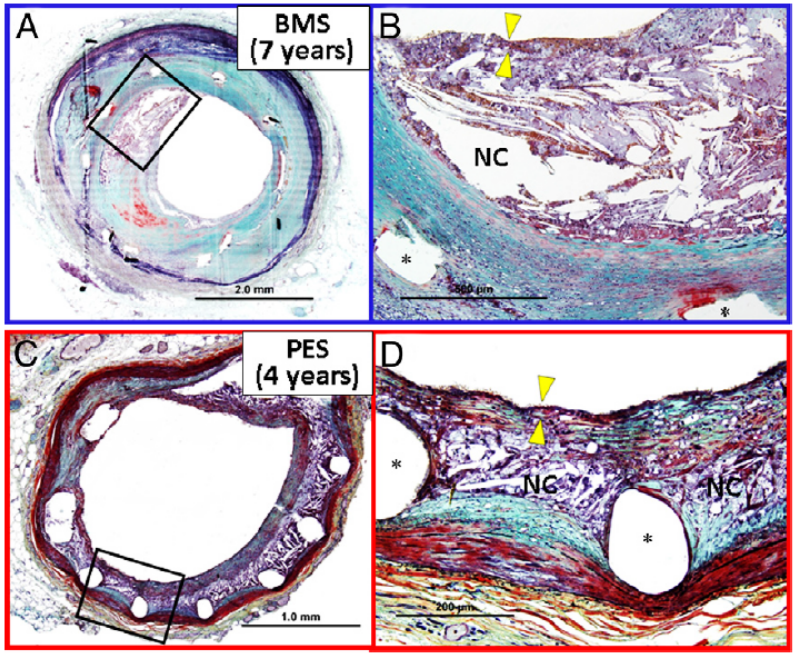
OPTIMAX-OCT Results

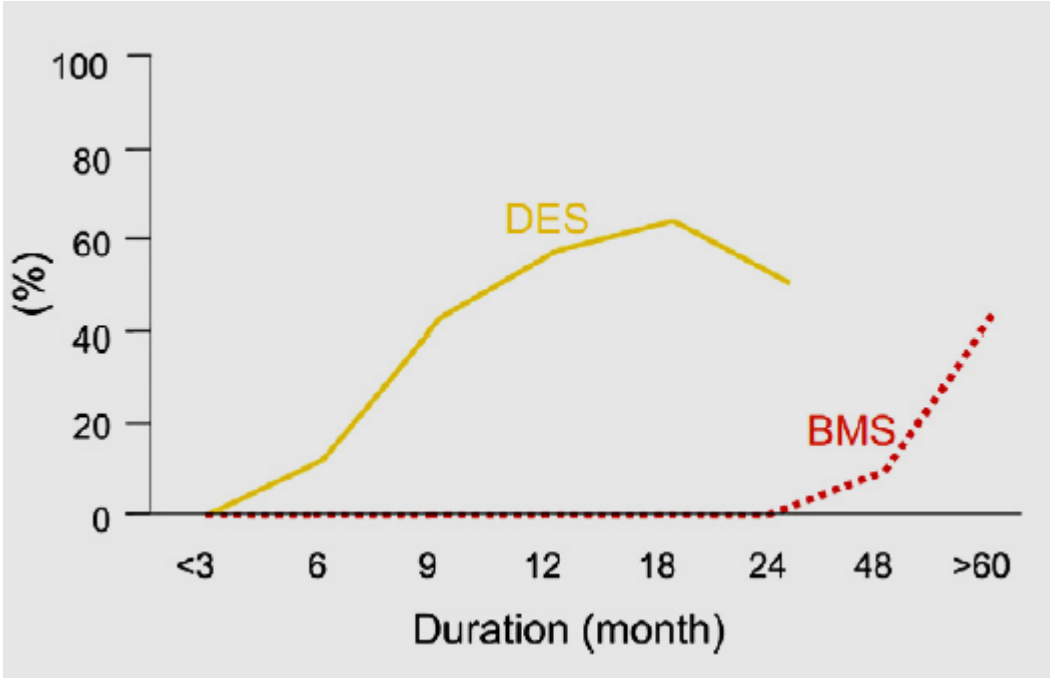
Neointimal hyperplasia thickness (micrometer)



De Bruyne Euro PCR 2018

Néo-athérosclérose : la maladie qui limite l'efficacité à long terme des stents métalliques



