

Cardiopathie ischémique

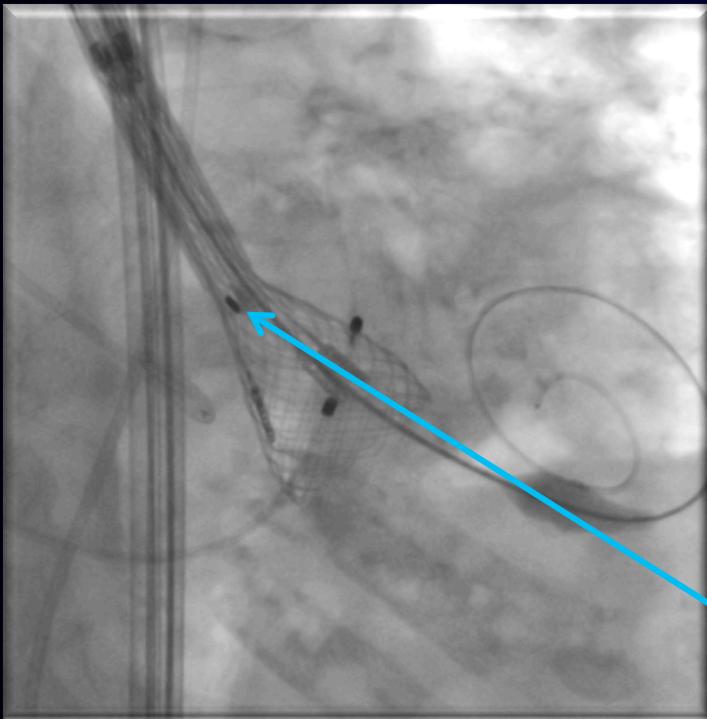
.....

Pr Y Cottin
Dijon



Lotus Valve Deployment: Unsheathing

Early function enables hemodynamic stability



Central radiopaque positioning marker guides placement. The Lotus Valve is functioning when 1/2 of the valve is unsheathed. Rapid pacing is not required.

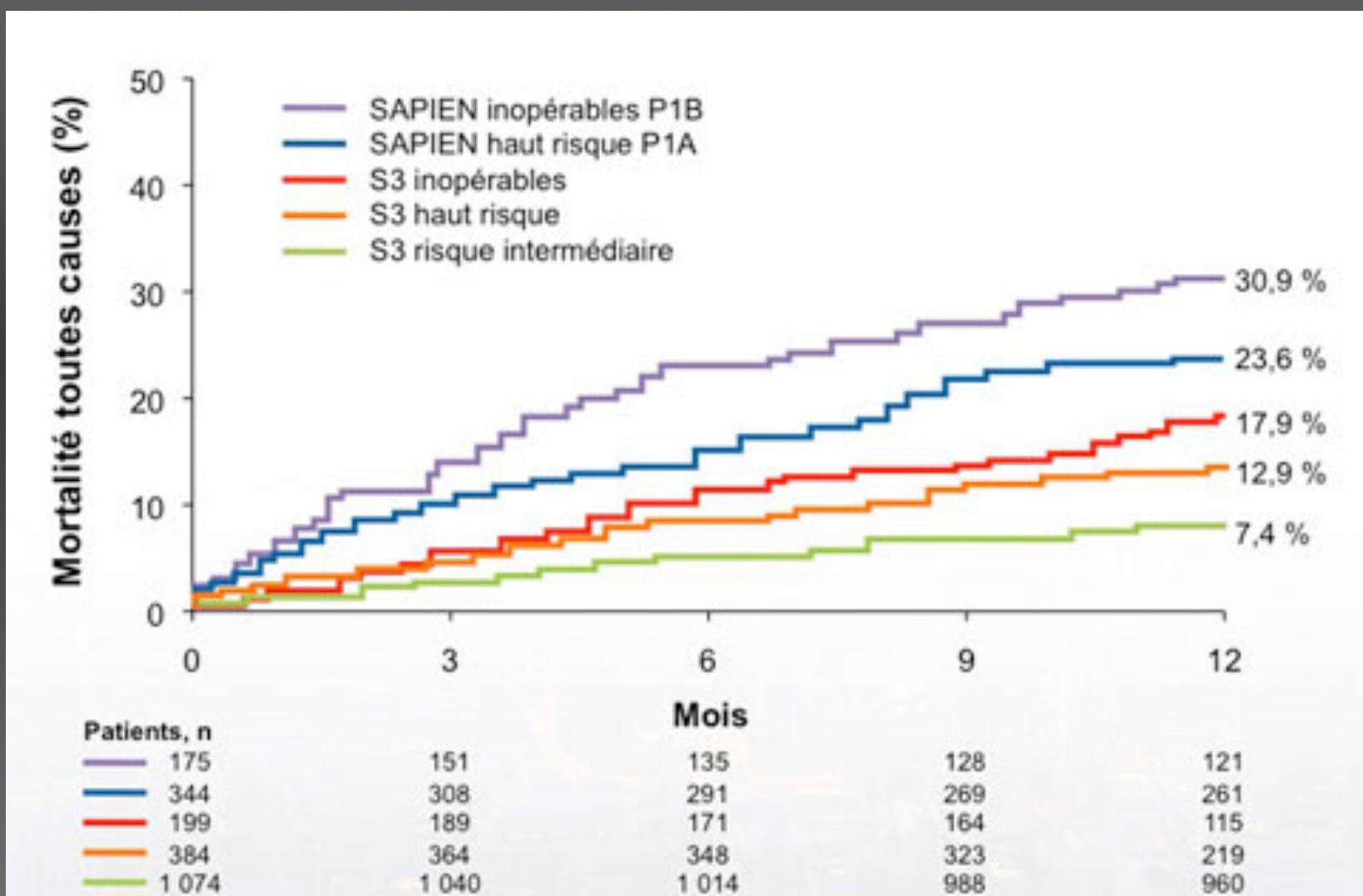
Images courtesy of Ian T. Meredith AM, MBBS, PhD

Information not intended for use in France. Lotus is an investigational device and not for sale or distribution in the US.

CE mark received 2013. Information for the Lotus Valve System is for use in countries with applicable product registrations.

Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device.

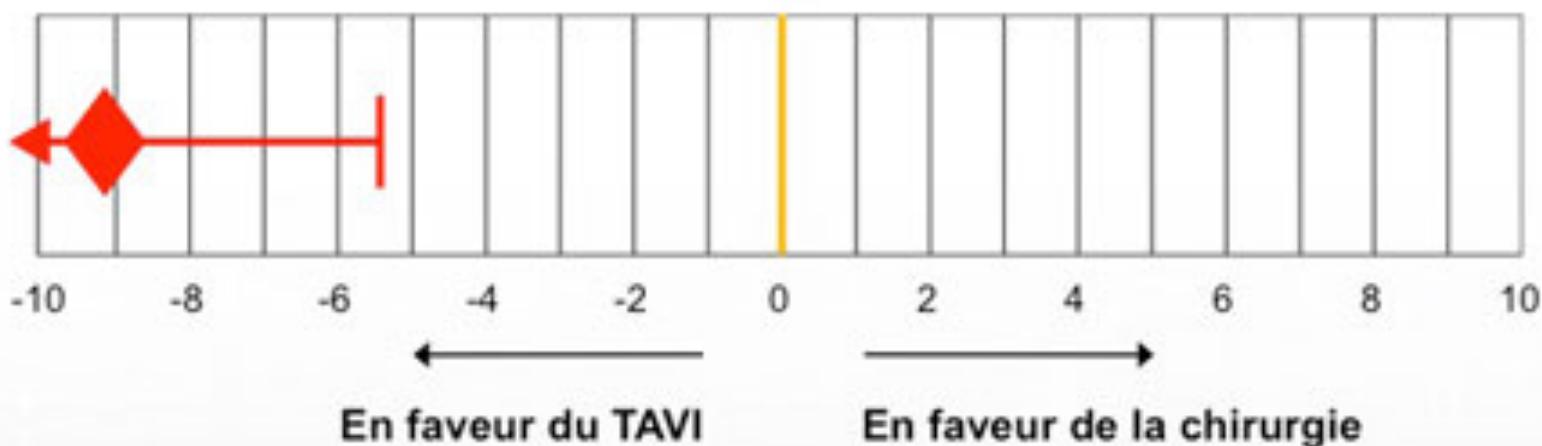
Sapien 3 versus chirurgie dans les sténoses aortiques sévères chez les patients à risque intermédiaire : une comparaison à 1 an, ajustée sur un score de propension



Critère principal - supériorité (décès, AVC ou fuite paravalvulaire \geq modérée) à 1 an

