Quelle bithérapie?

Quel contexte?

BMS ou DES?

Quel DES?

Quel patient?

…

P. Leddet, F. De Poli, P. Couppié, S. Uhry, M. Hanssen
CH Haguenau

Conflit d’intérêt

- Aucun

ACS

EUROPEAN SOCIETY OF CARDIOLOGY®

APPAC

DAPT with aspirin and an oral ADP receptor antagonist must be **for up to 12 months** MI, with a strict minimum of:	I	C
• 1 month for patients receiving BMS	I	C
• 6 months for patients receiving DES	IIb	B

American Heart Association.
Learn and Live

Maintenance doses and duration of therapy

DES placed: **Continue therapy for 1 y**		
• Clopidogrel: 75 mg daily	I	B
• Prasugrel: 10 mg daily	I	B
• Ticagrelor: 90 mg twice a day*	I	B
BMS† placed: **Continue therapy for 1 y**		
• Clopidogrel: 75 mg daily	I	B
• Prasugrel: 10 mg daily	I	B
• Ticagrelor: 90 mg twice a day*	I	B
DES placed:		
• Clopidogrel, prasugrel, or ticagrelor* continued beyond 1 y	IIb	C
• Patients with STEMI with prior stroke or TIA: prasugrel	III: Harm	B

SCAD

EUROPEAN SOCIETY OF CARDIOLOGY®

APPAC

DAPT is indicated after BMS for at least 1 month.	I	A
DAPT is indicated for 6 to 12 months after 2nd generation DES.	I	B
DAPT may be used for more than 1 year in patients at high ischaemic risk (e.g. stent thrombosis, recurrent ACS on DAPT, post MI/diffuse CAD) and low bleeding risk.	IIb	B
DAPT for 1 to 3 months may be used after DES implantation in patients at high bleeding risk or with undeferrable surgery or concomitant anticoagulant treatment.	IIb	C

American Heart Association.
Learn and Live

In patients receiving DES for a non-ACS indication, clopidogrel 75 mg/d should be given for at least 12 mo if patients are not at high risk of bleeding.	I	B
In patients receiving BMS for a non-ACS indication, clopidogrel should be given for a minimum of 1 mo and ideally up to 12 mo (unless the patient is at increased risk of bleeding; then it should be given for a minimum of 2 wk).	I	B
Continuation of clopidogrel, prasugrel, or ticagrelor beyond 12 mo may be considered in patients undergoing placement of DES.	IIb	C

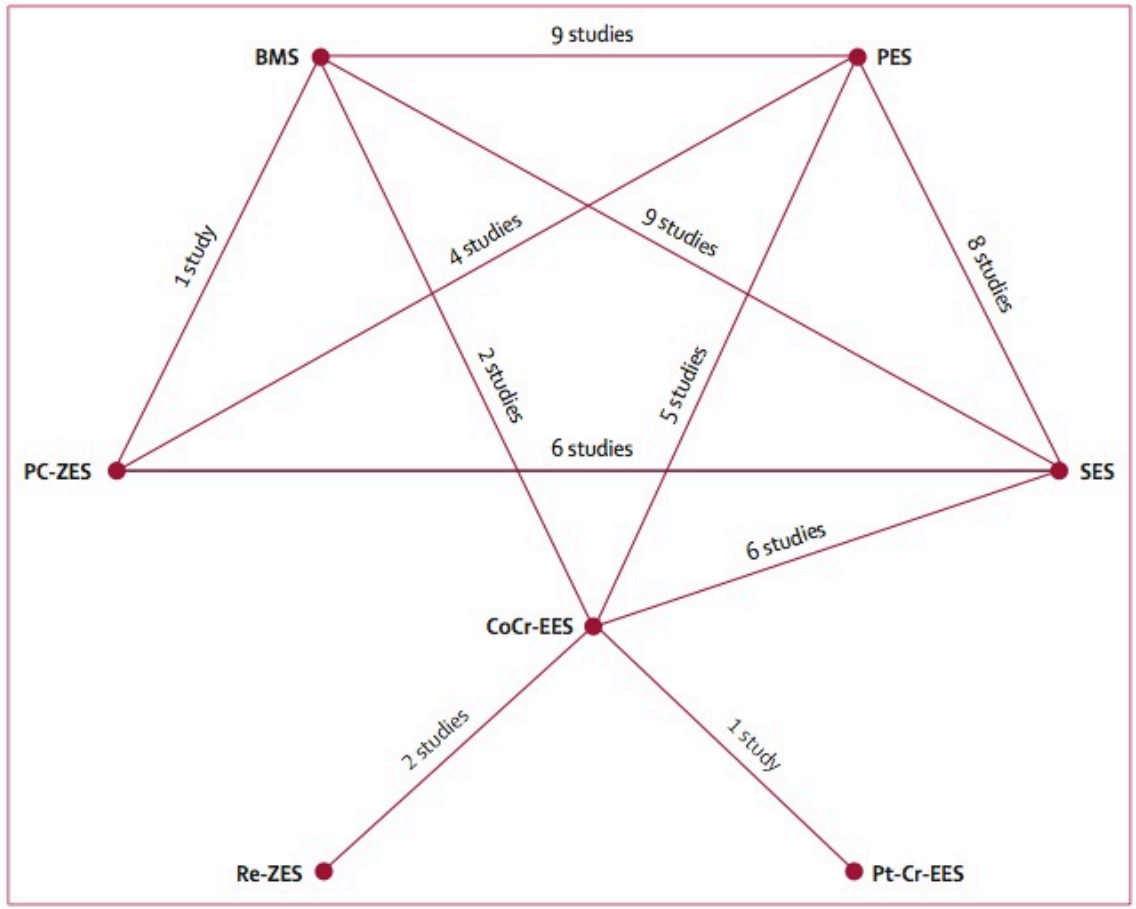
Cypher	Taxus	Xience	Endeavor	Promus
Strut wall thickness 0.140mm	Strut wall thickness 0.097mm	Strut wall thickness 0.081mm	Strut wall thickness 0.090mm	Strut wall thickness 0.081mm






Stent thrombosis with drug-eluting and bare-metal stents: evidence from a comprehensive network meta-analysis

Tullio Palmerini, Giuseppe Biondi-Zoccai, Diego Della Riva, Christoph Stettler, Diego Sangiorgi, Fabrizio D'Ascenzo, Takeshi Kimura, Carlo Briguori, Manel Sabatè, Hyo-Soo Kim, Antoinette De Waha, Elvin Kedhi, Pieter C Smits, Christoph Kaiser, Gennaro Sardella, Antonino Marullo, Ajay J Kirtane, Martin B Leon, Gregg W Stone



Palmerini, Lancet. 2012 Apr 14;379(9824):1393-402

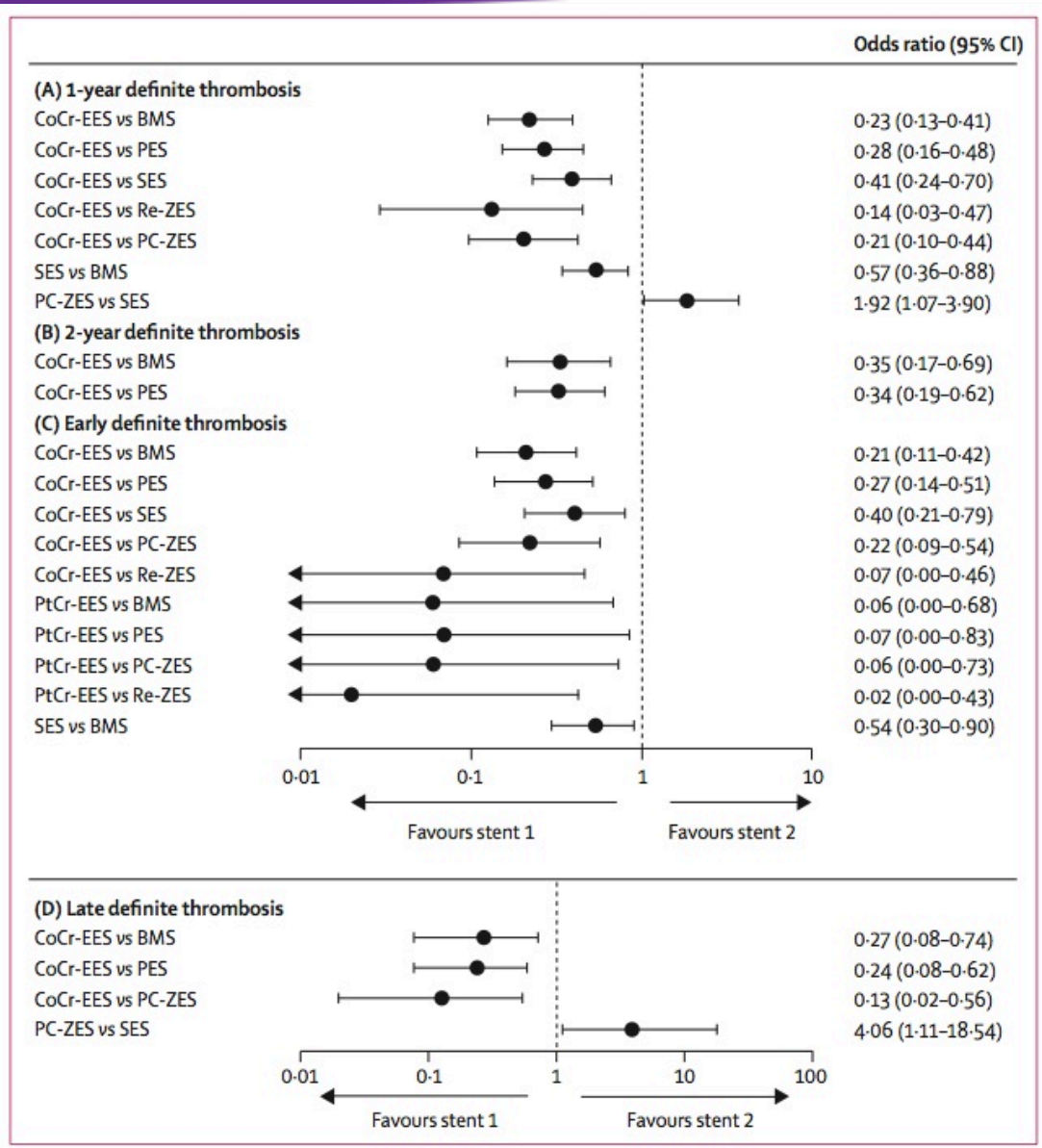


Figure 3: Pooled odds ratios and 95% CIs determined by network meta-analysis for 1-year (A), 2-year (B), early (C), and late (D) definite stent thrombosis

Palmerini, Lancet. 2012 Apr 14

Modifying effect of dual antiplatelet therapy on incidence of stent thrombosis according to implanted drug-eluting stent type