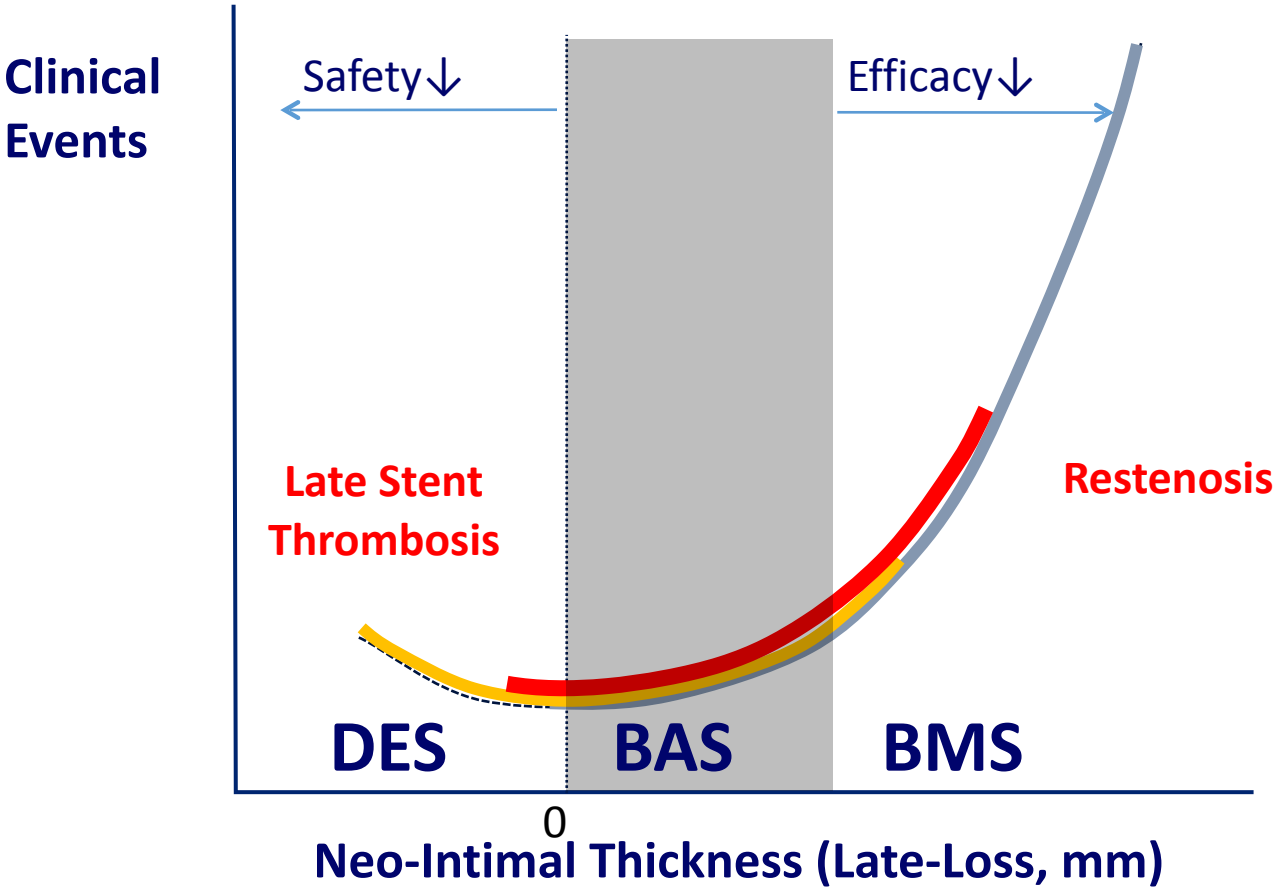


L'athérome intra-stent est plus fréquent et plus précoce avec les DES de première génération qu'avec les BMS