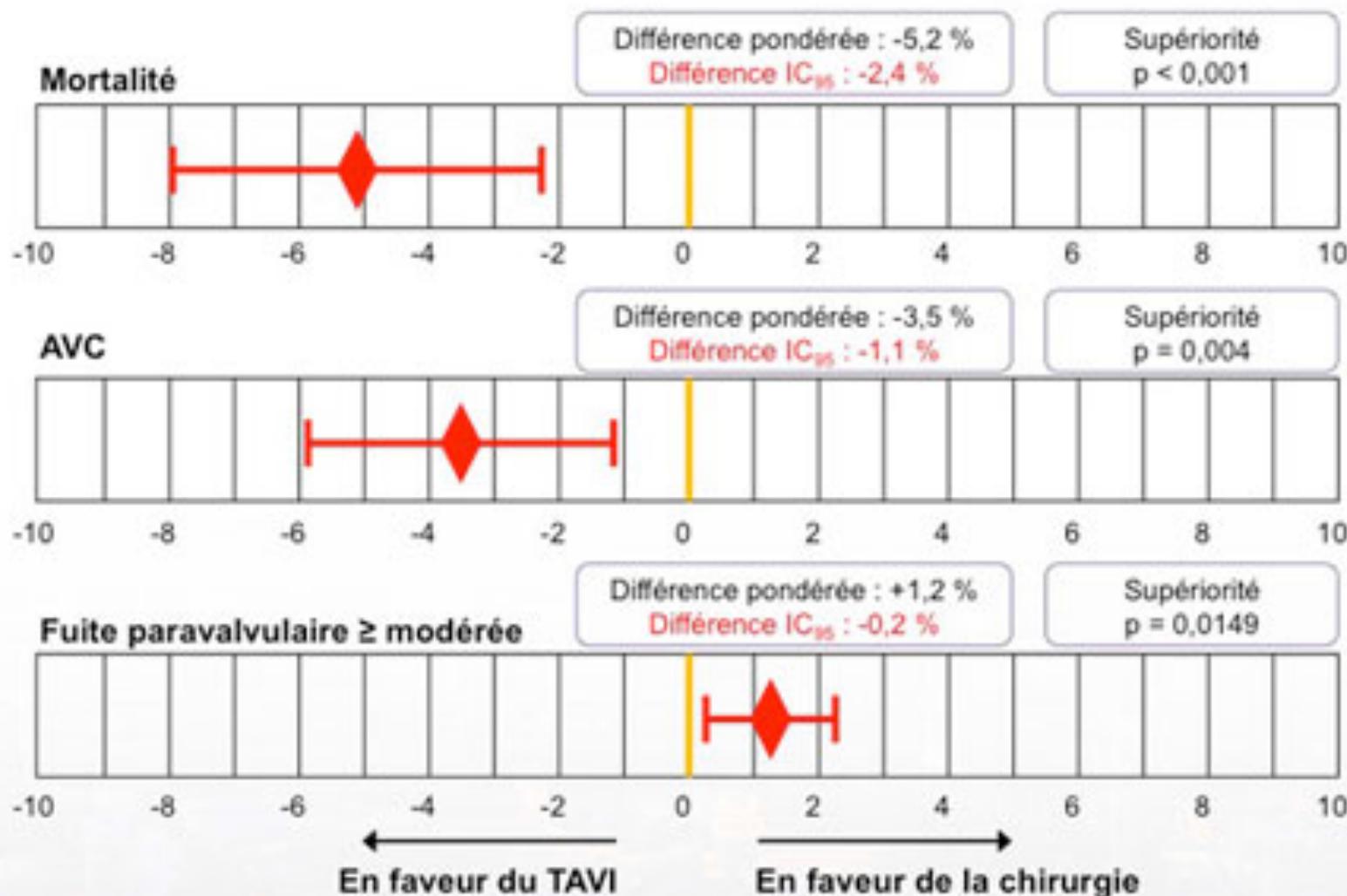
Différence pondérée : -9,2 %
Différence IC₉₅ : -5,4 %

Supériorité
 $p < 0,001$



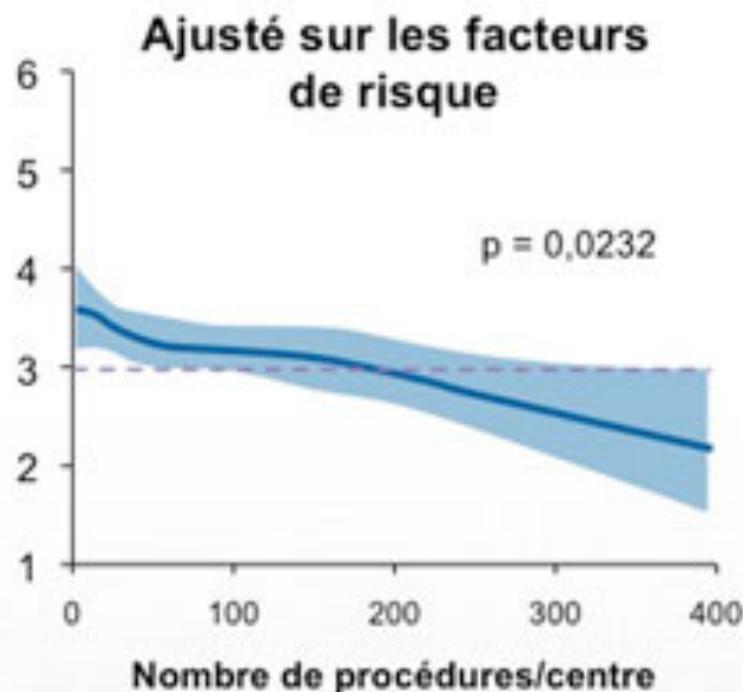
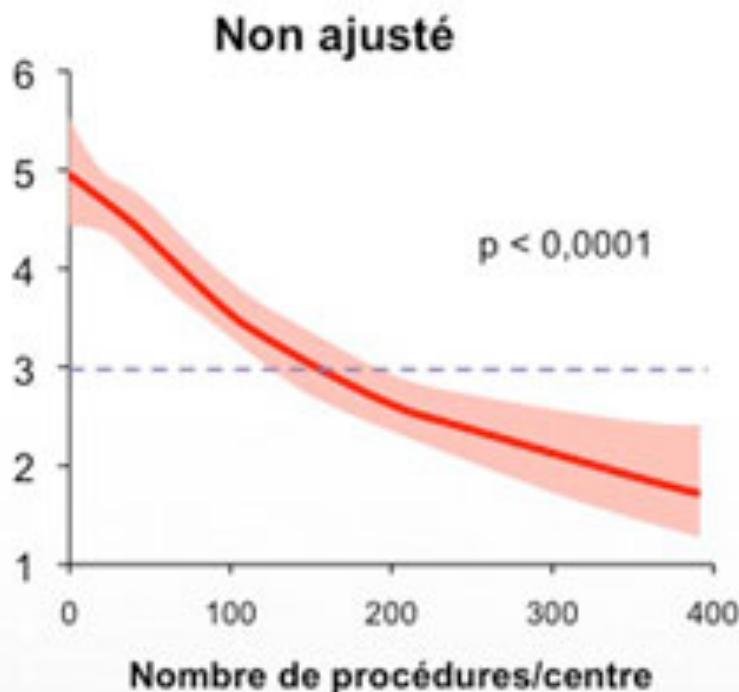
Supériorité démontrée

Analyse de supériorité - composants du critère principal

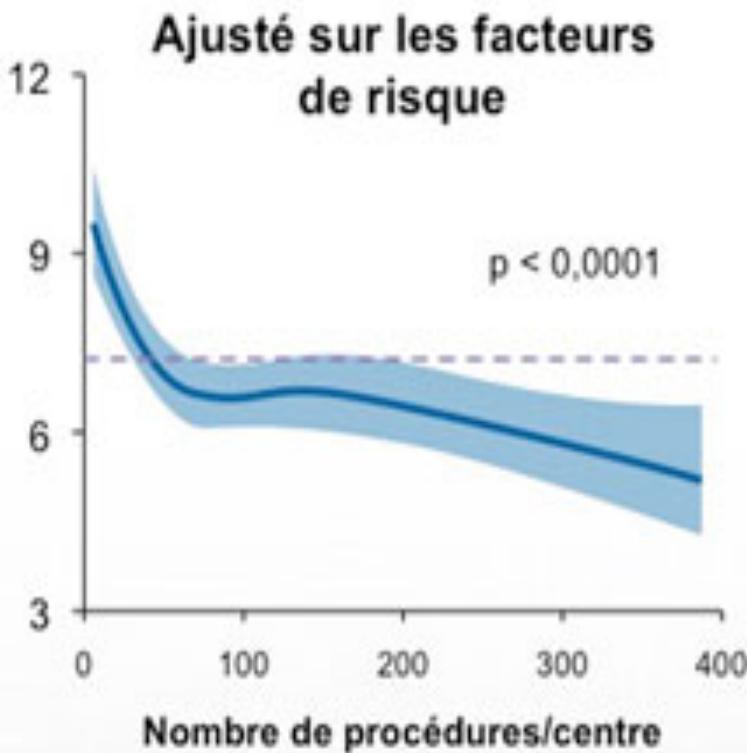
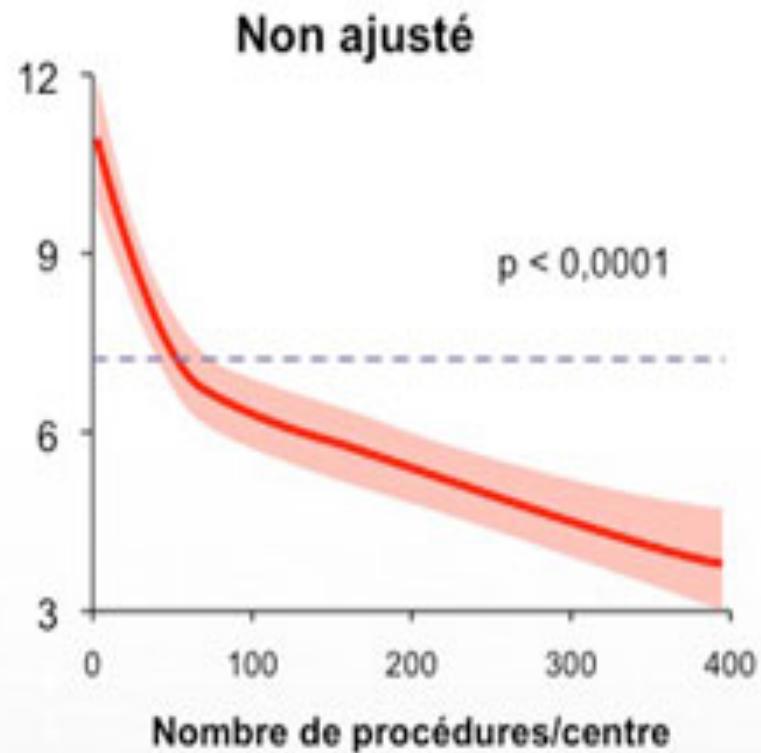


TAVI : plus le volume d'interventions est important, meilleurs sont les résultats