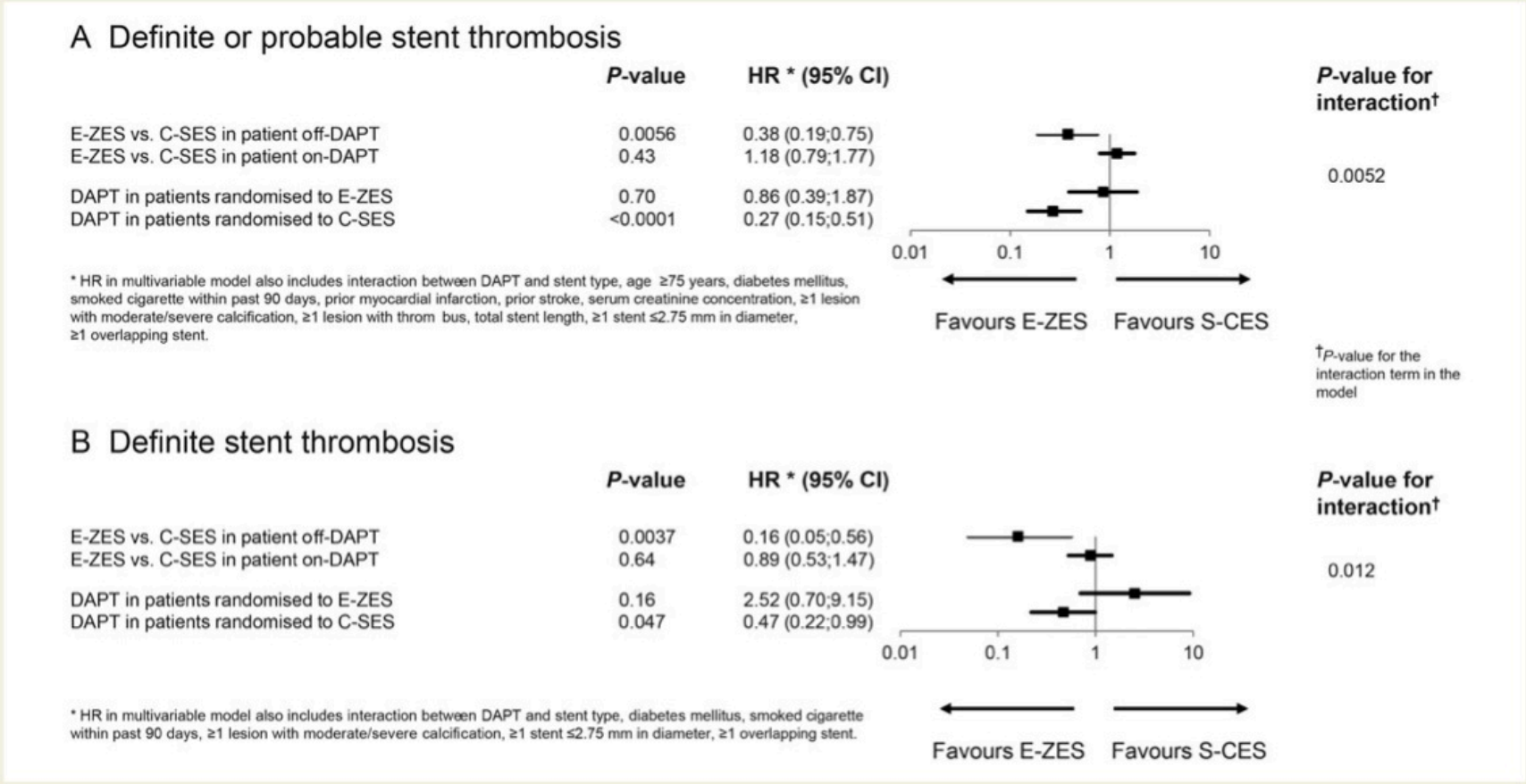
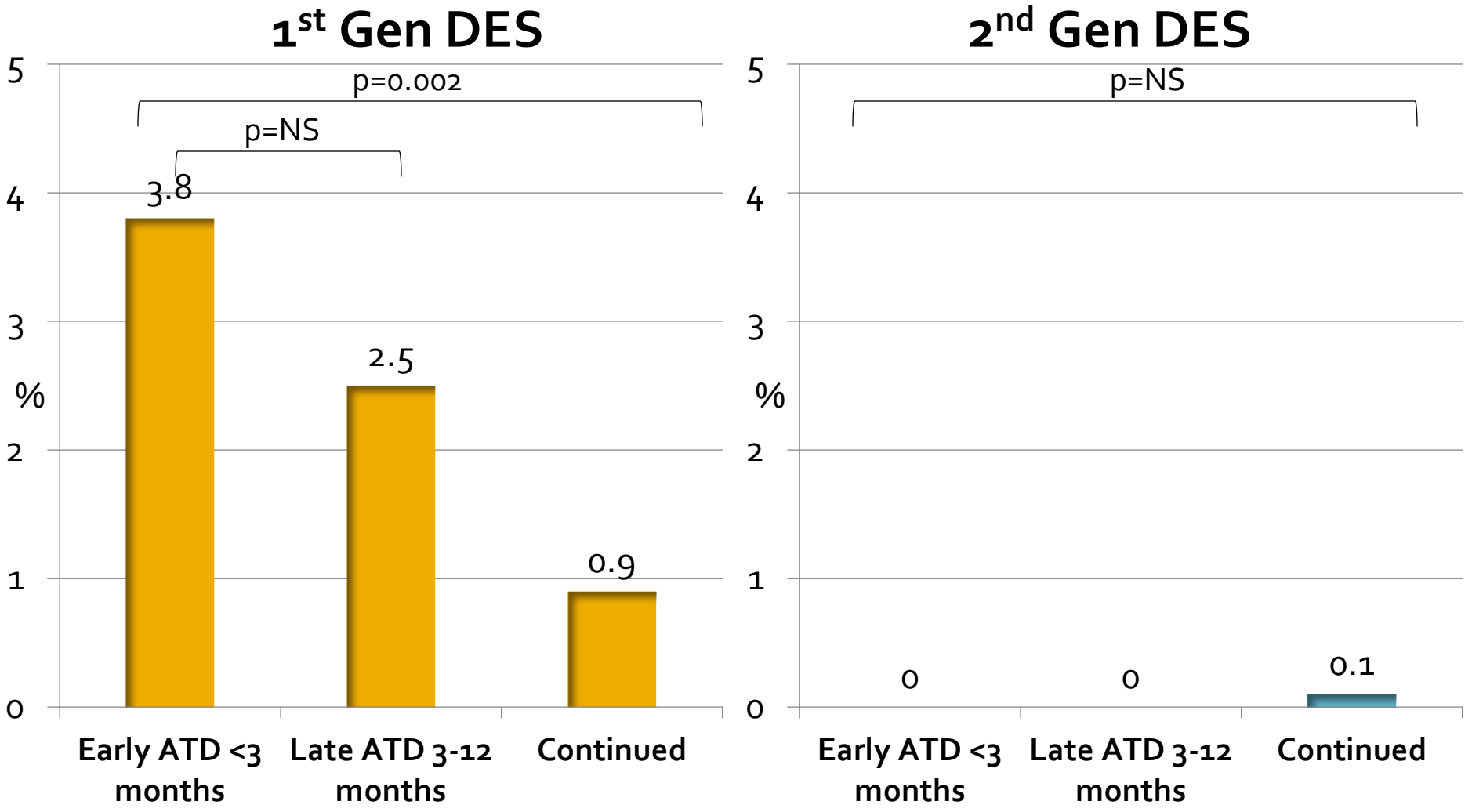


Figure 3 Risk of (*A*) definite or probable or (*B*) definite stent thrombosis up to 1080 days according to drug-eluting stent-type and dual antiplatelet therapy-use. C-SES, Cypher sirolimus-eluting stent; DAPT, dual antiplatelet therapy; E-ZES, Endeavor zotarolimus-eluting stent.

Camenzind, Eur Heart J. 2014 Mar 13. [Epub ahead of print]

Results:
Definite or probable ST at 1 year



Loh, Am J Cardiol. 2014 Apr 1

Journal of the American College of Cardiology
© 2014 by the American College of Cardiology Foundation
Published by Elsevier Inc.

Vol. 63, No. 4, 2014
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2013.09.061

CLINICAL RESEARCH — Interventional Cardiology

Clinical Outcomes With Bioabsorbable Polymer- Versus Durable Polymer-Based Drug-Eluting and Bare-Metal Stents

Evidence From a Comprehensive Network Meta-Analysis

Tullio Palmerini, MD,* Giuseppe Biondi-Zoccai, MD,† Diego Della Riva, MD,* Andrea Mariani, MD,* Manel Sabaté, MD,‡ Pieter C. Smits, MD,§ Christoph Kaiser, MD,|| Fabrizio D'Ascenzo, MD,¶ Giacomo Frati, MD,†# Massimo Mancone, MD,† Philippe Genereux, MD,**†† Gregg W. Stone, MD**

Bologna, Latina, Turin, and Pozzilli, Italy; Barcelona, Spain; Rotterdam, the Netherlands; Basel, Switzerland; New York, New York; and Montreal, Quebec, Canada