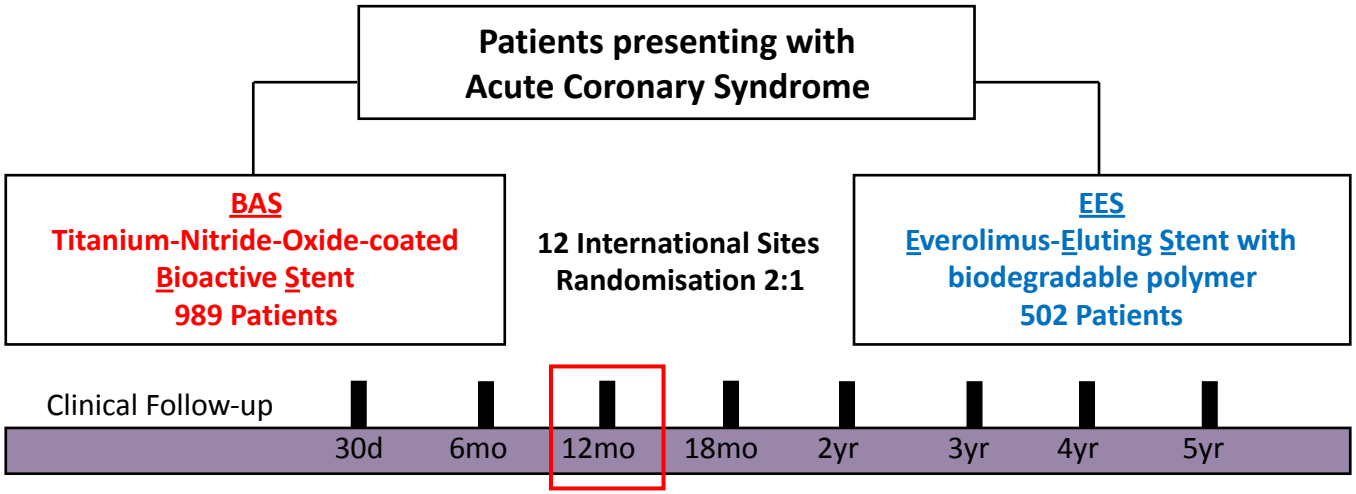
Nakazawa G JACC 2011;57:13

Park SJ JACC 2012;59:2051

Trading-Off Safety and Efficacy



TIDES-ACS



Primary Endpoint: MACE (Cardiac death, MI, and TLR) at 12 months

Co-Primary Endpoint: Cardiac death, MI, major bleeding at 18 months