Mortalité intra-hospitalière



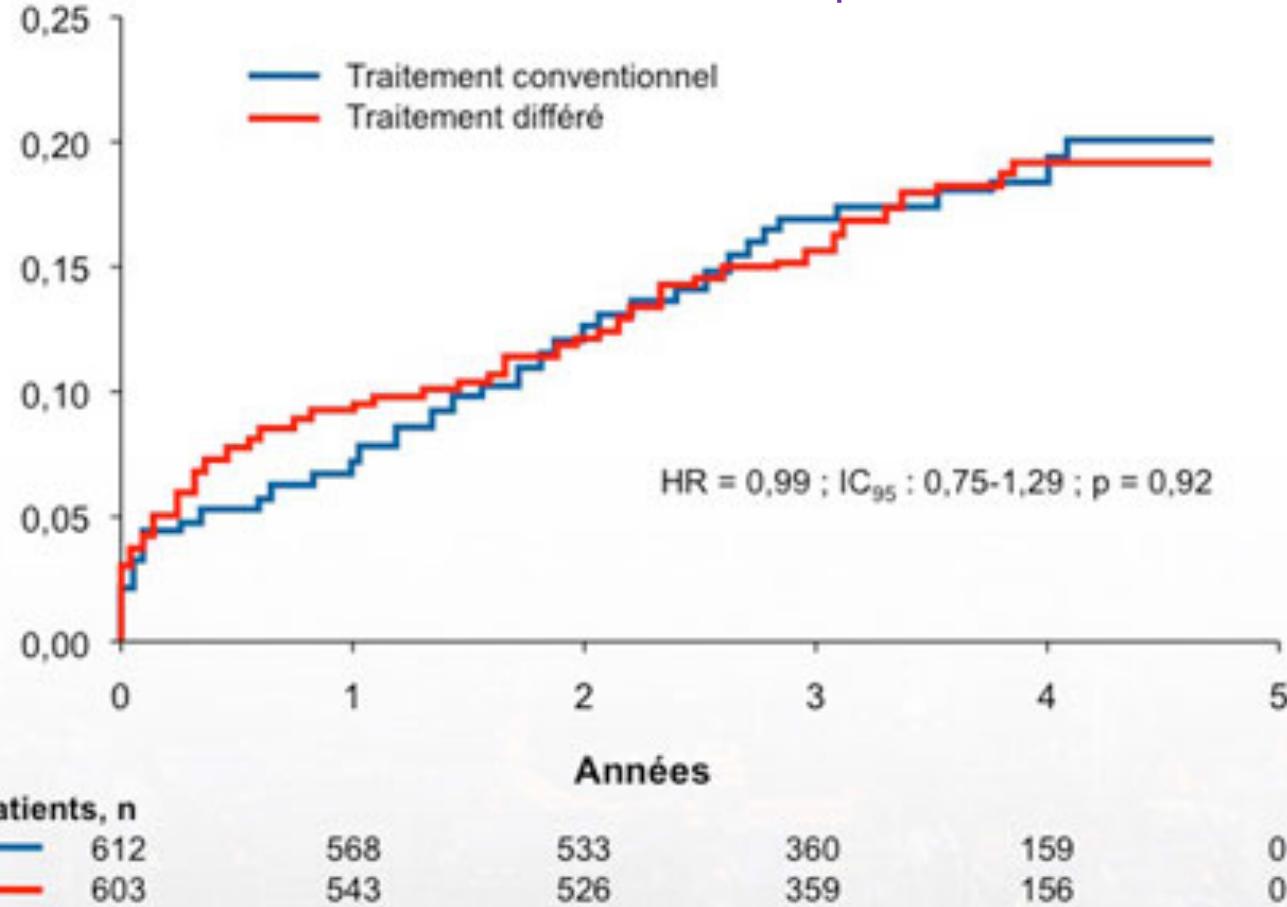
Complications hémorragiques - saignements BARC majeurs et BARC menaçant le pronostic vital



DANAMI 3-DEFER : restons simples pour l'angioplastie primaire, pas de bénéfice pour une angioplastie avec stenting différé

Critère de jugement primaire

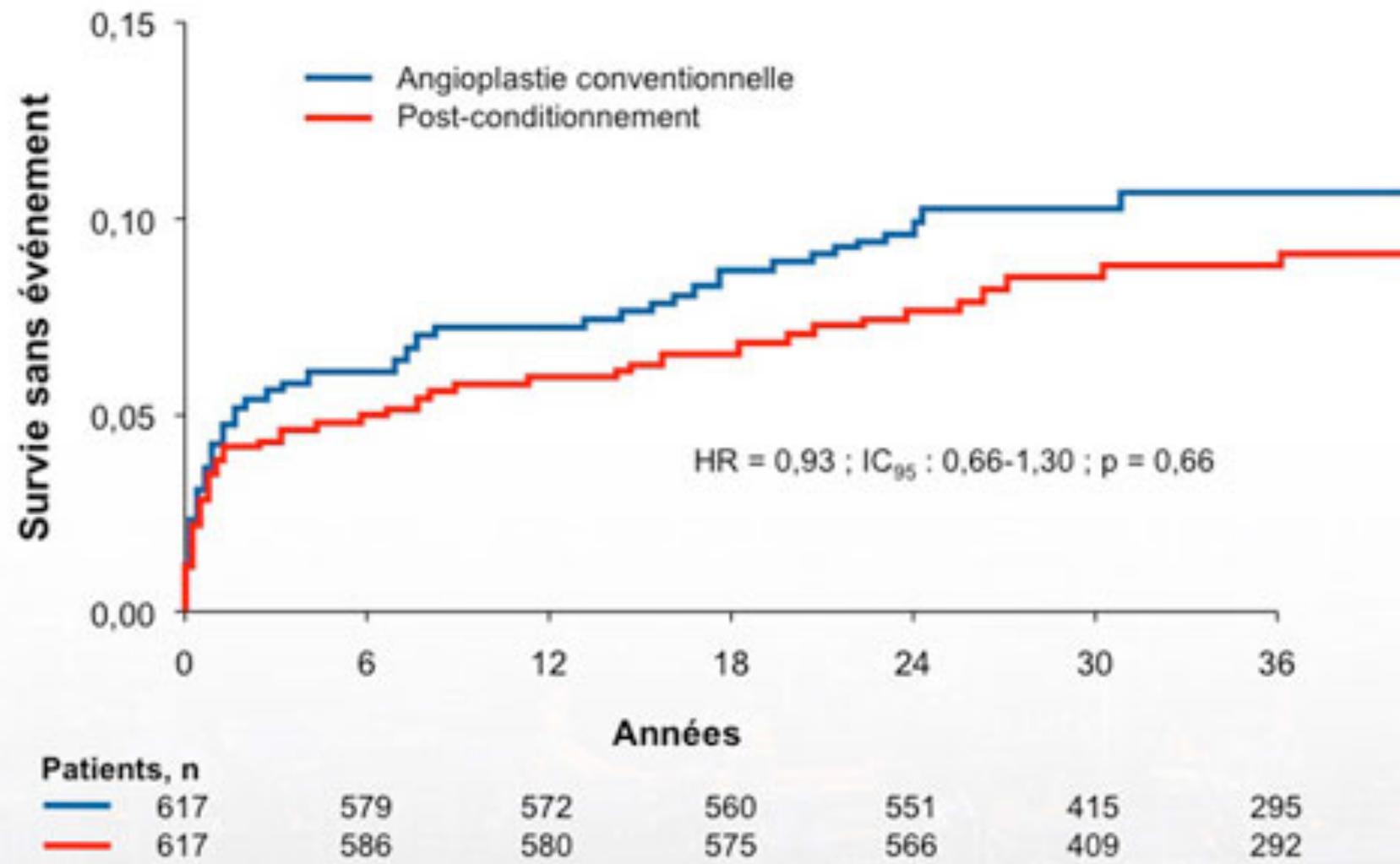
décès toute cause, insuffisance cardiaque, récidive d'IDM et
nouvelle revascularisation de la lésion coupable



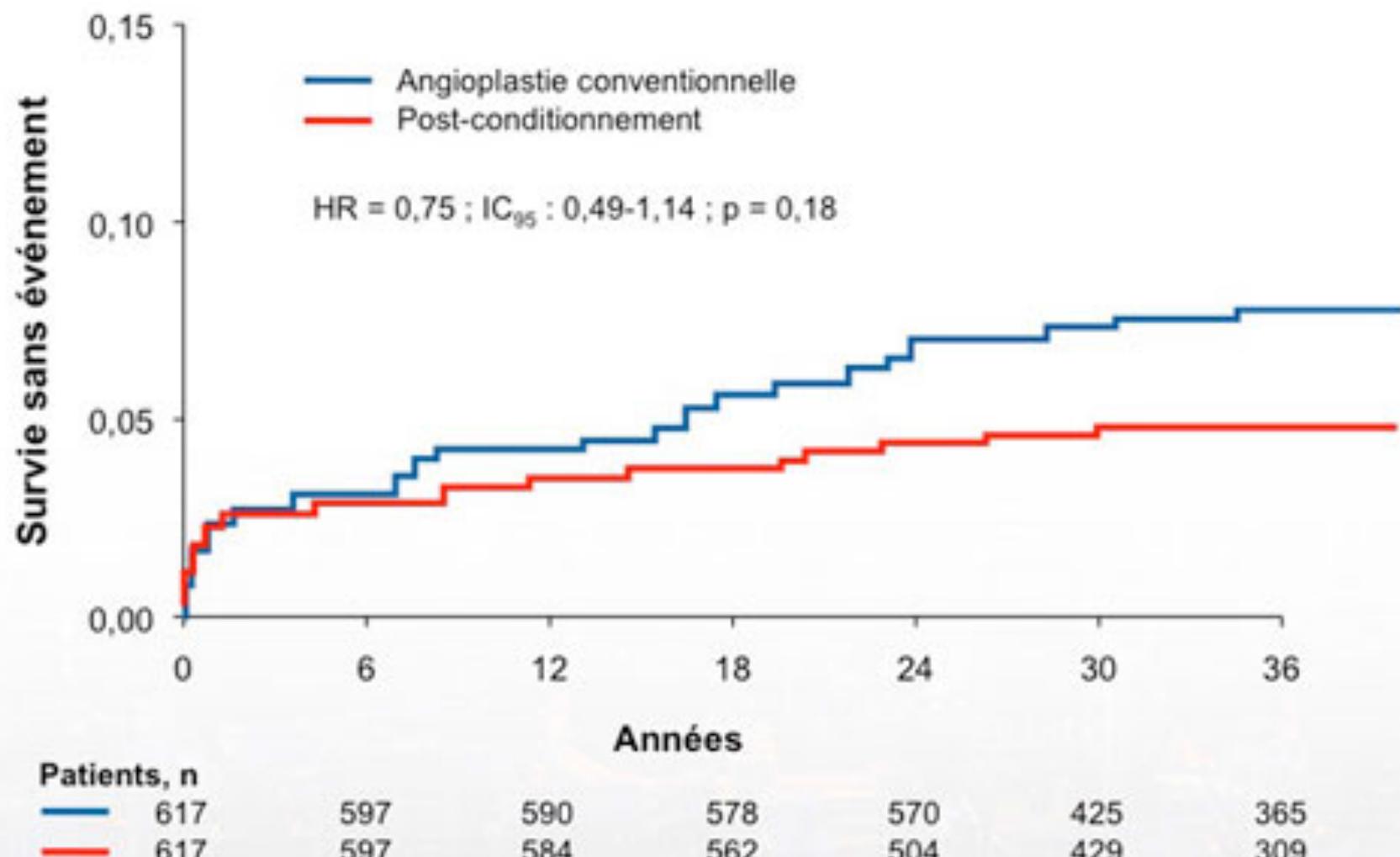
DANAMI3-iPOST : la reperfusion coronaire, en douceur