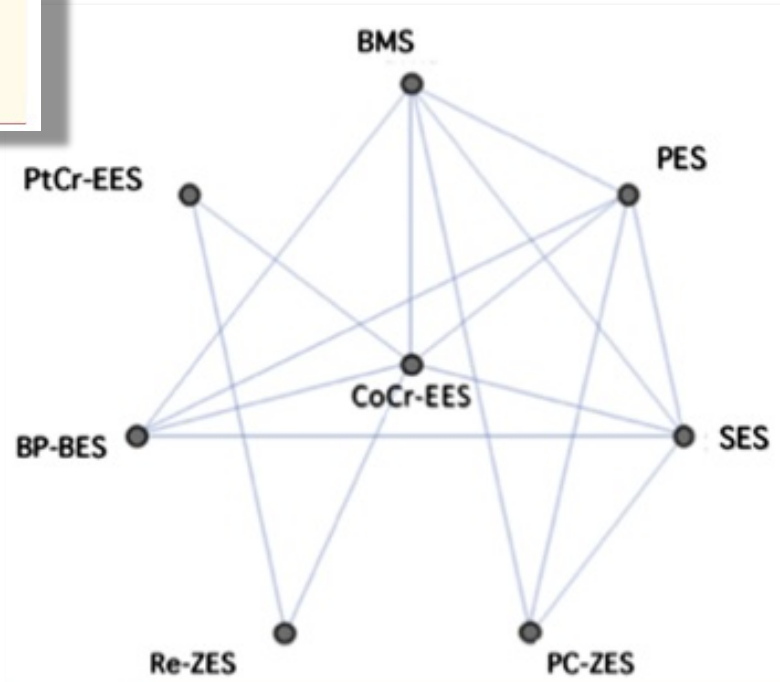


Figure 1 Evidence Network Between Stents Included in the Meta-Analysis

Palmerini, J Am Coll Cardiol. 2014 Feb 4;63(4):299-307

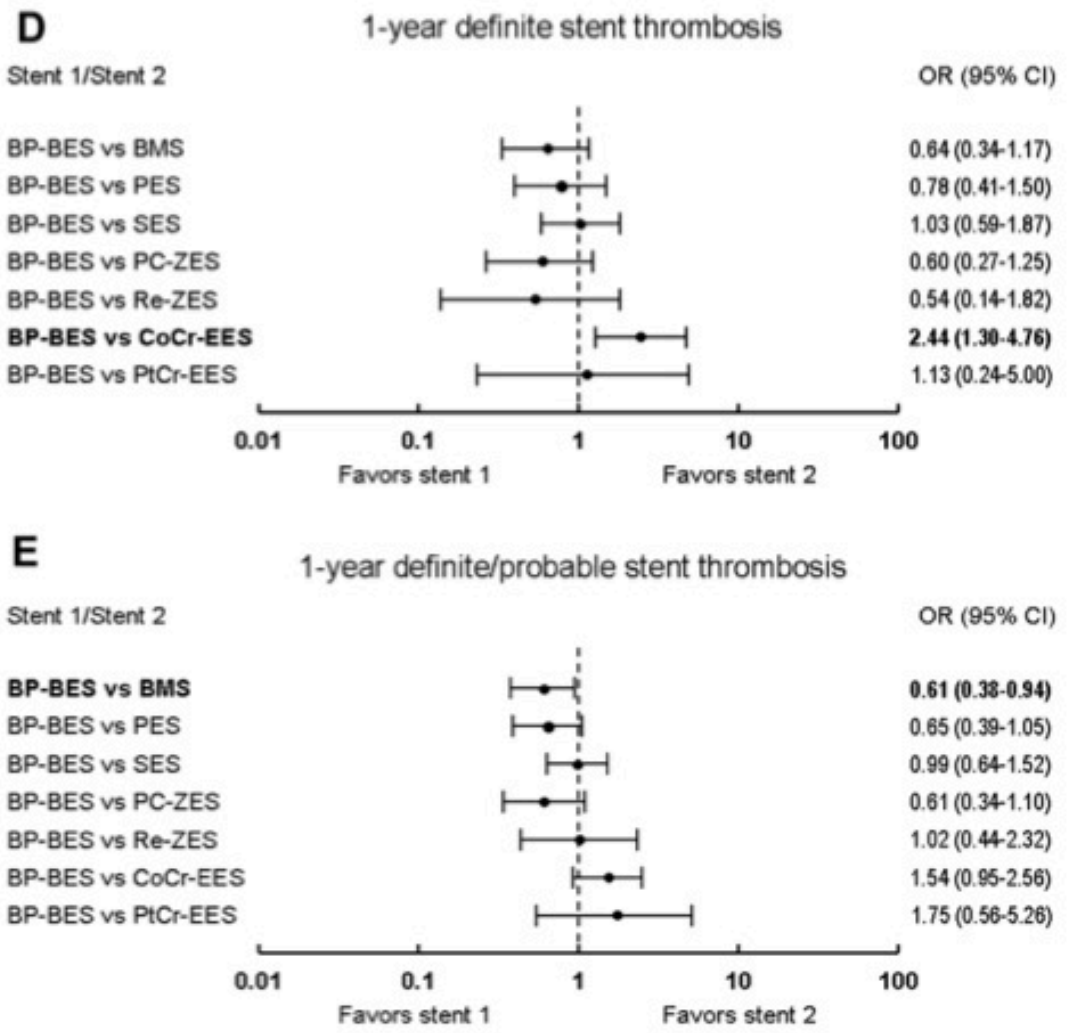
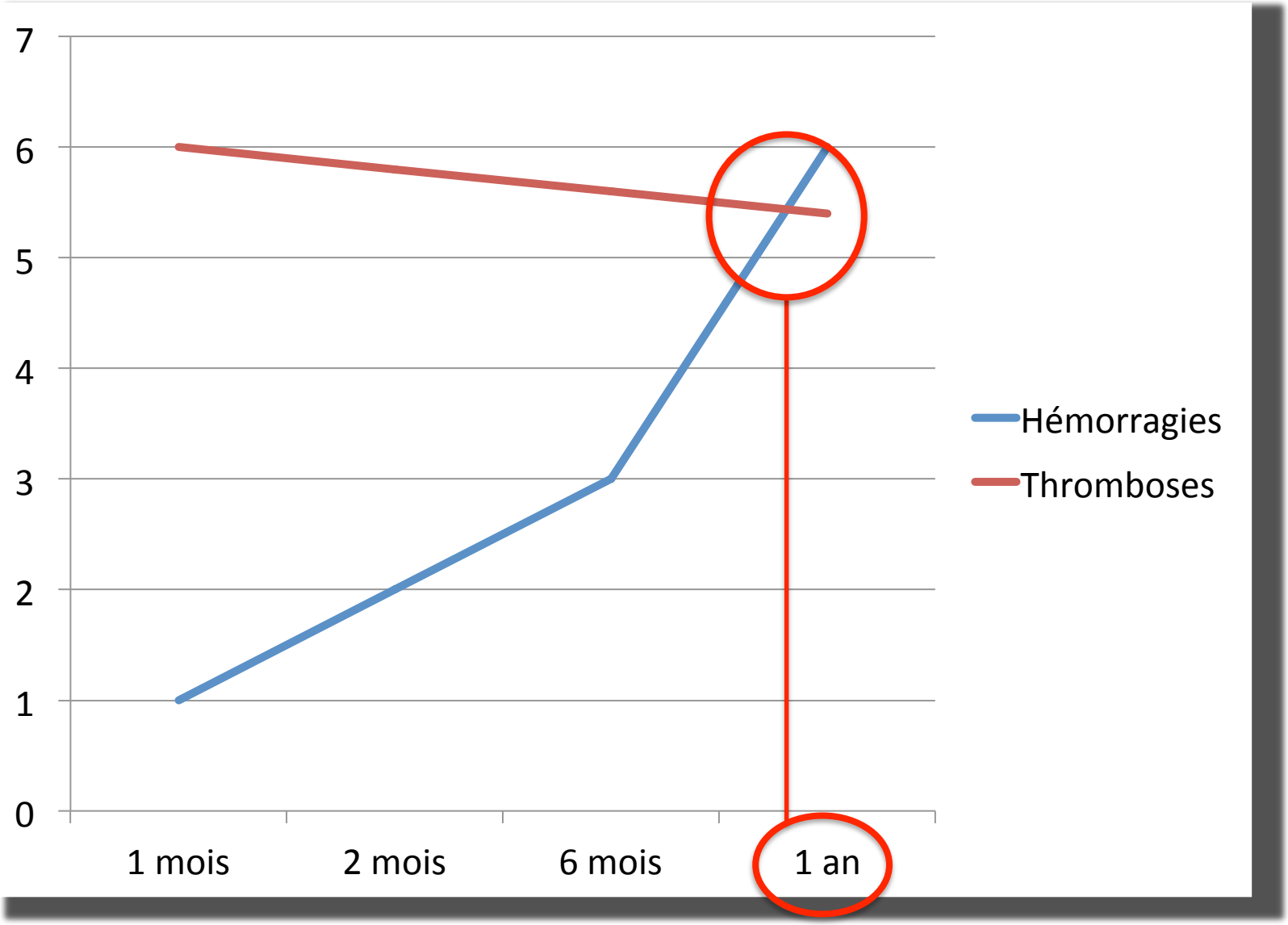


Figure 2 Continued

Palmerini, J Am Coll Cardiol. 2014 Feb 4;63(4):299-307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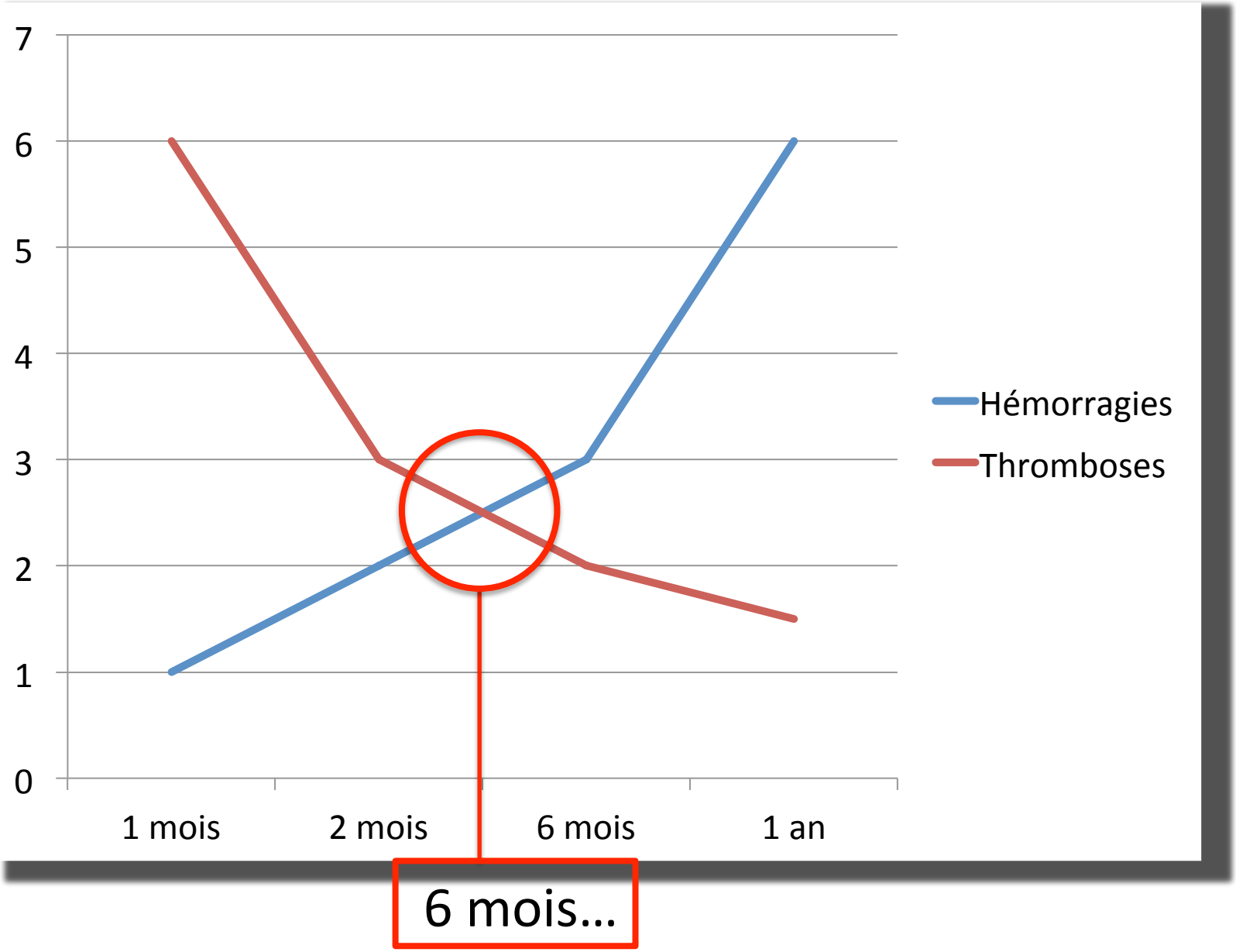
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Thromboses
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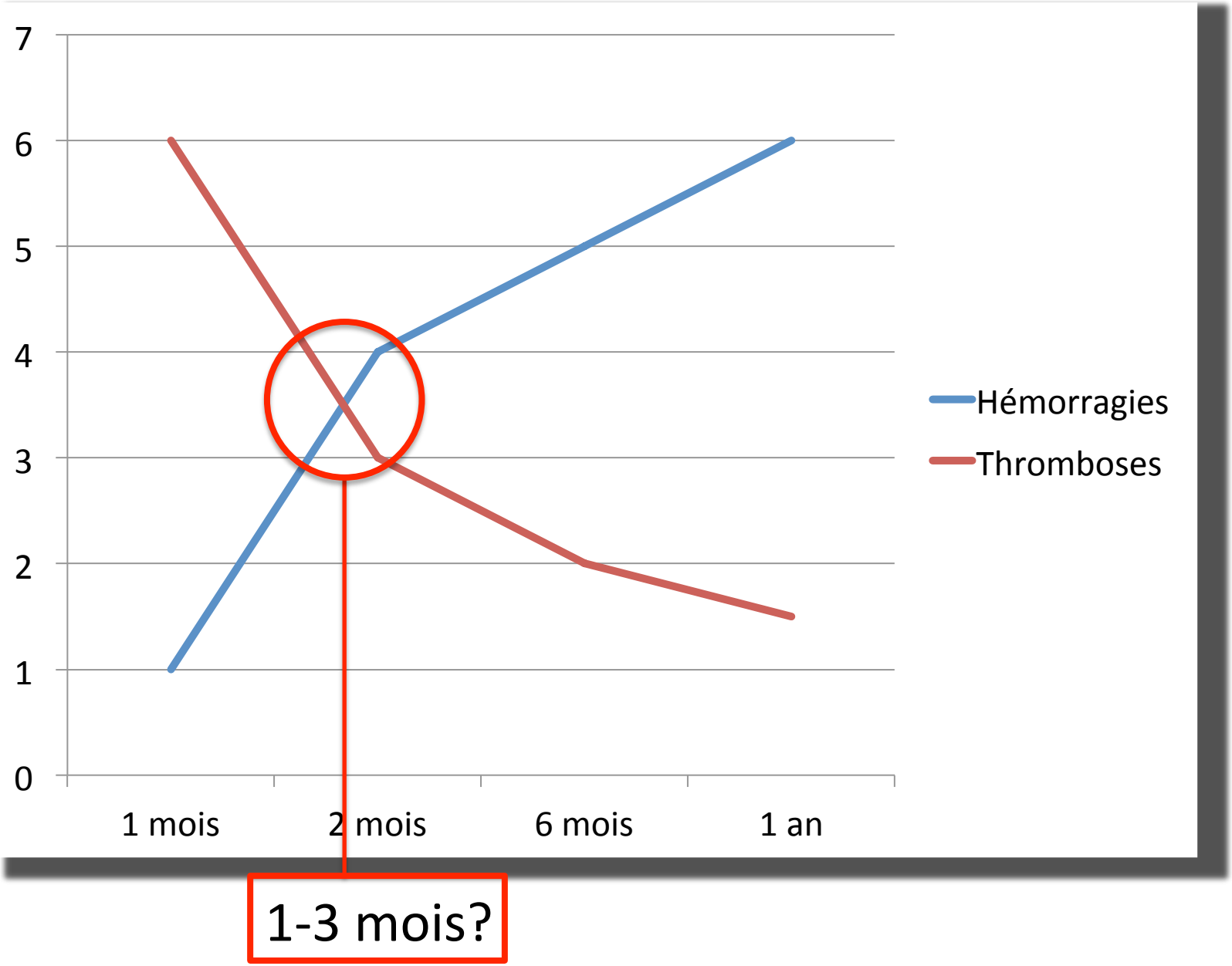
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Thromboses
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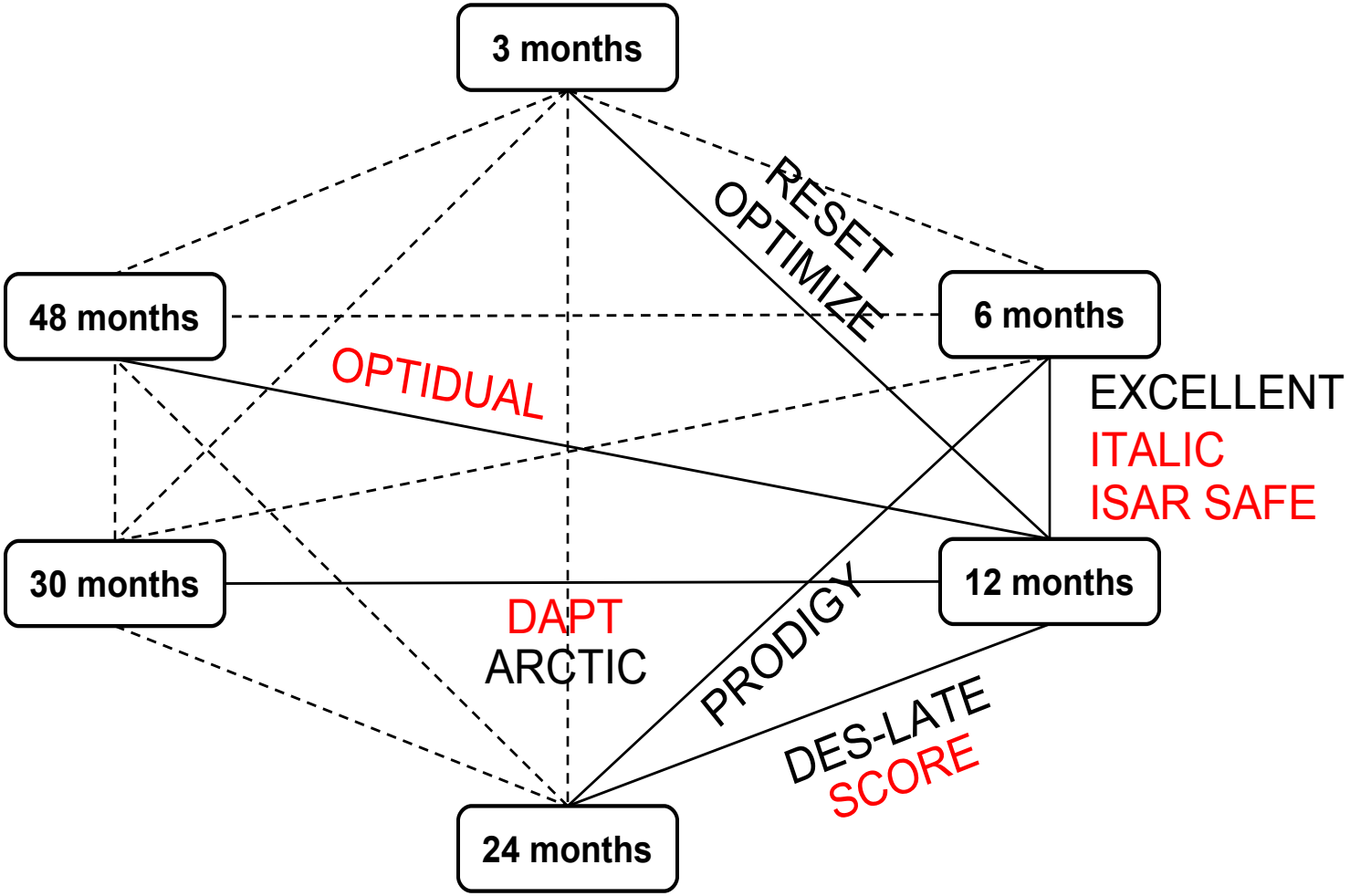
Almersoft
5.9MI