PI *P Karjalainen (FIN)*

Co-PI *K Kervinen (FIN), J van Der Heyden (NED), H Romppanen (FIN), P Tonino (NED)*

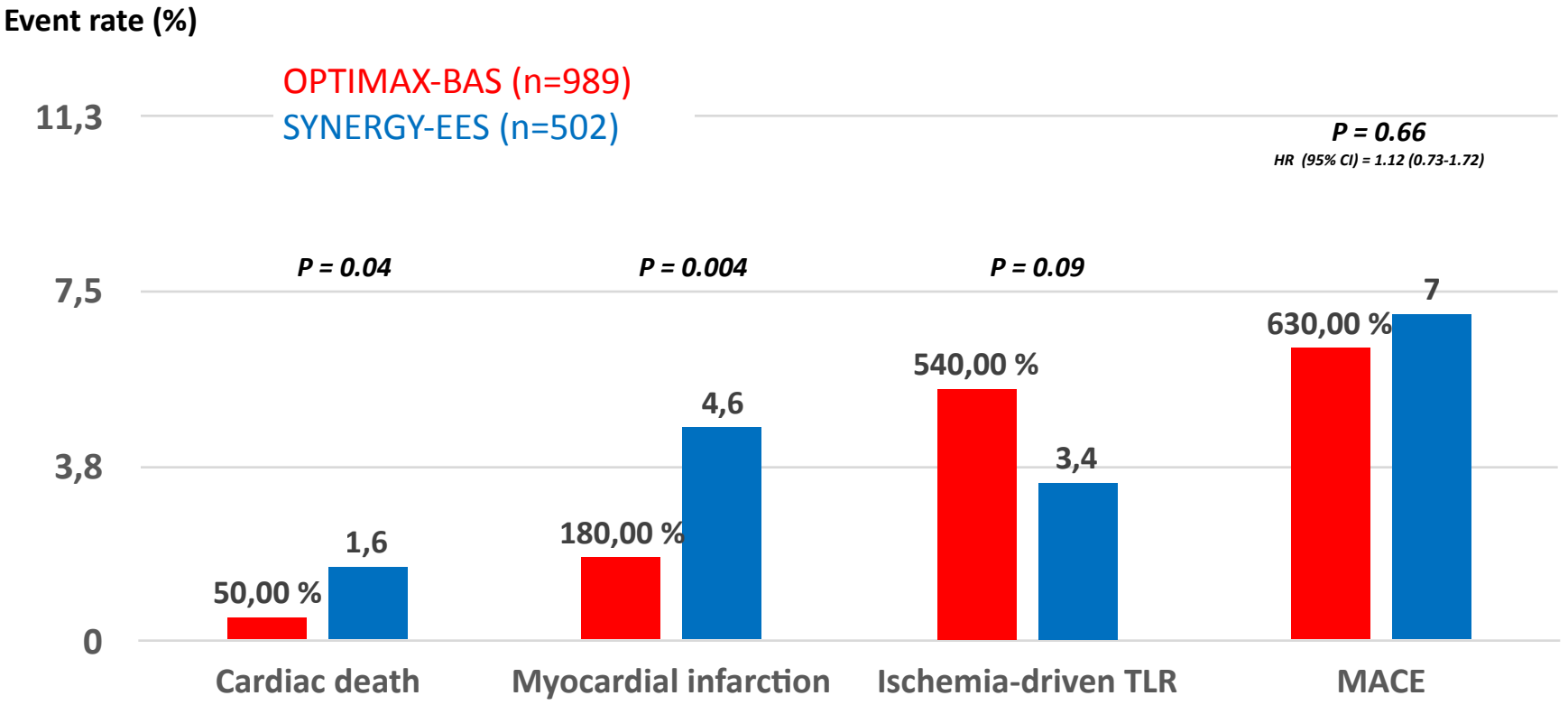
CEC *J Marco (FRA), A de Belder (UK), R Wiseth (NOR), J Gomez-Hospital (SPA), D Formigli (ITA)*