Critère de jugement principal

décès toute causes et hospitalisation pour insuffisance cardiaque

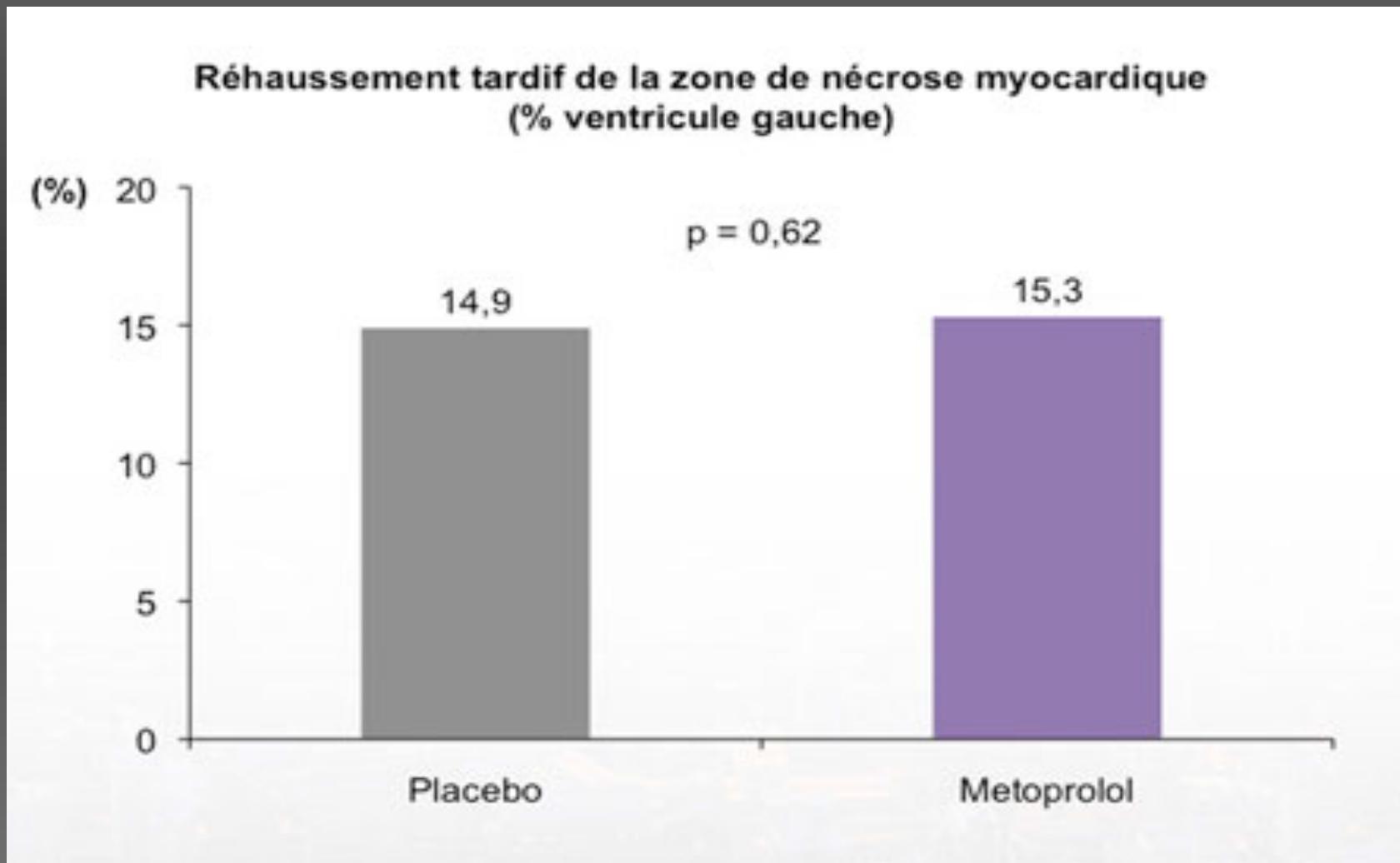


Mortalité toutes causes

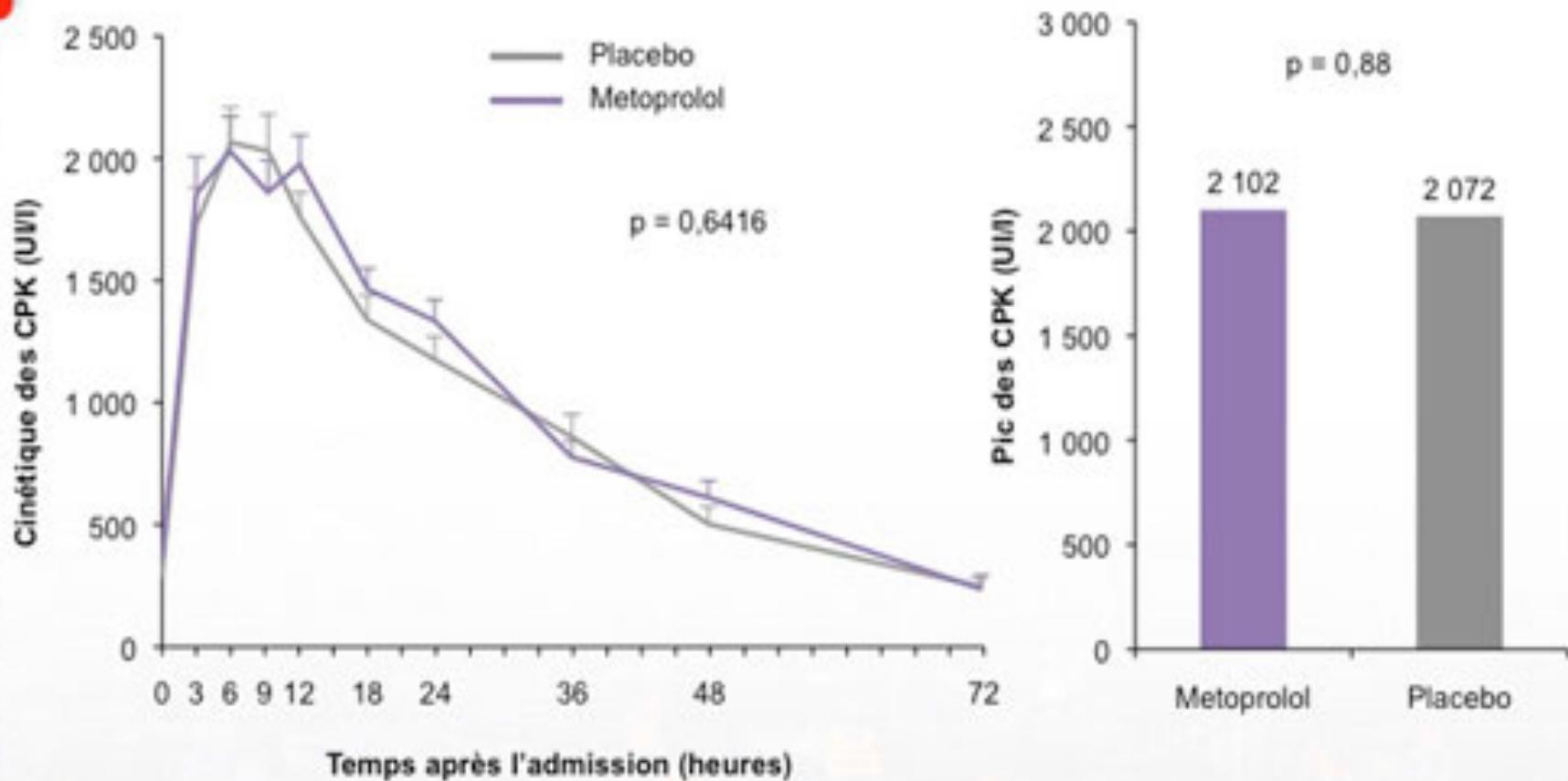


Early-BAMI : il ne faut pas bloquer !

Le métoprolol (5 mg x 2) est injecté une première fois dans le camion de transfert, une seconde fois en milieu hospitalier juste l'avant-ATL.