Trials of DAPT Duration



Ongoing trials in red

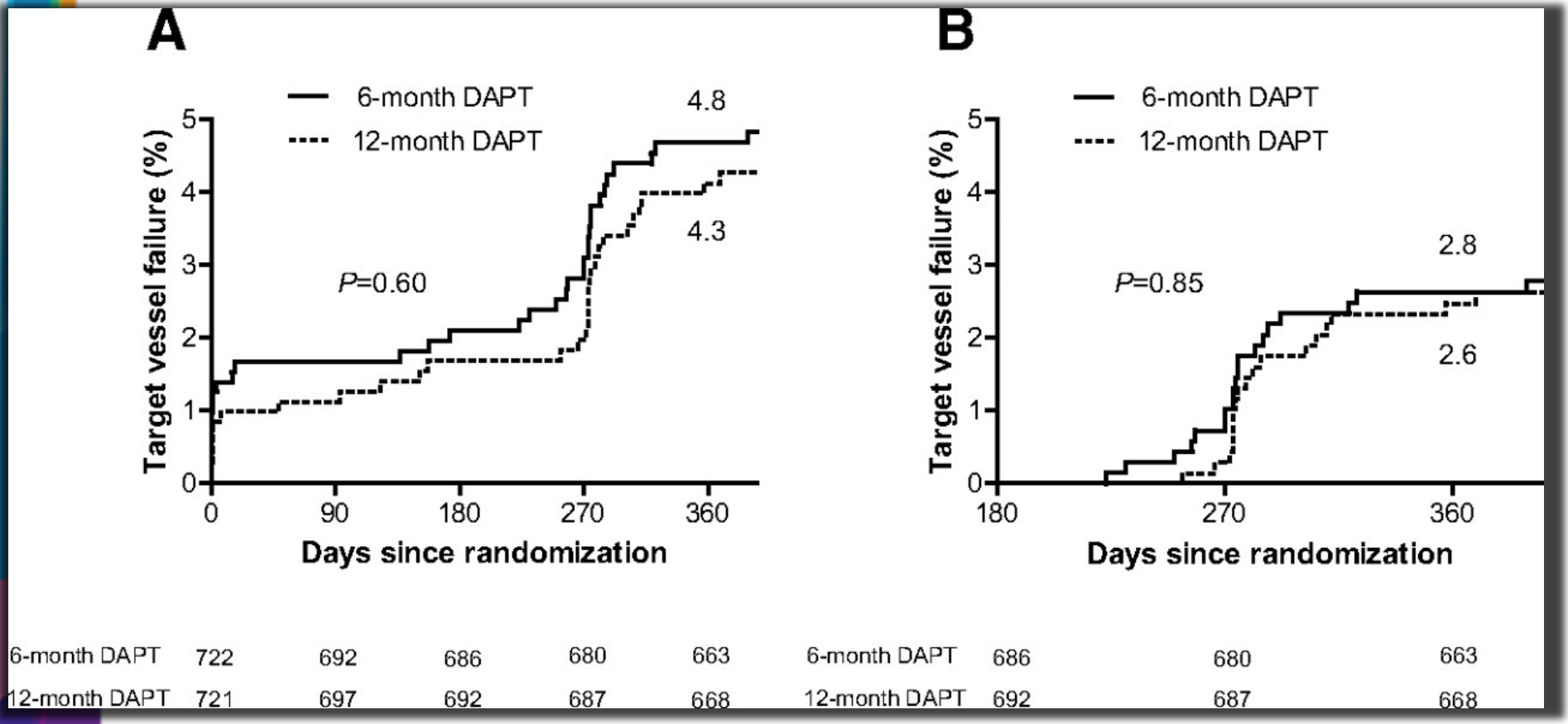
Capodanno D, Angiolillo DJ. Circulation. 2013;128:2785-98.

What is the 'Optimal' Trial for the 'Optimal' DAPT Duration?

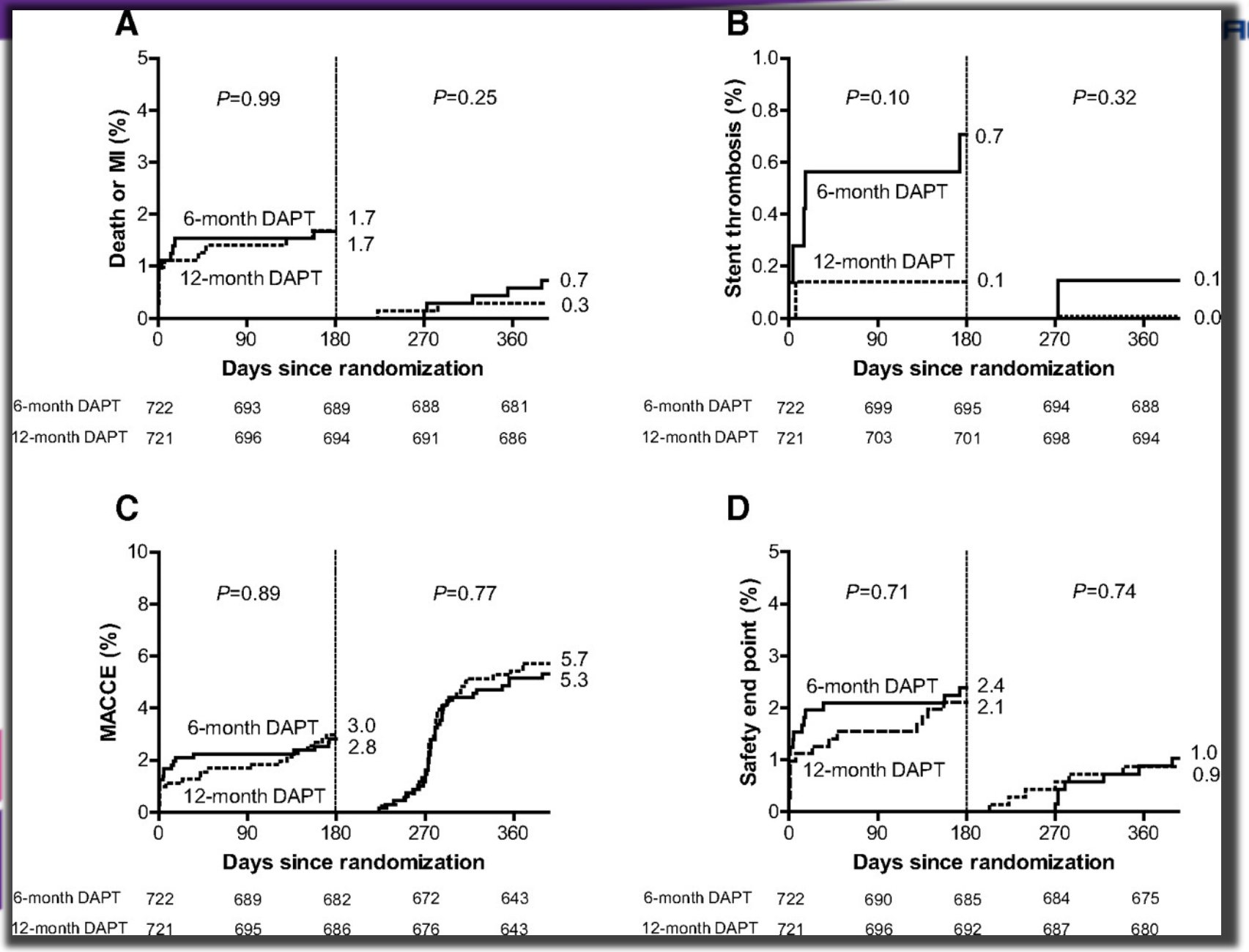
DAPT durations, inclusion of BMS, landmarking and 'event-free' patients

	Inclusion Group, N	DAPT Duration	DES Type	1° Endpoint	2° Endpoint(s)
DAPT	20,645 12-month event free	12 vs 30 months	All DES, BMS	1. D/MI/Stroke at 33 mos 2. Def/prob ST at 33 mos	GUSTO Bleeding
ISAR-SAFE	6,000 6-month event free	6 vs 12 months	All DES	D/MI/Stroke/TIMI major bleed at 15 mos	Individual component endpoints
REAL-LATE	2,000 12-month event free	12 vs 24 months	All DES	2-yr Cardiac D/MI	ARC ST, Bleeding
ZEST-LATE	2,000 12-month event free	12 vs 24 months	SES, PES, ZES	2-yr D/MI	ARC ST, Bleeding
OPTIMIZE	3,120 non-STEMI	3 vs. 12 months	Endeavor ZES	1-yr D/MI/Stroke/TIMI major bleed	ARC ST
SEASIDE	900 non-ACS	6 months	Endeavor ZES	1-yr D/MI/Stroke	GUSTO Bleeding CYP2C19