ClinicalTrials.gov: NCT02049229
Minerva Cardioangiol. 2015;63:21-9.

TIDES-ACS Clinical Characteristics

	BAS (n=989)	EES (n=502)	P value
Age (years)	62.7 ± 11.0	62.6 ± 10.5	0.85
Male (%)	75.3	76.3	0.70
Diabetes (%)	14.2	12.5	0.43
- Insulin treated (%)	2.3	3.8	0.14
Hyperlipidemia (%)	41.5	40.2	0.66
Hypertension (%)	46.8	43.6	0.25
Current smoker (%)	31.2	35.9	0.08
Prior myocardial infarction (%)	7.6	9.0	0.37
Prior PCI (%)	7.0	6.6	0.83
Prior CABG (%)	0.6	1.2	0.23
NSTEMI (%)	46.3	45.0	0.66
STEMI (%)	44.9	47.6	0.32

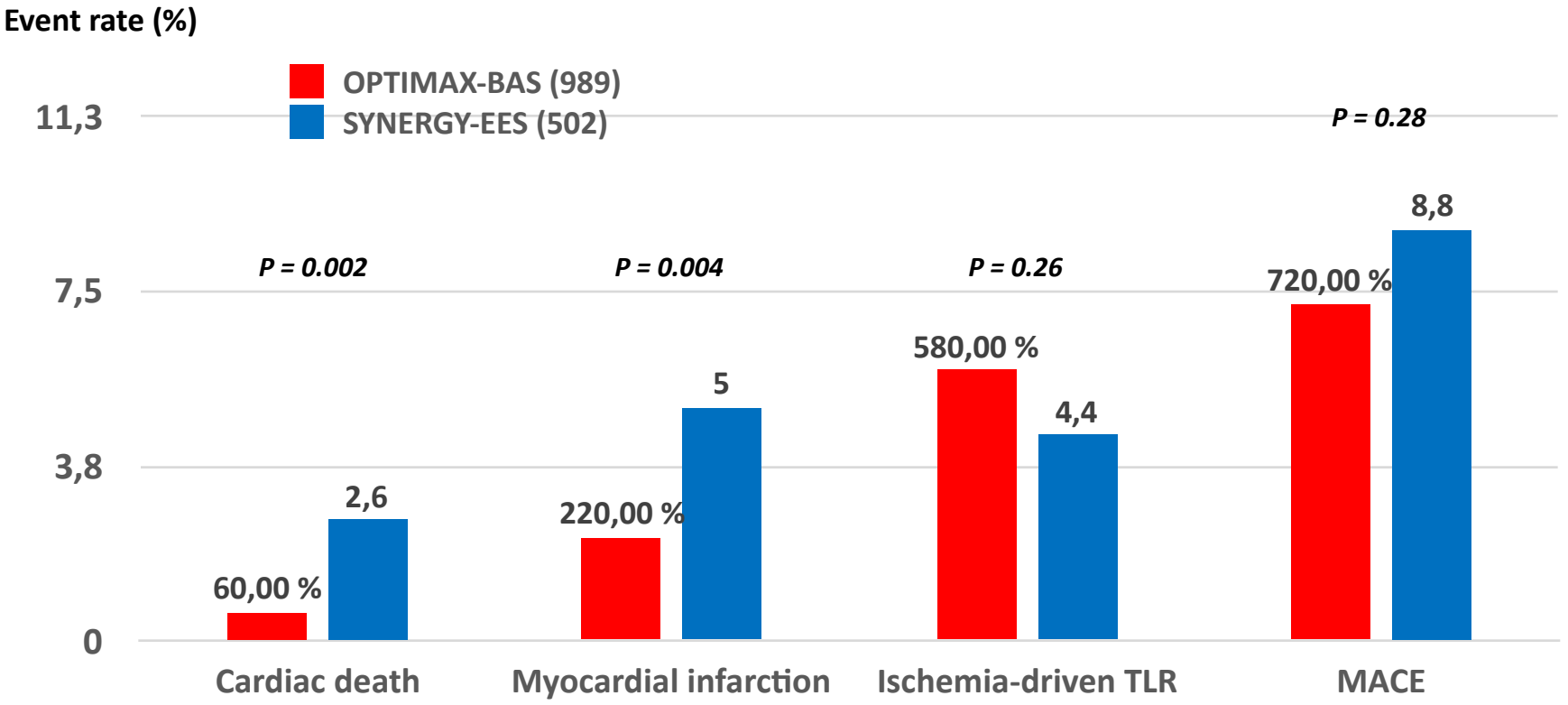
TIDES-ACS MACE at 12 months



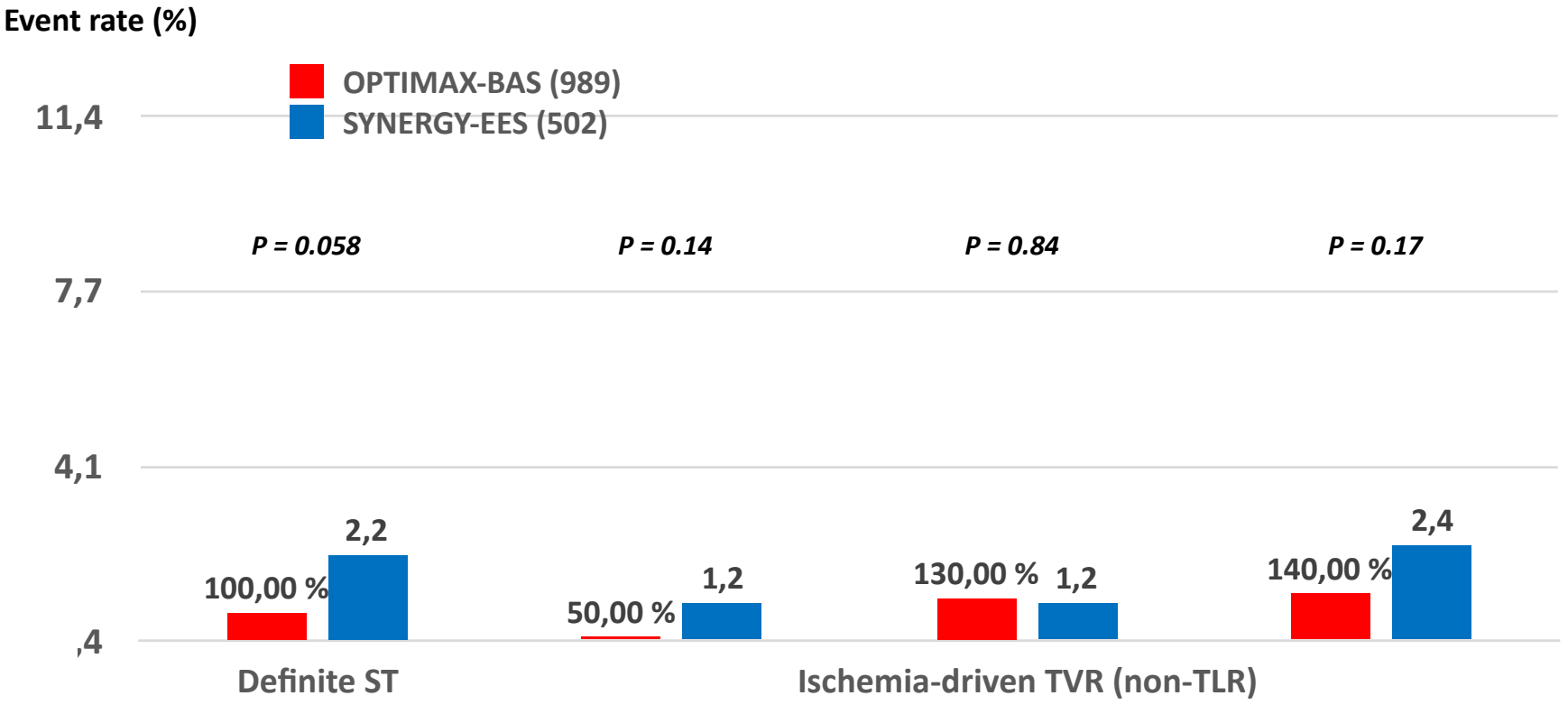
Definite stent thrombosis: 1.0% for BAS and 2.0% for EES (p=0.15)