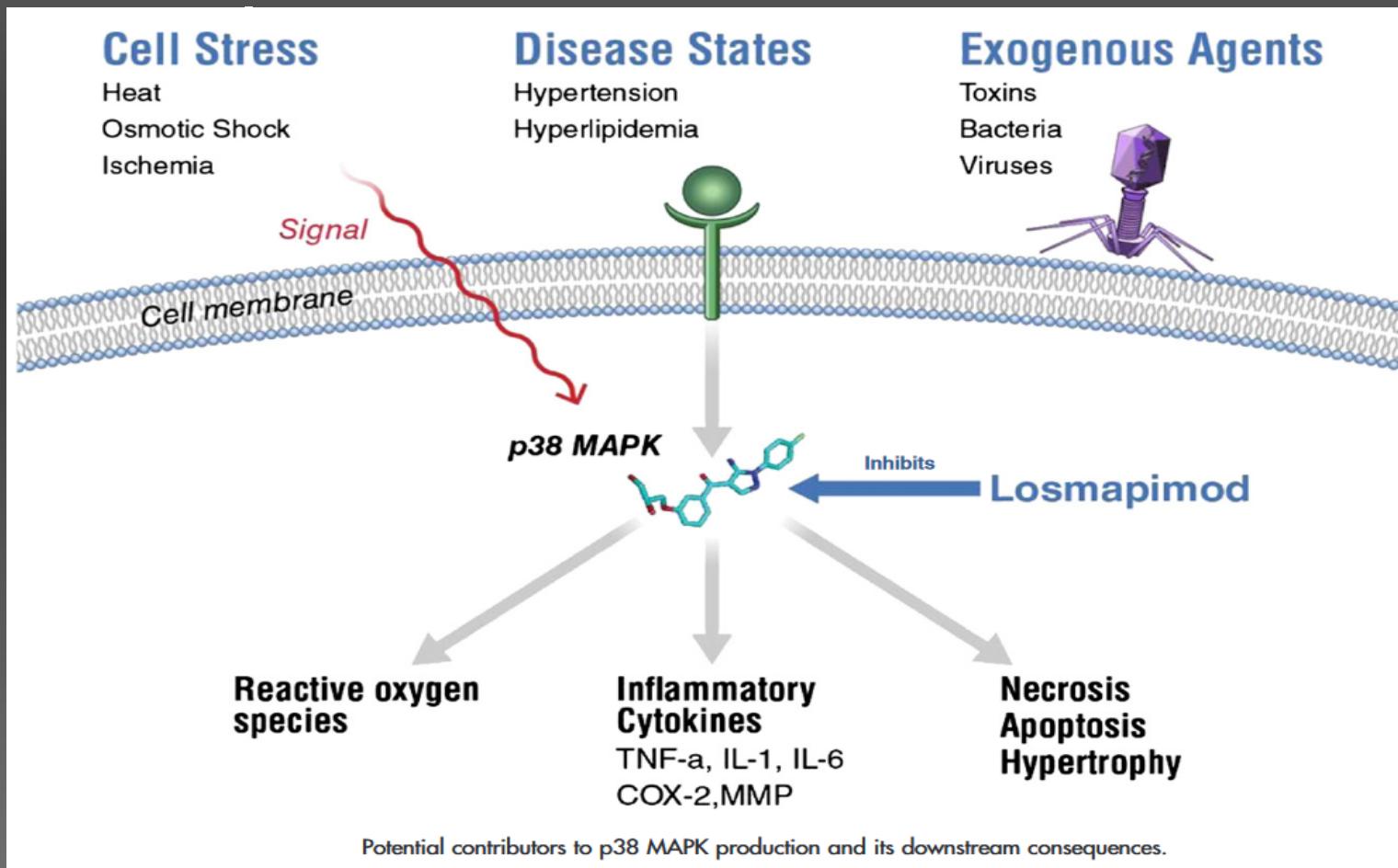


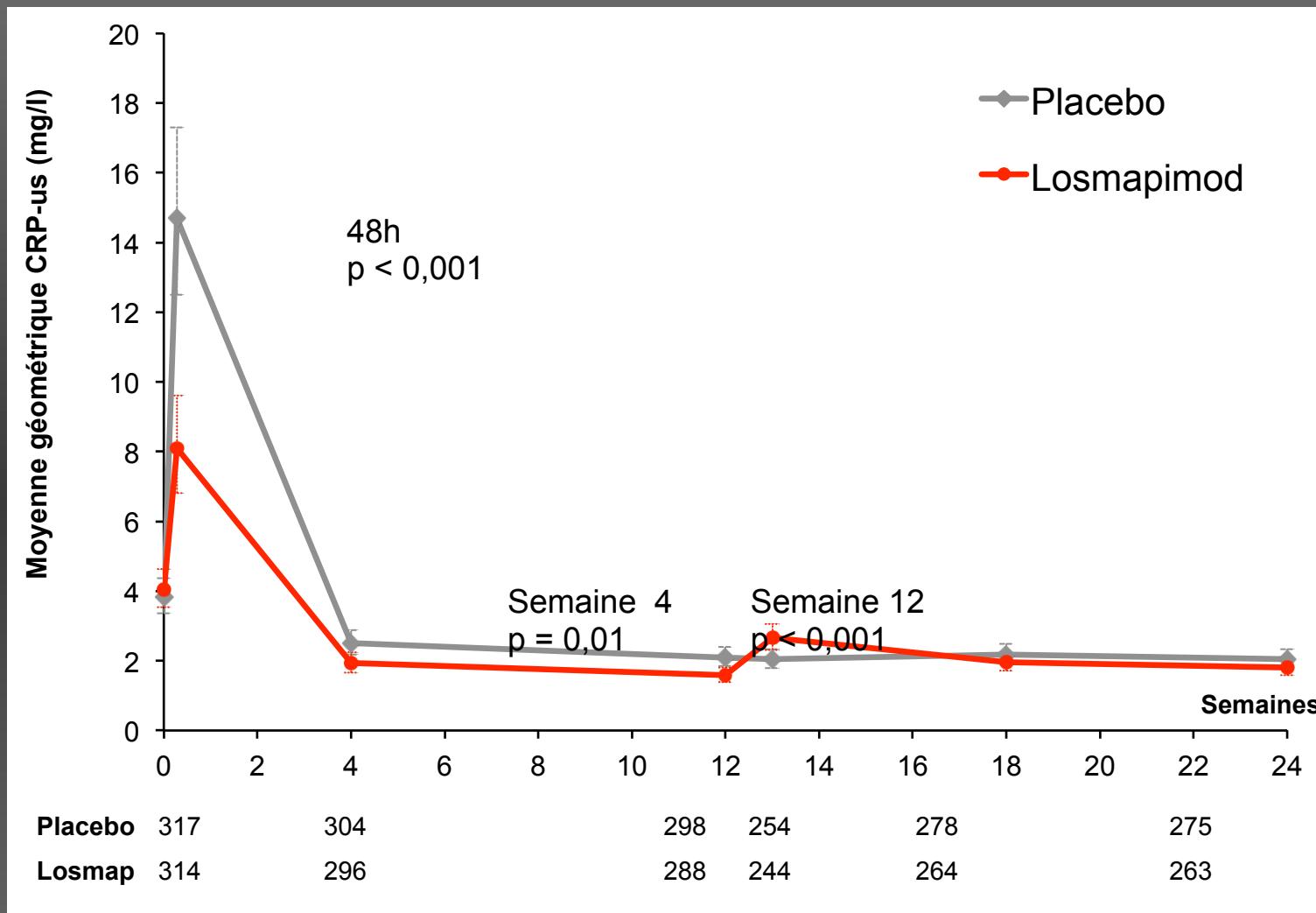
Early-BAMI : taille de la nécrose myocardique estimée par dosage des enzymes myocardiques



Étude LATITUDE-TIMI 60 : losmapimod dans le post-SCA (1)

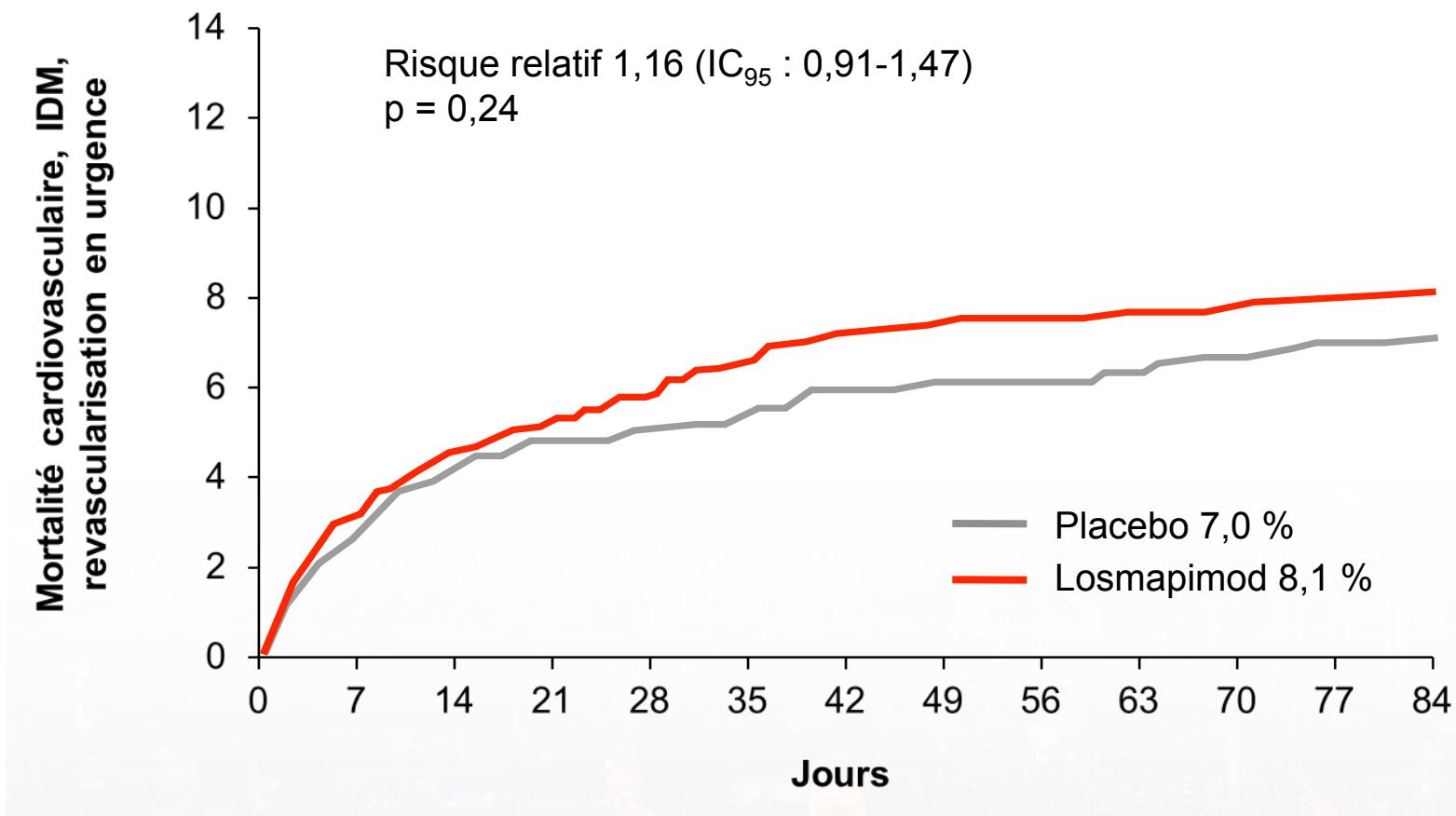
Losmapimod, inhibiteur de p38 MAPK, action sur les cytokines inflammatoires, sur l'artère et sur le