EXCELLENT Study

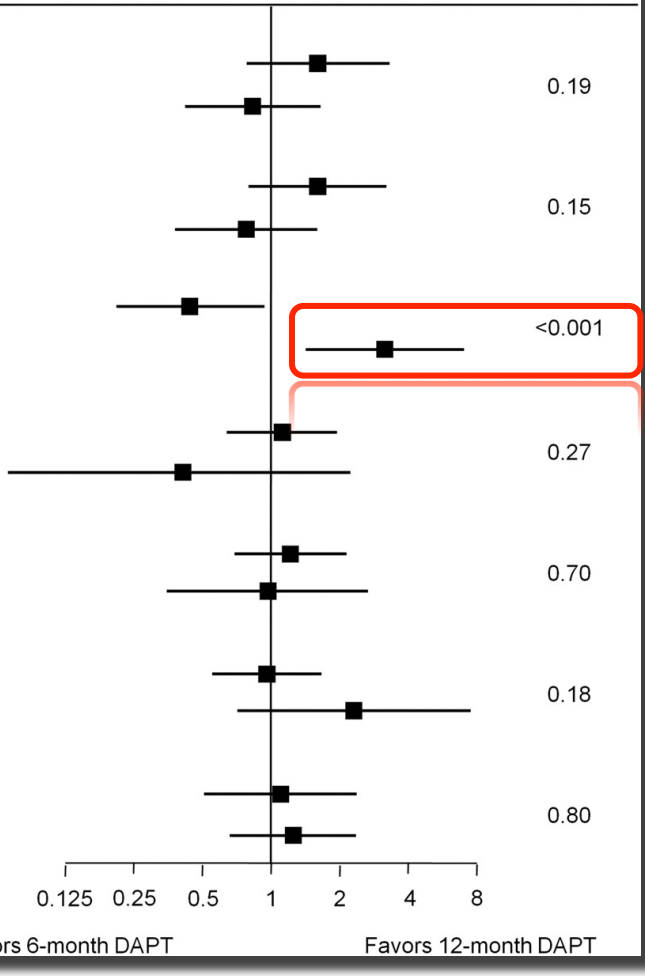


Gwon H et al. Circulation. 2012;125:505-513



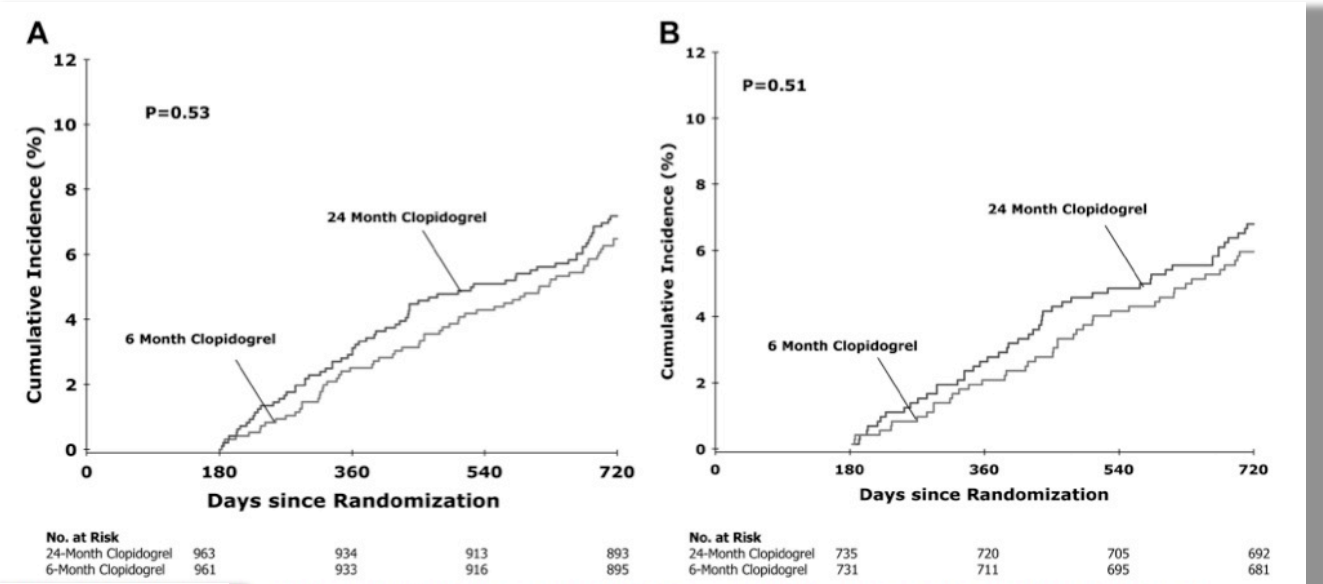
Gwon H et al. Circulation. 2012;125:505-513

	Total	6-mo DAPT n (%)	12-mo DAPT n (%)	HR (95% CI)	*P* value	Interaction *P* value
Age						
<65	767	19 (5.1)	12 (3.2)	1.61 (0.78-3.31)	0.20	0.19
≥65	676	15 (4.5)	18 (5.5)	0.83 (0.42-1.65)	0.59	
ACS						
No	699	21 (6.03)	13 (3.82)	1.61 (0.8-3.21)	0.18	0.15
Yes	744	13 (3.65)	17 (4.69)	0.78 (0.38-1.60)	0.50	
Diabetes						
No	893	10 (2.27)	22 (5.08)	0.44 (0.21-0.94)	0.03	<0.001
Yes	550	24 (9.09)	8 (2.96)	3.16 (1.42-7.03)	0.005	
LV ejection fraction						
≥50%	1097	26 (4.91)	24 (4.42)	1.12 (0.64-1.95)	0.69	0.27
<50%	124	2 (3.08)	4 (7.41)	0.41 (0.07-2.23)	0.30	
Bifurcation						
No	1243	27 (4.41)	22 (3.65)	1.22 (0.69-2.14)	0.49	0.70
Yes	200	7 (7.61)	8 (7.96)	0.97 (0.35-2.67)	0.95	
Type of stent						
EES	1079	25 (4.72)	26 (4.94)	0.96 (0.55-1.66)	0.89	0.18
SES	364	9 (5.14)	4 (2.27)	2.31 (0.71-7.5)	0.16	
Multi-stent						
No	866	14 (3.18)	12 (2.91)	1.1 (0.51-2.38)	0.81	0.80
Yes	567	20 (7.68)	18 (6.2)	1.25 (0.66-2.37)	0.49	

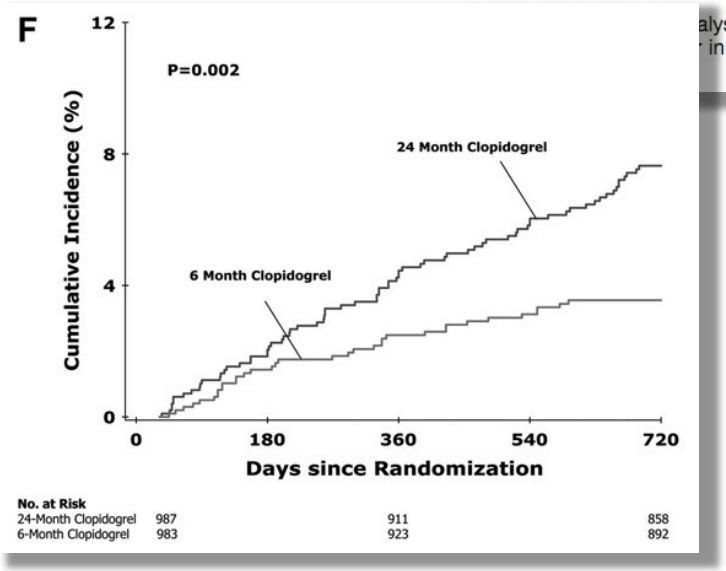


Gwon H et al. Circulation. 2012;125:505-513

PRODIGY Study



alyses. Cumulative rates of composite of death, myocardial infarction, or cerebrovascular accident in all
in patients who were randomly allocated to the drug-eluting stent groups (**B**) using the 6-month landmark



Valgimigli, Circulation. 2012 Apr 24;125(16):2015-26

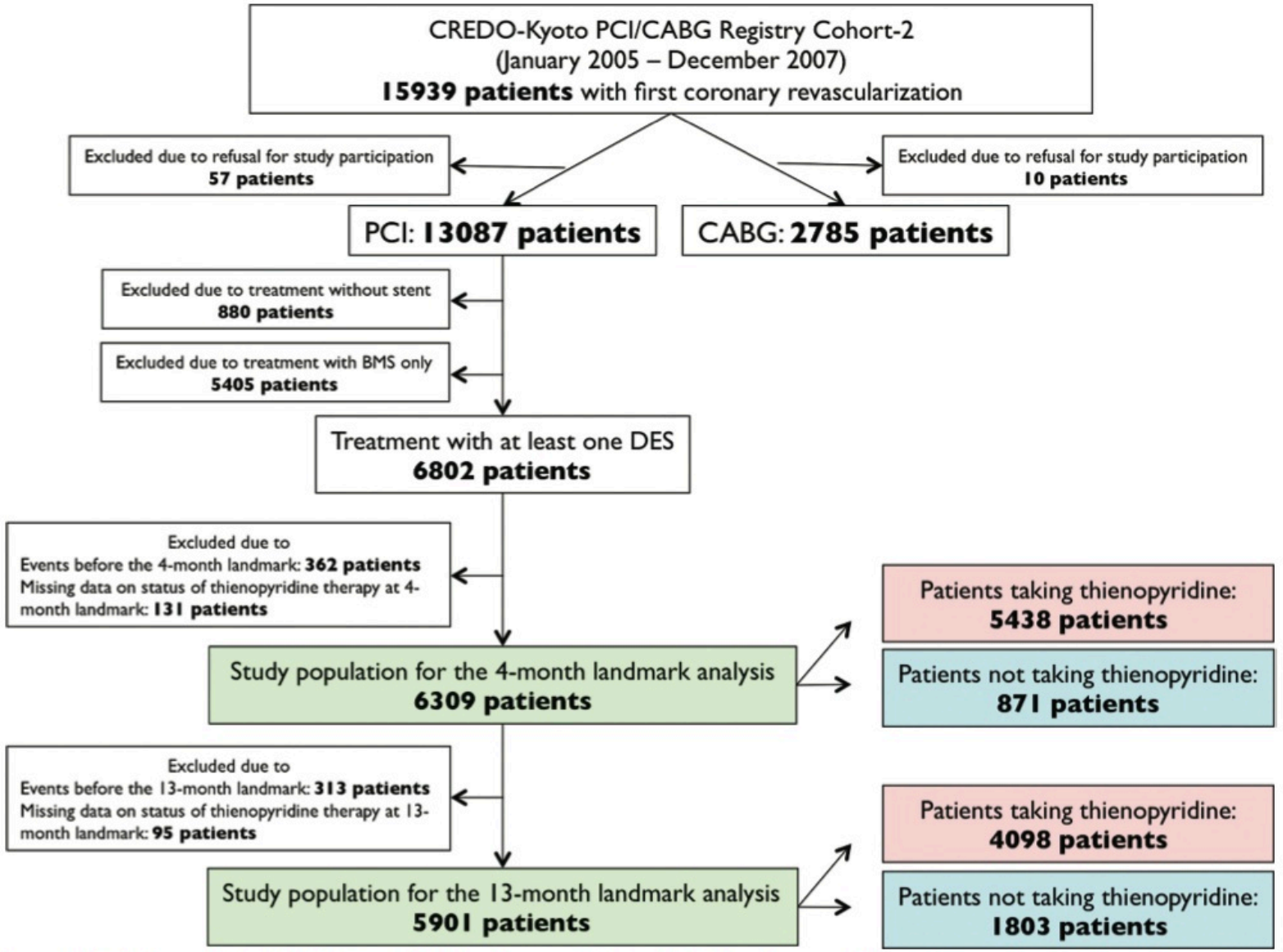
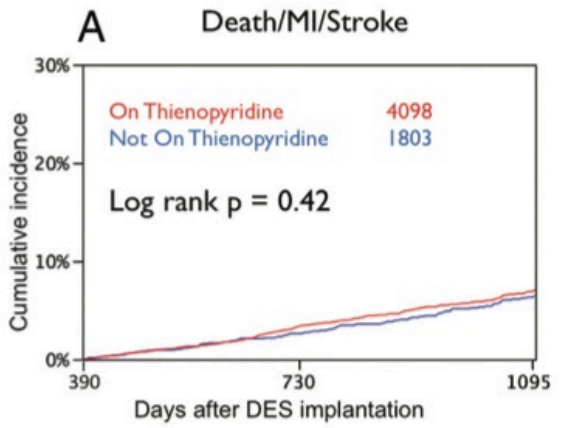
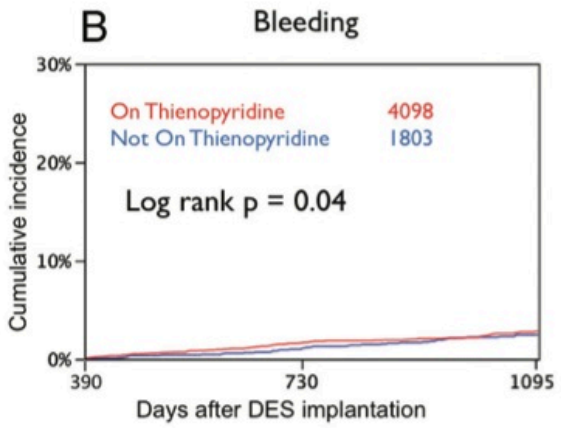


Figure 1. Study flow chart. CREDO-Kyoto indicates Coronary REvascularization Demonstrating Outcome Study in Kyoto Percutaneous Coronary Intervention (PCI)/Coronary Artery Bypass Grafting (CABG) Registry Cohort-2. DES indicates drug-eluting stent; BMS, bare metal stent.