ESC Meeting Barcelona 2017

TIDES-ACS MACE at 18 months

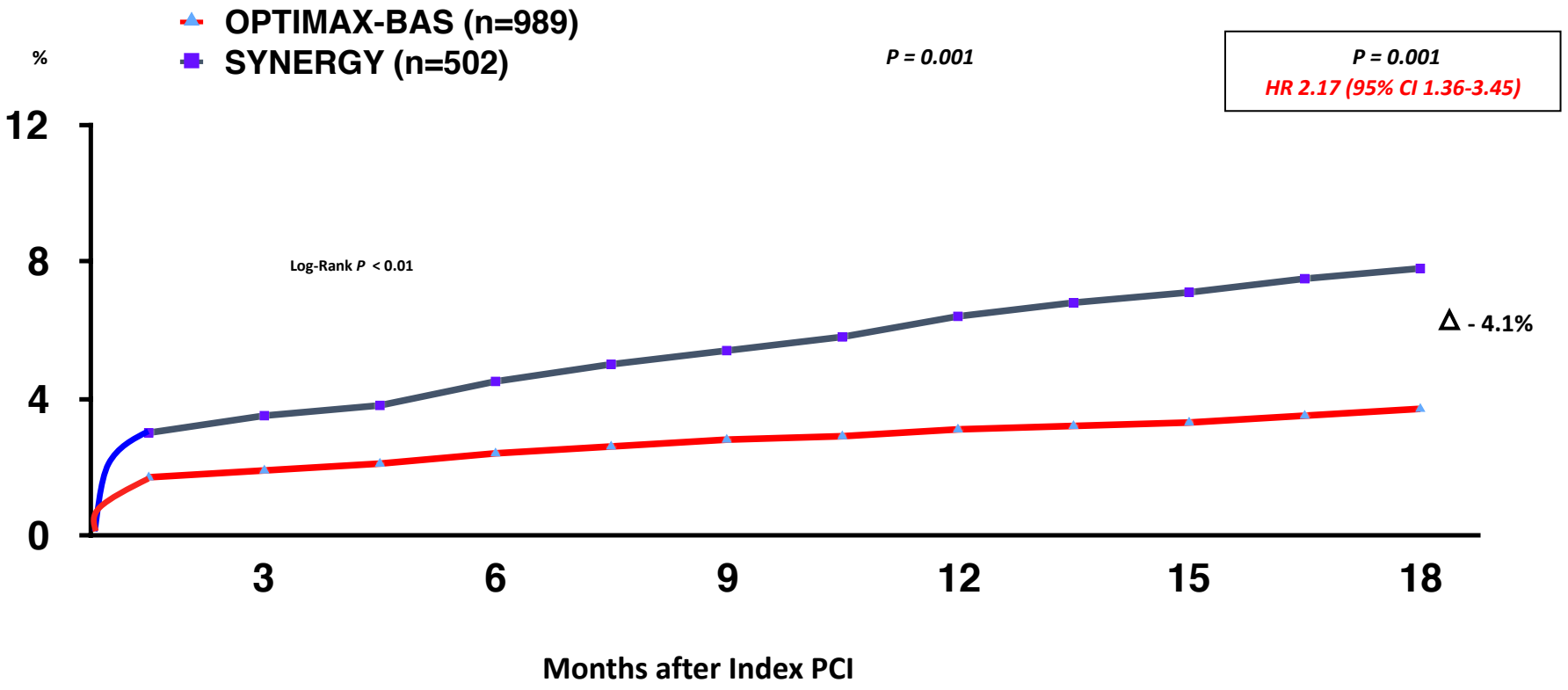


TIDES-ACS other events at 18 months



TIDES-ACS

Co-primary endpoint at 18 months



* Co-primary endpoint = myocardial infarction (MI), cardiac death and major bleeding

Conclusions

Le stent bioactif OPTIMAX n'est pas inférieur au stent délivrant de l'Evérolimus (SYNERGY) pour le 1er critère composite (mortalité cardiaque, infarctus, TLR)

Le stent bioactif OPTIMAX apparait supérieur au stent délivrant de l'Evérolimus (SYNERGY) pour le 2ème critère composite (mortalité cardiaque, infarctus, hémorragie majeure)

Back up slides

TIDES-ACS
ARC Stent Thrombosis at 12 months

	OPTIMAX BAS (n=989) n (%)	SYNERGY EES (n=502) n (%)	*P Value*
Definite ST	10 (1.0)	10 (2.0)	0.15
Probable ST	1 (0.1)	4 (0.8)	0.047
Definite or Probable ST	11 (1.1)	14 (2.8)	0.01

TIDES-ACS Lesion Characteristics

	BAS (n=989)	EES (n=502)	*P value*
No. of lesions treated/patient	1.17 ± 0.44	1.18 ± 0.49	0.83
2 or 3 vessels treated	36.0%	36.7%	0.75
RVD[a] (mm)	3.20 ± 0.45	3.21 ± 0.45	0.67
Lesion length (mm)	14.9 ± 6.5	14.8 ± 5.9	0.81
Culprit lesion location			
- LAD	45.7%	45.8%	0.86
- Cx	21.2%	20.0%	0.65
- RCA	33.0%	34.1%	0.56
B2/C type complex lesion	22.5%	21.7%	0.67
Thrombus in culprit lesion	33.1%	36.7%	0.18

[a] Reference vessel diameter

TIDES-ACS Devices

	Cobalt-chromium-based BAS (OPTIMAX™)	Platinum-chromium-based biodegradable-polymer EES (SYNERGY™)
Stent Platform	Cobalt-chromium platform Helicoidal Design Strut thickness 75 µm	Platinum-chromium platform Slotted Tube Strut thickness (74-81) µm
Drug	---	Everolimus
Drug Density	---	100 µg/cm^2
Coating	Titanium-Nitride-Oxide	---
Polymer	---	Abluminal poly (D,L-lactide-co-glycolide) (4 µm)
Manufacturer	Hexacath, Paris, France	Boston Scientific Corp. MA. USA