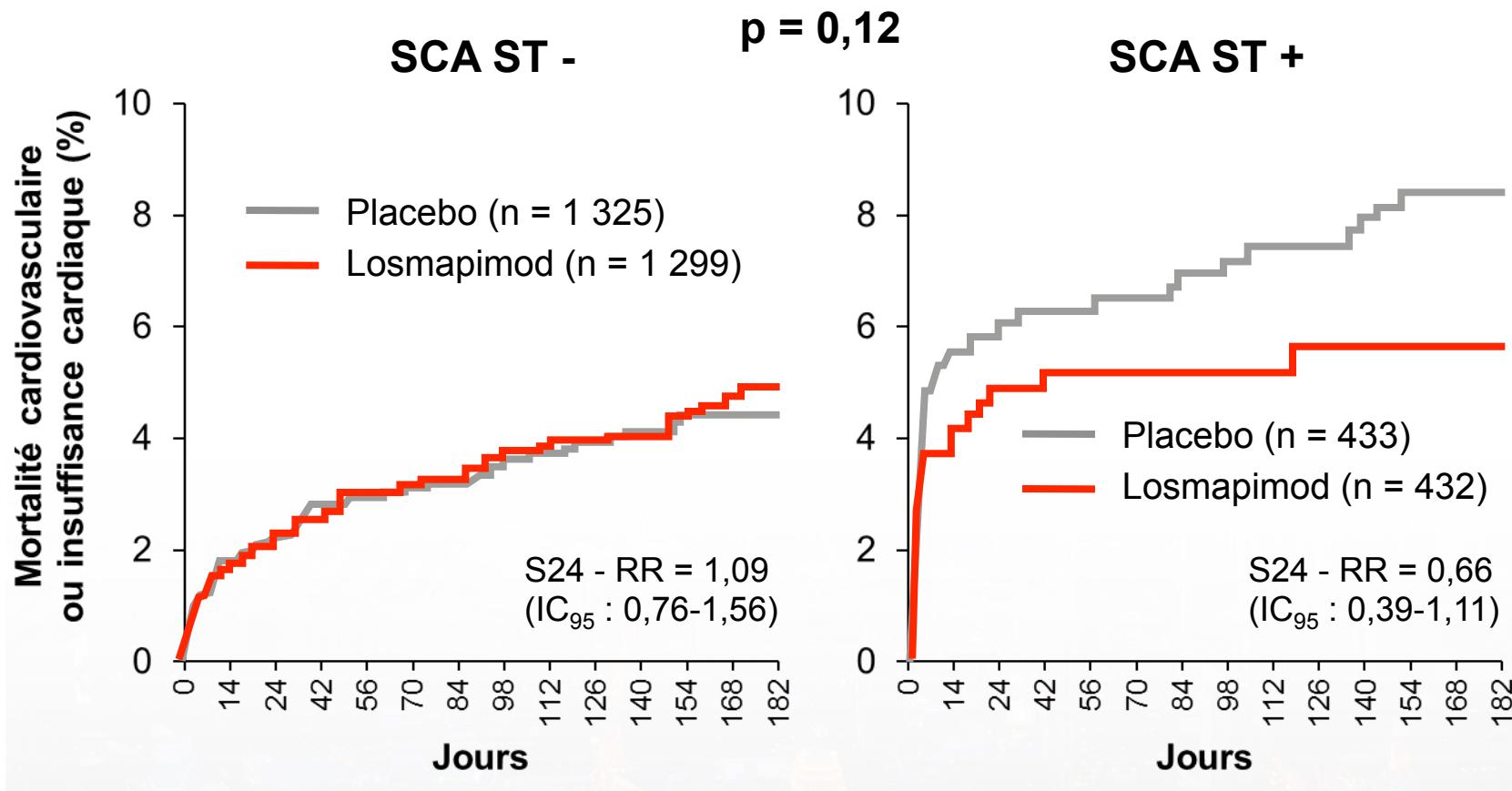
Étude LATITUDE-TIMI 60 : losmapimod dans le post-SCA (4)

Critère principal (événements cardiaques majeurs jusqu'à S12)



Étude LATITUDE-TIMI 60 : losmapimod dans le post-SCA (6)

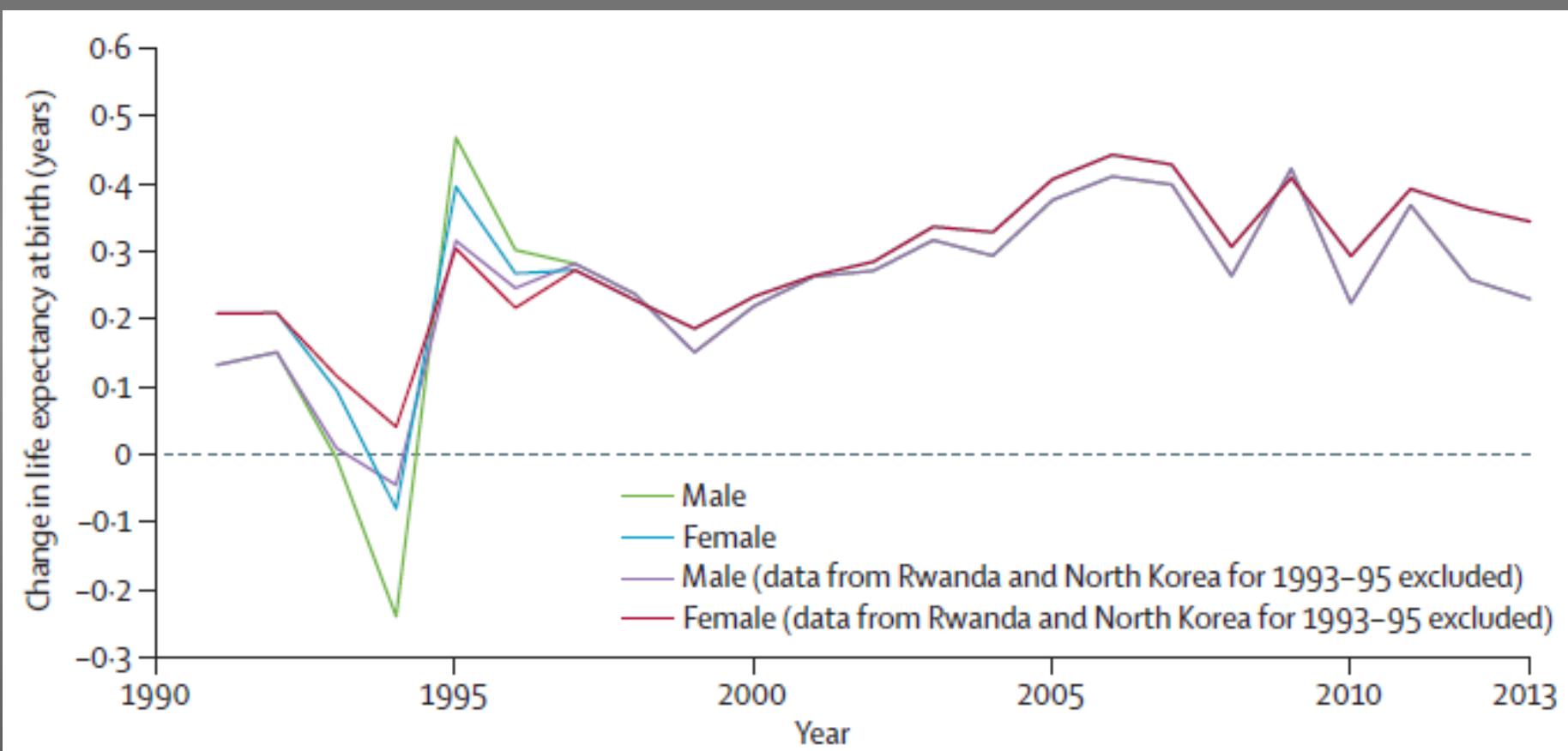
Décès CV/ insuffisance cardiaque en fonction des types de SCA



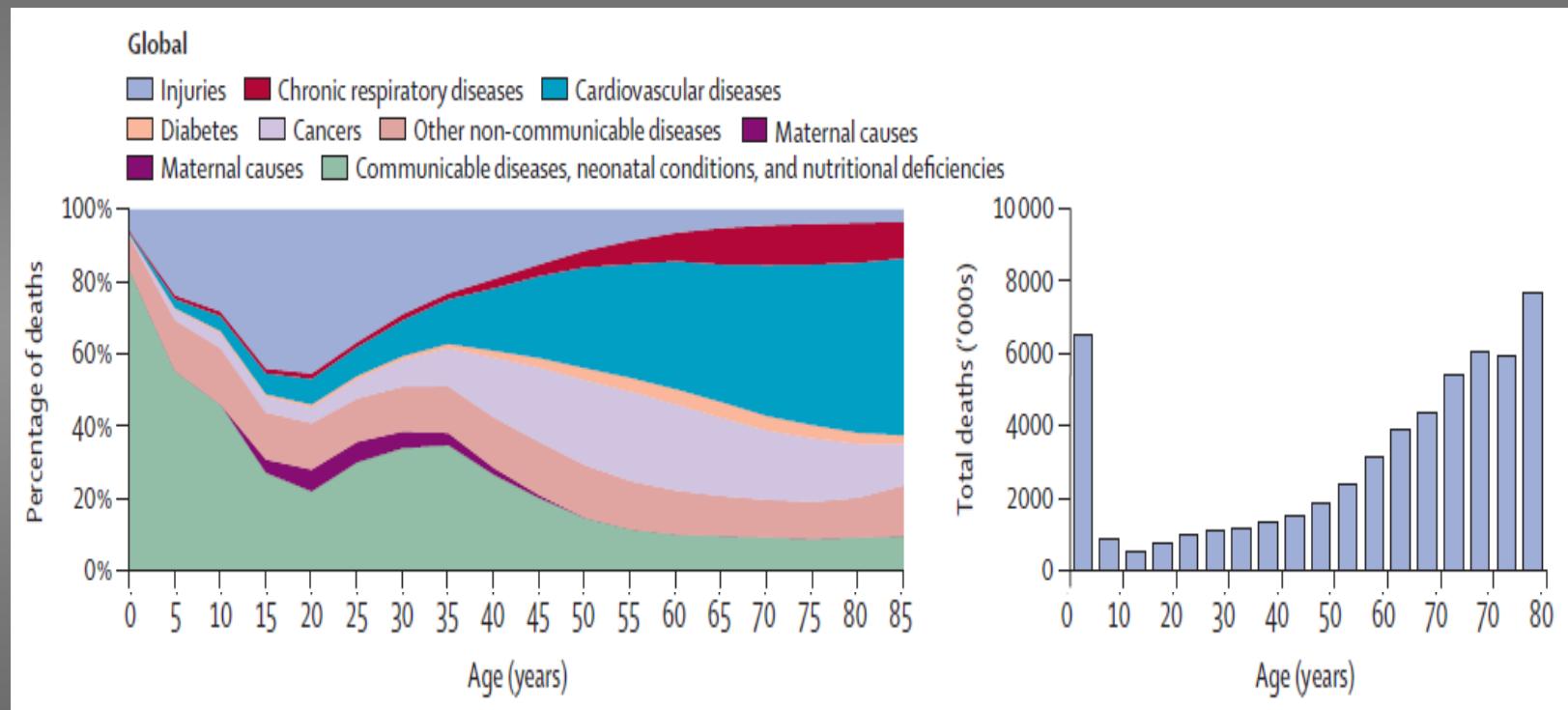
Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013