Tada, Circ Cardiovasc Interv. 2012 Jun;5(3):381-91





Interval	390 day	730 day	1095 day
On Thienopyridine			
N of events		123	199
N of patients at risk	4098	2965	1330
Incidence		3.4%	6.9%
Not On Thienopyridine			
N of events		45	93
N of patients at risk	1803	1542	943
Incidence		2.6%	6.3%

Interval	390 day	730 day	1095 day
On Thienopyridine			
N of events		65	94
N of patients at risk	4098	3572	1858
Incidence		1.8%	2.8%
Not On Thienopyridine			
N of events		19	39
N of patients at risk	1803	1673	1188
Incidence		1.1%	2.4%

Figure 4. Cumulative incidence of events in the 13-month landmark analysis. **A**, Death/myocardial infarction (MI)/stroke; **B**, bleeding. DES indicates drug-eluting stent.

Tada, Circ Cardiovasc Interv. 2012 Jun;5(3):381-91

Study at a glance & Final Enrollment ♪

2,148 patients enrolled and randomized

- E-ZES + 3-month DAPT
- Standard Therapy: Other DES with 12-month DAPT

Divided into 4 subsets and 1:1 randomization was performed.

31 patients excluded
- 16 Withdrawal of consent
- 15 Met exclusion criteria

E-ZES + 3-month DAPT (n=1059)		Standard therapy (n=1058)	
Diabetes mellitus subset (N=292)	Acute coronary syndrome subset (N=601)	Short-length DES Subset (N=681)	Long-length DES Subset (N=543)
E-ZES (n=146) / R-ZES (n=146)	E-ZES (n=301) / R-ZES (n=300)	E-ZES (n=341) / SES (n=340)	E-ZES (n=271) / EES (n=272)

R-ZES = Resolute zotarolimus-eluting stent ; SES = sirolimus-eluting stent; EES = everolimus-eluting stents

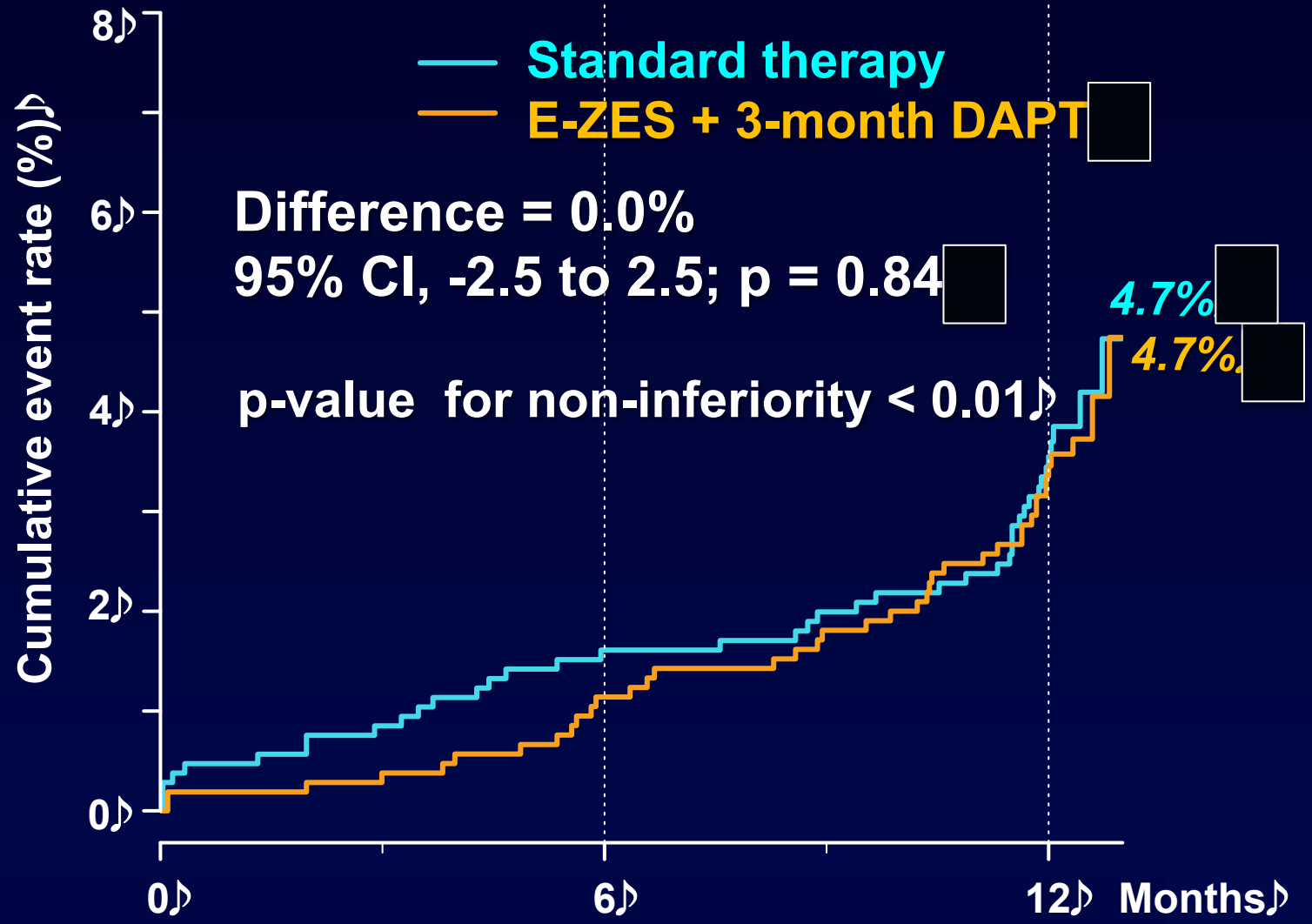
Kim, J Am Coll Cardiol. 2012 Oct 9;60(15):1340-8

RESET

Kim, J Am Coll Cardiol. 2012 Oct 9;60(15):1340-8

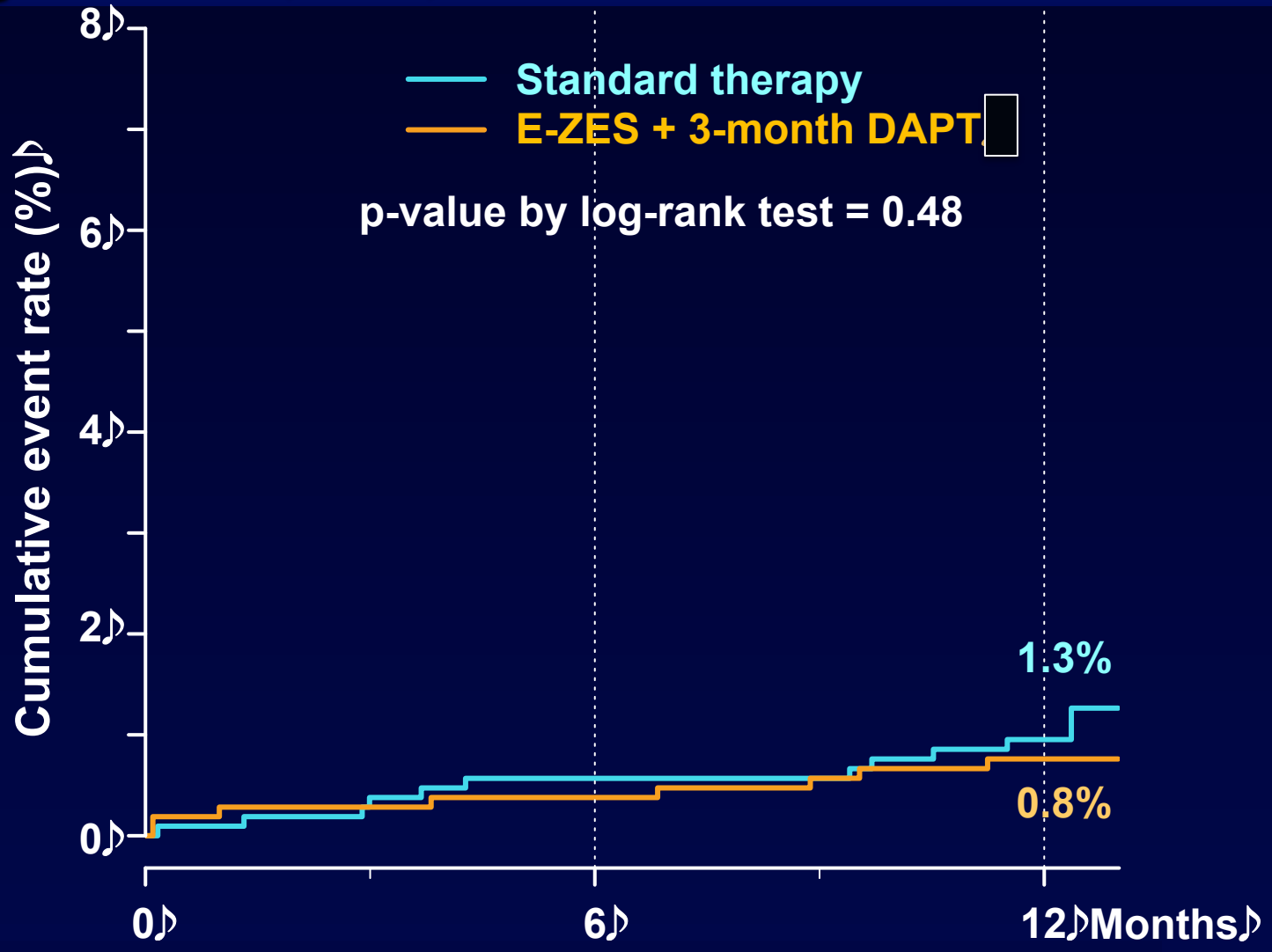
Primary endpoint, by Kaplan-Meier method

* Primary end-point; A composite of death from CV cause, MI, stent thrombosis, TVR or bleeding at 1 year