TIDES-ACS at 18 months
Statistical considerations

Co-Primary Superiority Endpoint at 18 months including

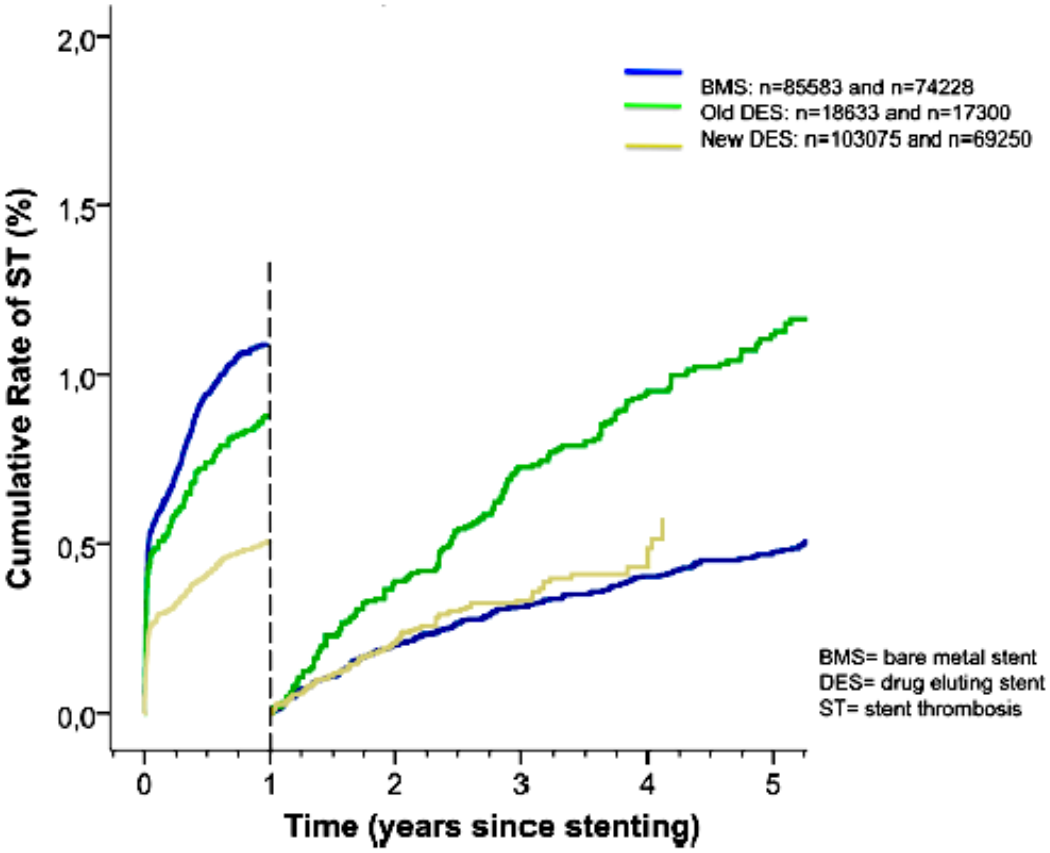
- *** Myocardial Infarction (MI)**
- *** Cardiac Death**
- *** Major Bleeding**

- Expected event rate in SYNERGY vs. OPTIMAX; 6.5% vs. 3.5%

- *** Sample size needed (α=5%; β=80%), N = 1484**

Stent thrombosis rates the first year and beyond with new- and old-generation drug-eluting stents compared to bare metal stents

Christoph Varenhorst[1,2] · Martin Lindholm[3] · Giovanna Sarno[1,2] · Göran Olivecrona[4] · Ulf Jensen[5] · Johan Nilsson[6] · Jörg Carlsson[7] · Stefan James[1,2] · Bo Lagerqvist[1,2]



Clinical Res Cardiol 2018

2007 – 2017
Stent BAS vs. Stents actif pour le SCA

2007

TiTAN vs TAXUS

(1st generation DES)

N=425

	1 an*	P	5 ans**	P
MACE	10.3 vs 12.8	NI	16.4 vs 25.1	0.03
Décès C.	0.5 vs 1.9	0.2	1.9 vs 5.7	0.04
IDM	4.2 vs 8.1	0.1	8.4 vs 18	0.004
Def. ST	0.4 vs 3.3	0.031	0.9 vs 7.1	0.001
TLR	9.3 vs 7.1	0.5	**11.2 vs 10.9**	0.92

*EuroIntervention 2008;4:234-241
**Int J Cardiol 2013 Sep 30; 168(2) 1214-9 doi

2011

TiTAN2 vs XIENCE V

(2nd generation DES)

N=827

1 an*	P	5 ans**	P
9.6 vs 9.0	NI	14.4 vs 17.8	0.26
1.9 vs 1.0	0.39	2.8 vs 3.8	0.76
2.2 vs 5.9	0.007	5.9 vs 9.7	0.028
0.7 vs 2.2	0.07	1.1 vs 3.8	0.015
6.5 vs 4.9	0.37	**8.3 vs 9.9**	0.58

*EuroIntervention 2012;8:306-315
**Int J Cardiol 222 (2016) 275-280

2017

TiTAN OPTIMAX vs SYNERGY

(3rd generation DES)

N=1491

1 an*	P
6.3 vs 9.0	NI
0.5 vs 1.6	0.04
1.8 vs 4.6	0.004
0.7 vs 2.2	0.07
5.4 vs 3.4	0.09

*Late Breaking Science Session Congrès ESC Barcelone 2017