	1	2	3	4	5	6	7	8	9	10
Global	IHD	LRI	Stroke	Diarrhoea	Road injuries	HIV/AIDS	NN preterm	Malaria	NN encephalitis	Congenital
Developed	IHD	Stroke	Lung C	Self harm	Alzheimer's	Cirrhosis	COPD	Colorectal C	LRI	Road injuries
Developing	LRI	IHD	Stroke	Diarrhoea	HIV/AIDS	NN preterm	Malaria	Road injuries	NN encephalitis	Congenital
Western Europe	IHD	Lung C	Stroke	Alzheimer's	Colorectal C	COPD	Self harm	Cirrhosis	Breast C	LRI
Andorra	IHD	Lung C	Stroke	Alzheimer's	Colorectal C	COPD	LRI	Self harm	HIV/AIDS	Pancreatic C
Austria	IHD	Lung C	Stroke	Alzheimer's	Self harm	Cirrhosis	Colorectal C	COPD	Breast C	Diabetes
Belgium	IHD	Lung C	Stroke	Self harm	COPD	Alzheimer's	LRI	Colorectal C	Breast C	Road injuries
Cyprus	IHD	Stroke	Lung C	Road injuries	Diabetes	Alzheimer's	Breast C	Colorectal C	COPD	LRI
Denmark	IHD	Lung C	Stroke	COPD	Colorectal C	Alzheimer's	Cirrhosis	Self harm	LRI	Diabetes
Finland	IHD	Stroke	Alzheimer's	Lung C	Self harm	Cirrhosis	Colorectal C	Pancreatic C	Falls	Alcohol
France	IHD	Lung C	Stroke	Self harm	Colorectal C	Alzheimer's	Cirrhosis	Breast C	Road injuries	Other cardio
Germany	IHD	Lung C	Stroke	Alzheimer's	Colorectal C	COPD	Cirrhosis	Self harm	Breast C	Pancreatic C
Greece	IHD	Stroke	Lung C	Alzheimer's	COPD	Road injuries	Colorectal C	Breast C	LRI	CKD
Iceland	IHD	Lung C	Stroke	Alzheimer's	Self harm	Colorectal C	COPD	Breast C	Prostate C	Road injuries
Ireland	IHD	Lung C	Stroke	Self harm	COPD	Colorectal C	LRI	Alzheimer's	Breast C	Congenital
Israel	IHD	Lung C	Alzheimer's	Diabetes	Stroke	Colorectal C	Road injuries	CKD	Congenital	Breast C
Italy	IHD	Stroke	Lung C	Alzheimer's	Colorectal C	COPD	Diabetes	Breast C	Cirrhosis	Road injuries

Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013



The World report on ageing and health: a policy framework for healthy ageing



The World report on ageing and health: a policy framework for healthy ageing

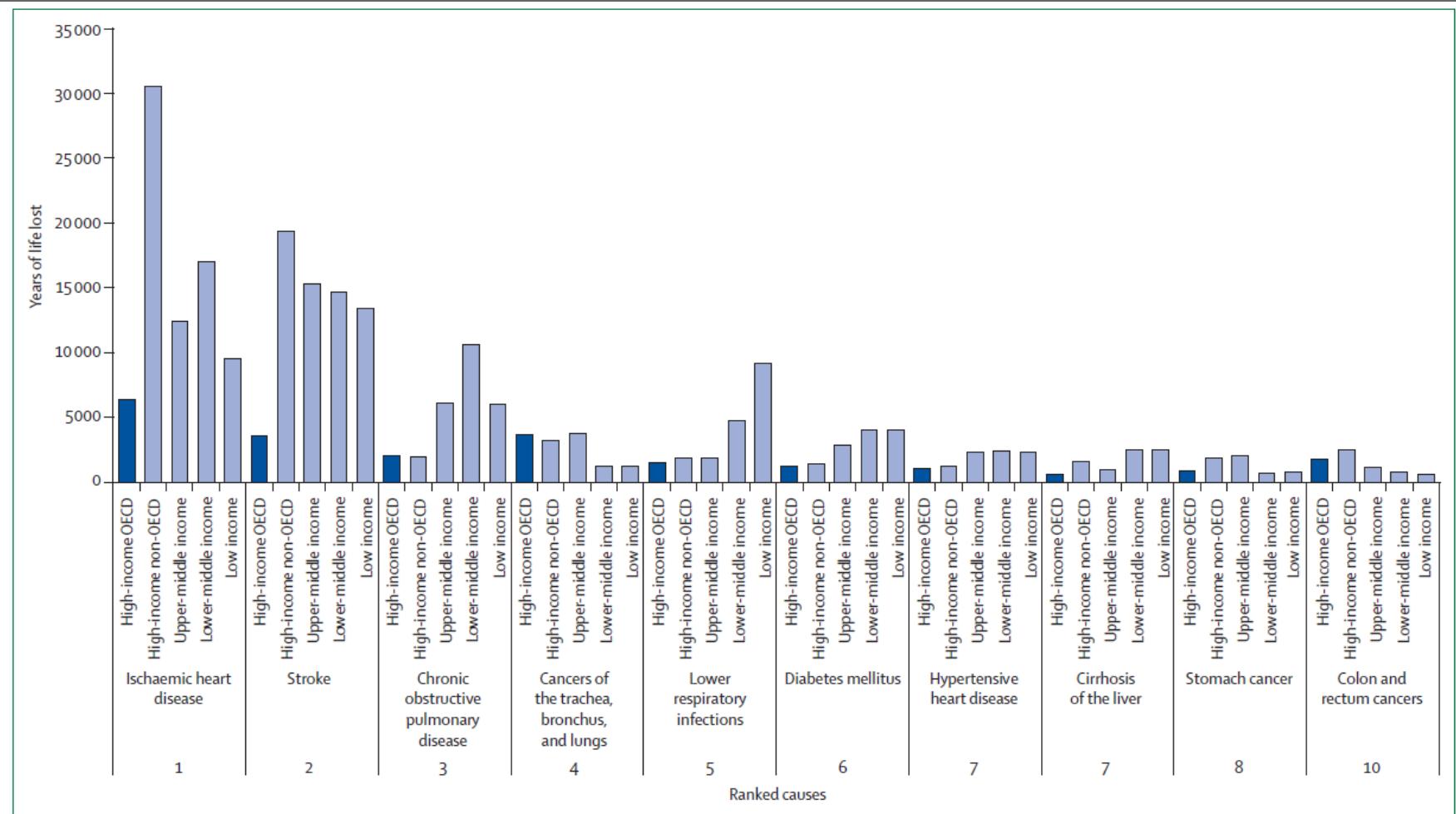
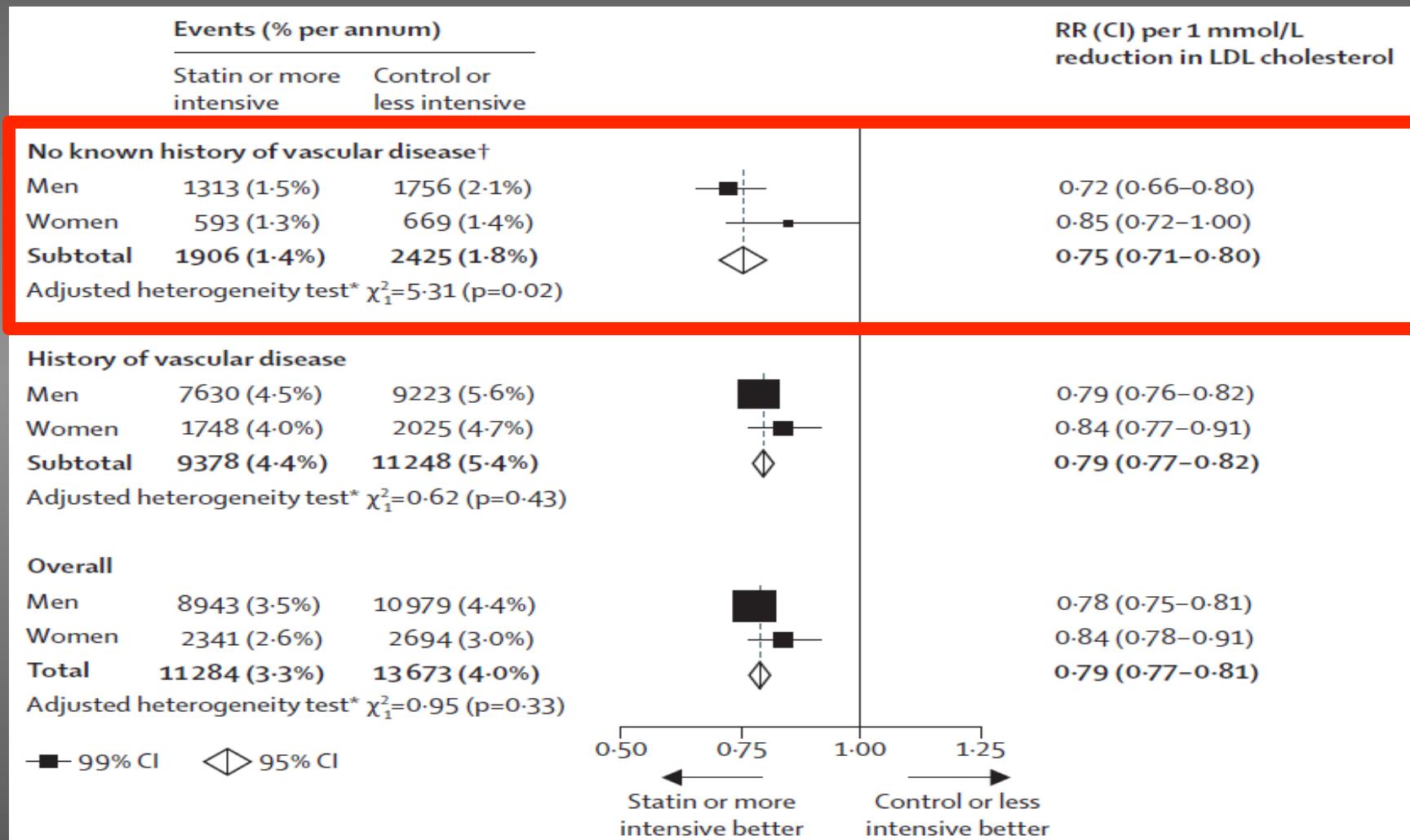