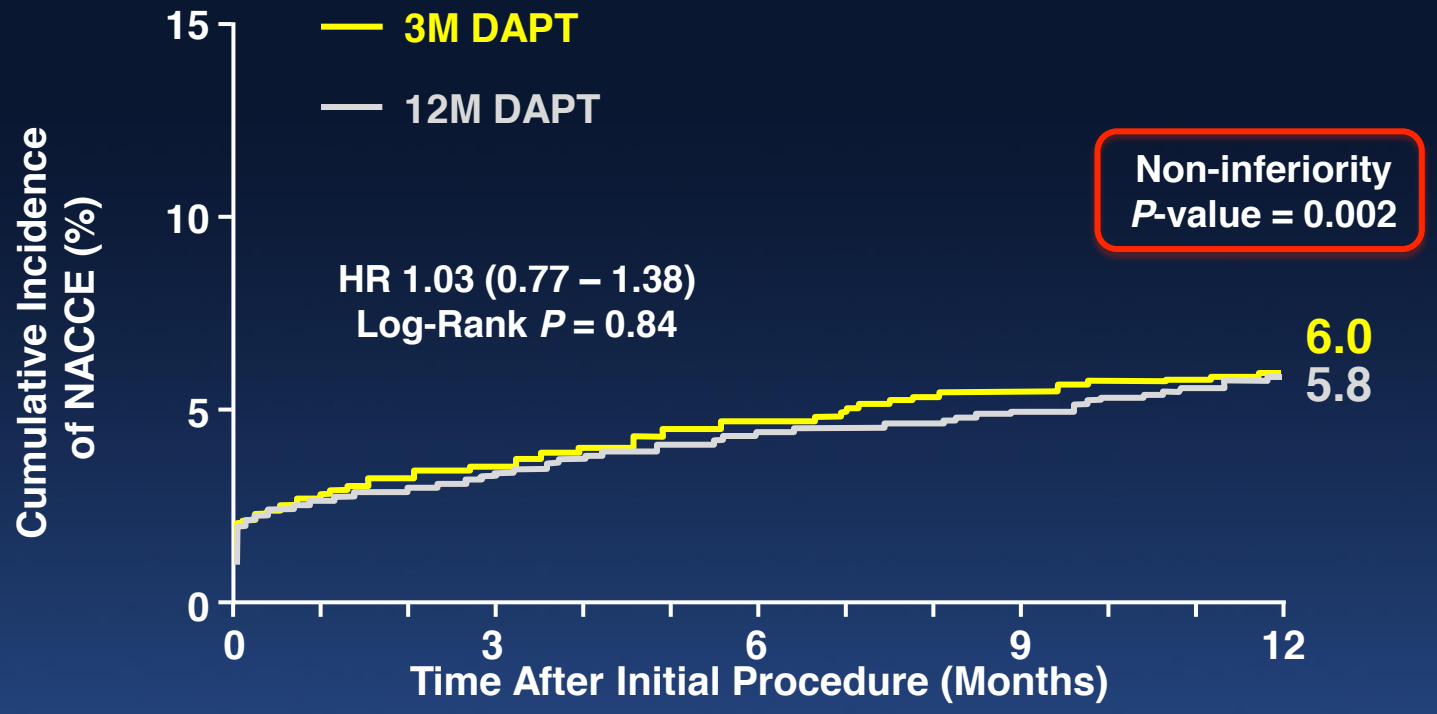
Kim, J Am Coll Cardiol. 2012 Oct 9;60(15):1340-8

Any death, MI, or stent thrombosis



No. at Risk					
E-ZES+ 3-month DAPT	1059	1051	1045	1041	966
Standard therapy	1058	1051	1042	1037	937

Primary Endpoint: NACCE at 1 Year
(All-Cause Death, MI, Stroke, Major Bleeding)

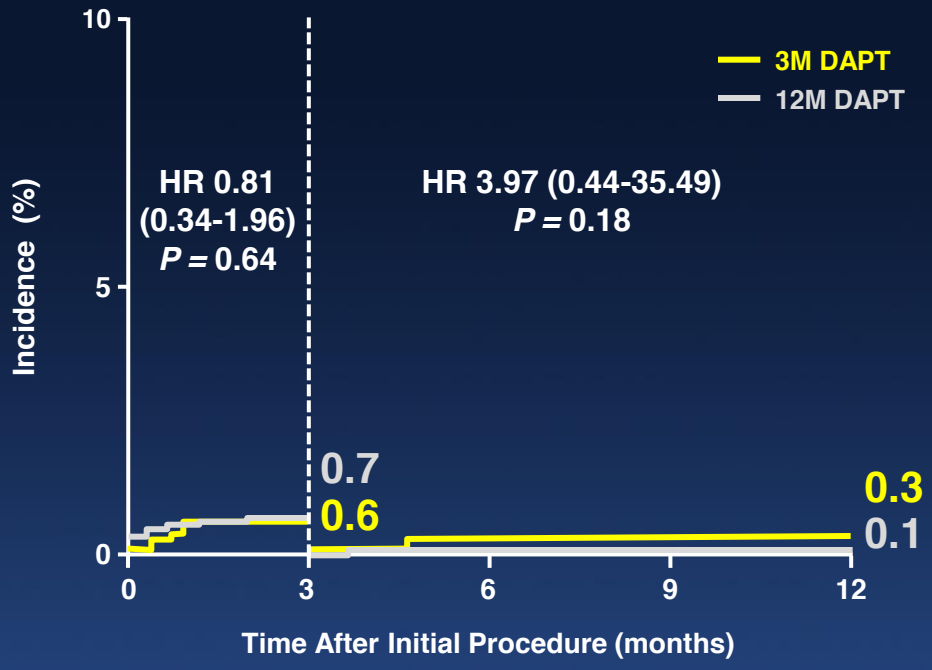


Month	0	1	3	6	12
No. at risk	1563	1520	1504	1468	1384
No. events	18	25	11	18	21
No. at risk	1556	1514	1497	1466	1381
No. events	16	25	11	16	22

Feres, Am Heart J. 2012 Dec;164(6):810-6

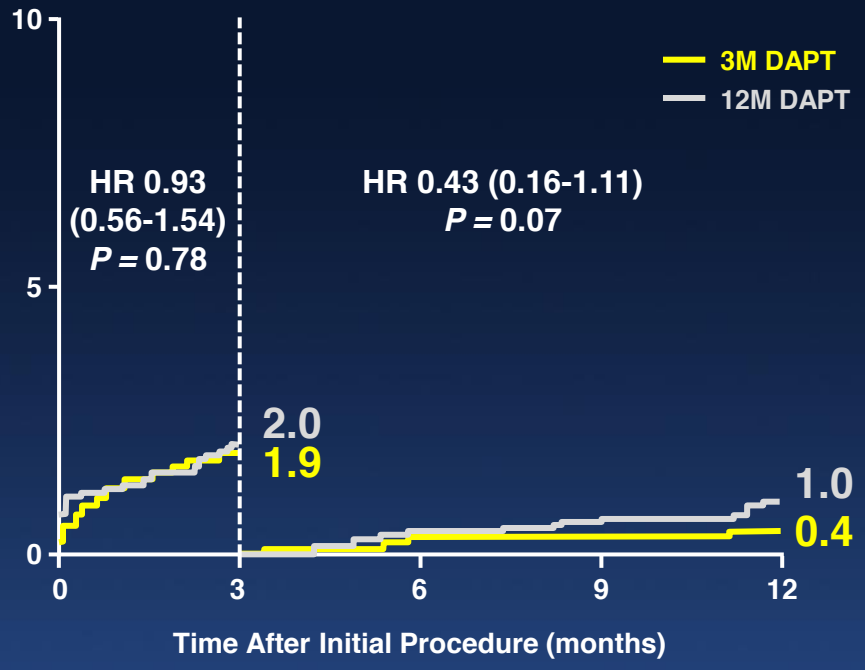
Stent Thrombosis *vs.* Bleeding

ARC Def./Prob. Stent Thrombosis



Month	0	1	3	6	12
No at risk	1563	1555	1540	1506	1505
No events	0	6	3	4	0
No at risk	1556	1541	1525	1501	1500
No events	5	3	3	1	0

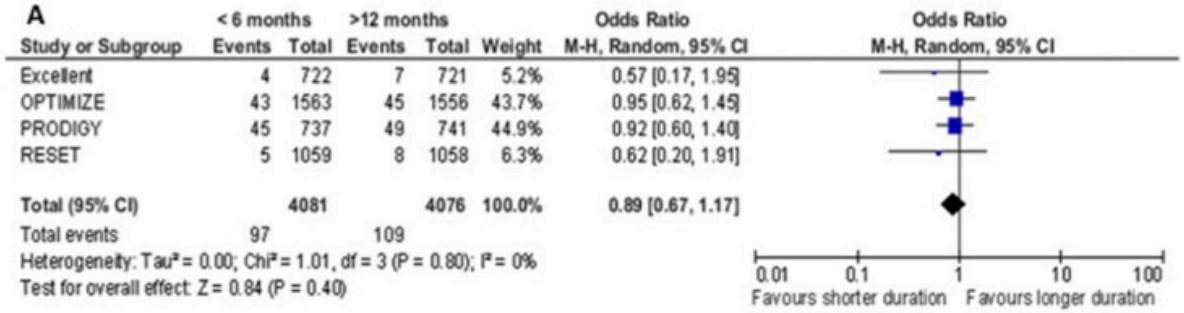
Any Bleeding*



Month	0	1	3	6	12
No at risk	1563	1538	1516	1482	1439
No events	4	15	10	4	2
No at risk	1556	1528	1501	1472	1387
No events	11	8	12	6	8

Feres, Am Heart J. 2012 Dec;164(6):810-6

*Any bleeding according to the combined REPLACE-2 and GUSTO criteria.



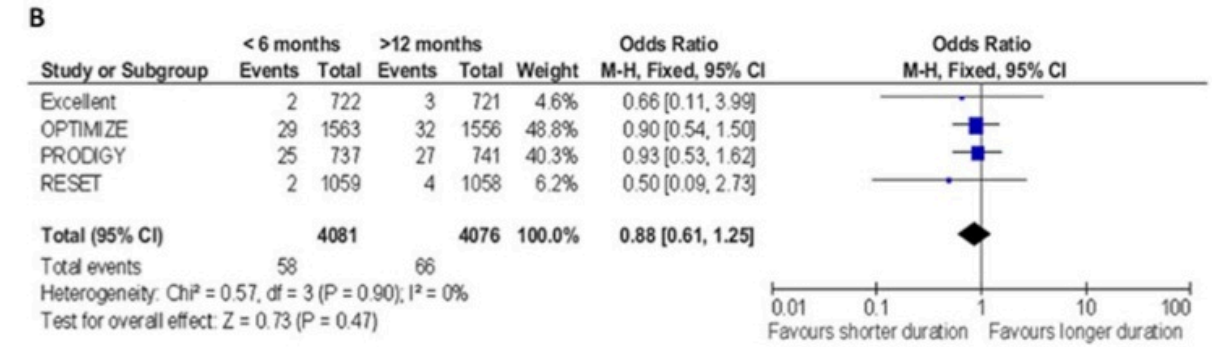


Fig. 1. Meta-analysis of all cause mortality in the trials (A) and cardiac death (B). [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

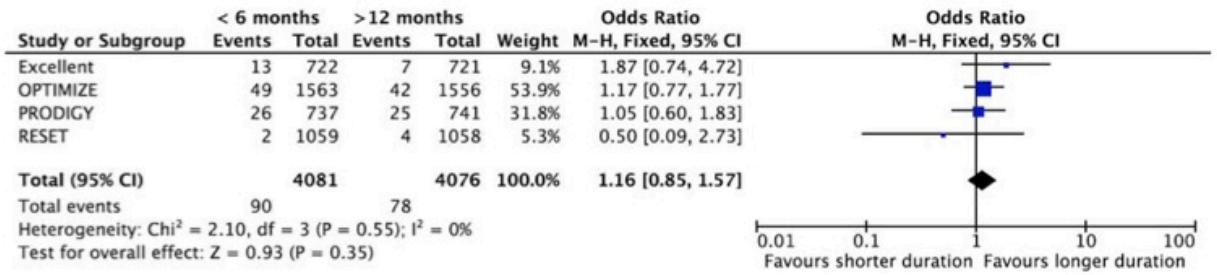


Fig. 2. Meta-analysis of MI in the trials. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

Pandit, Catheter Cardiovasc Interv. 2014 Apr 18

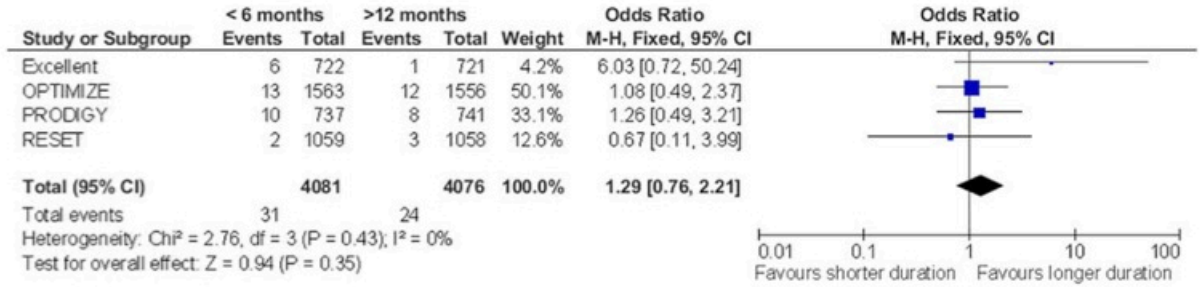


Fig. 3. Meta-analysis of definite or probable stent thrombosis in the trials. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

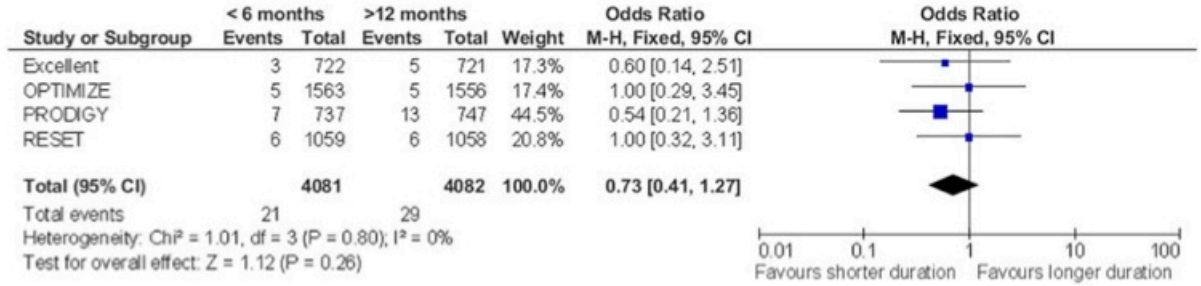


Fig. 4. Meta-analysis of cerebrovascular accidents in the trials. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

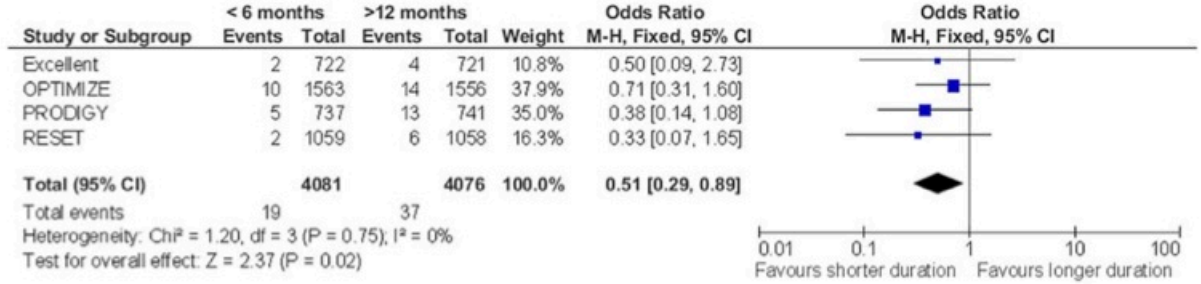


Fig. 5. Meta-analysis of TIMI major bleeding in the trials. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

Pandit, Catheter Cardiovasc Interv. 2014 Apr 18

Et 1 mois?

Contemporary Incidence and Predictors of Stent Thrombosis and Other Major Adverse Cardiac Events in the Year After XIENCE V Implantation

Results From the 8,061-Patient XIENCE V United States Study

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Table 6. Multivariate Predictors of 1-Year Clinical Outcomes

	Multivariate Predictors	Hazard Ratio (95% CI)	p Value
ARC definite/probable ST	DAPT interruption* ≤30 days	8.63 (2.69–27.73)	0.0003
	Renal insufficiency	3.72 (1.71–8.09)	0.0009
	Total length of stents (10 mm)	1.30 (1.16–1.47)	<0.0001
Cardiac death and ARC MI (CD/MI)	Renal insufficiency	1.64 (1.22–2.19)	0.0010
	Female	1.46 (1.18–1.82)	0.0006
	Prior MI	1.43 (1.15–1.78)	0.0014
	Multi-vessel intervention	1.40 (1.05–1.85)	0.0214
	Diabetes Rx	1.34 (1.07–1.67)	0.0096
	Total length of stents (10 mm)	1.16 (1.10–1.22)	<0.0001

Naidu, JACC Cardiovasc Interv. 2012 Jun;5(6):626-35

European Heart Journal
doi:10.1093/eurheartj/ehu026

CLINICAL RESEARCH

Lack of association between dual antiplatelet therapy use and stent thrombosis between 1 and 12 months following resolute zotarolimus-eluting stent implantation

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Sandeep Brar[4], Martin Rothman[4], and Stephan Windec

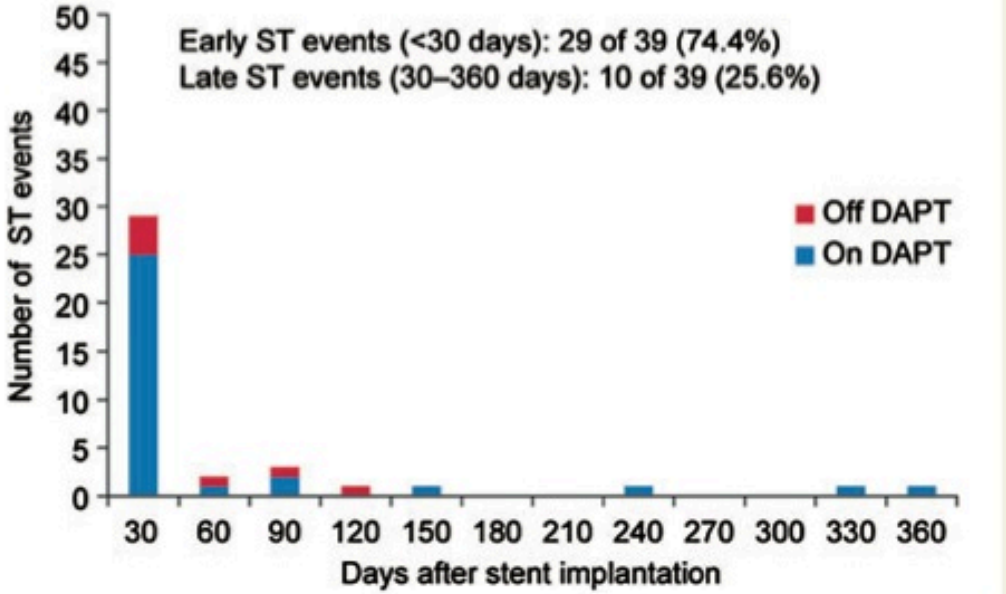
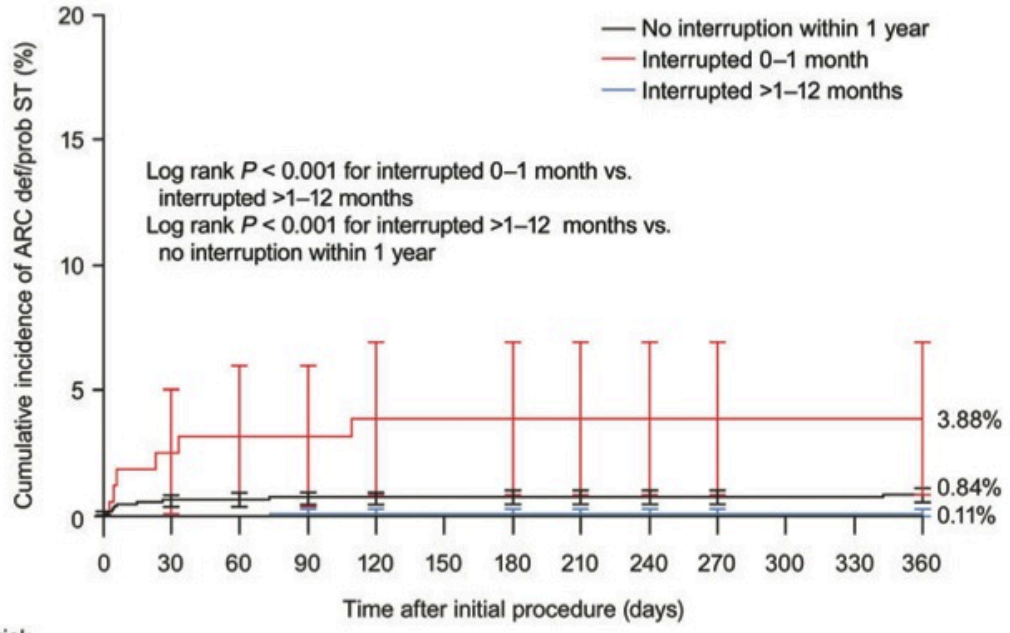


Figure 4 Timing of stent thrombosis regardless of time of dual antiplatelet therapy interruption. DAPT, dual antiplatelet therapy; ST, stent thrombosis.

Silber, Eur Heart J. 2014 Feb 7



Number at risk											
No interruption within 1 year	3827	3822	3795	3791	3788	3787	3784	3783	3780		3780
Interrupted 0–1 month	166	164	149	147	144	142	141	139	138		137
Interrupted >1–12 months	903	903	902	892	883	877	855	844	841		837

Figure 5 Cumulative incidence of definite or probable stent thrombosis through 1 year after stent implantation according to dual antiplatelet therapy interruption status. ST, stent thrombosis.

Silber, Eur Heart J. 2014 Feb 7

Marquages CE

MEDTRONIC OBTIENT L'AUTORISATION DE METTRE A JOUR LE MARQUAGE CE DU STENT RESOLUTE INTEGRITY SUR LE DOUBLE TRAITEMENT ANTIPLAQUETTAIRE

L'interruption ou la suspension un mois après la procédure d'implantation montre un risque faible et non accru d'une thrombose de stent à un an selon les études cliniques.

Conclusion

- Le systématisme n'est pas de mise!

- DES actuels: 6 mois sont sécuritaires (voire 3 mois chez des patients sélectionnés),
- Pousser jusqu'à un an si FDR ischémiques importants type diabète, resténose, SCA, insuffisance rénale …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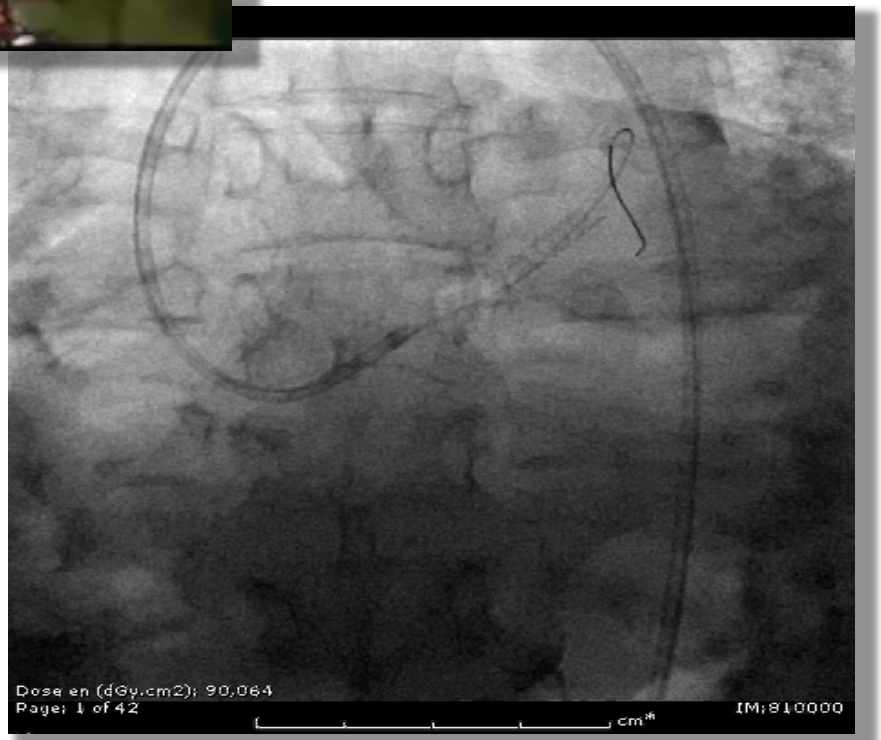
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