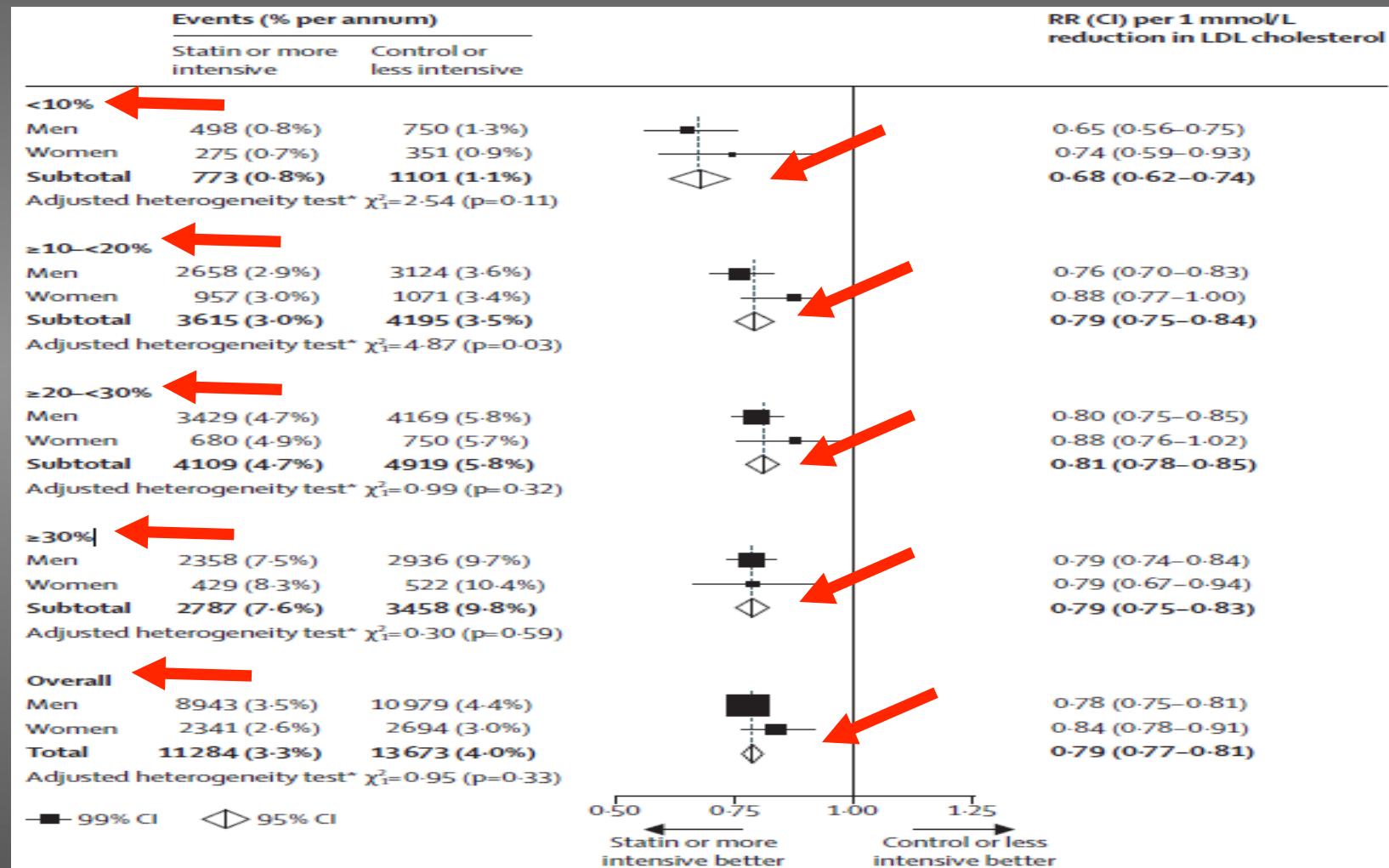
Figure 2: Years of life lost per 100 000 population, 2012

Top ten causes in people aged 60 years or older from WHO Global Health Estimates.²¹ OECD=Organisation for Economic Co-operation and development.

Efficacy and safety of LDL-lowering therapy among men and women: meta-analysis of individual data from 174 000 participants in 27 randomised trials



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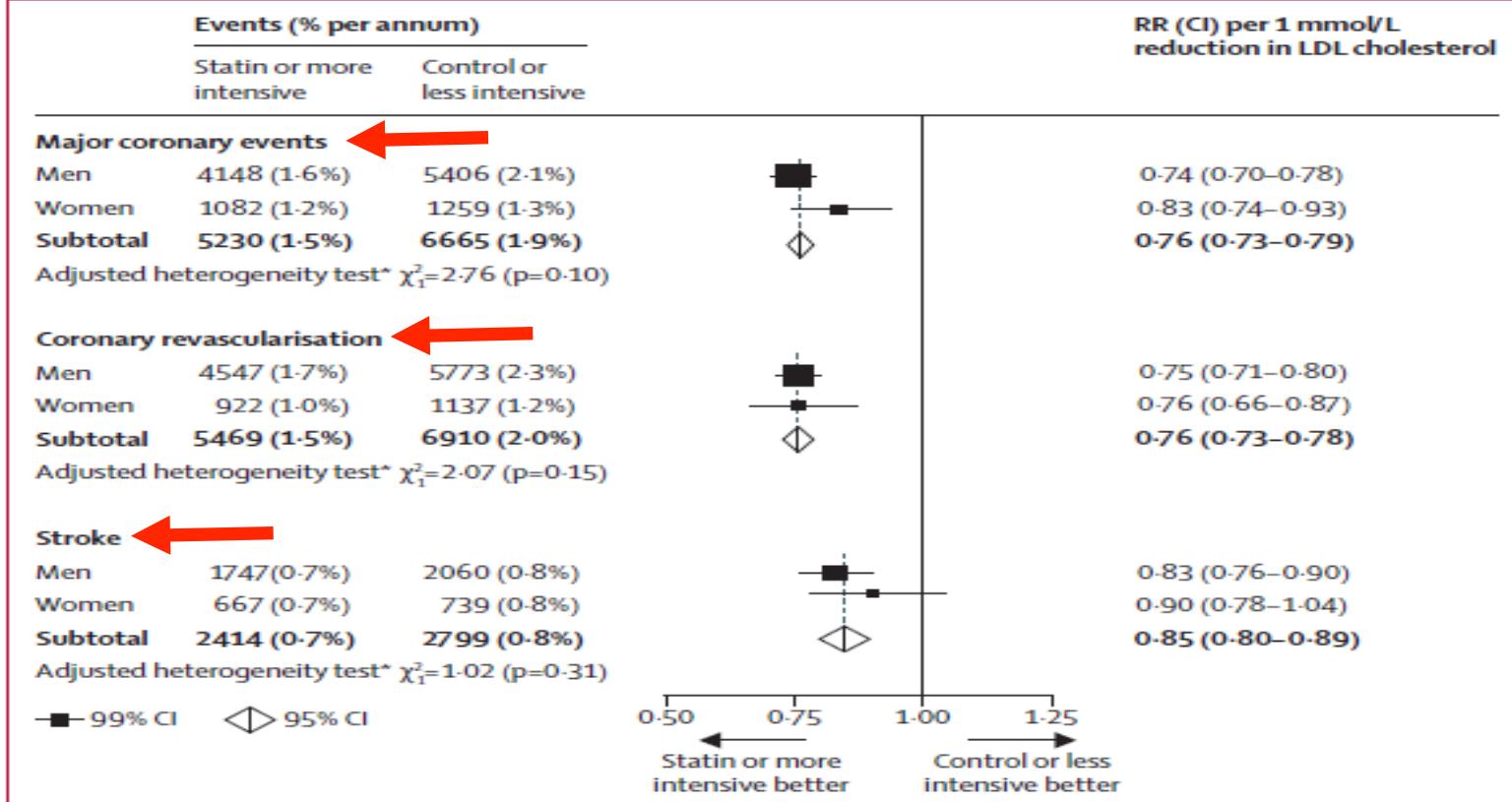


Figure 3: Effects on components of major vascular events per 1.0 mmol/L reduction in LDL cholesterol, subdivided by sex

RR=rate ratio. *Adjusted heterogeneity test calculated from a Cox model that corrects for non-sex differences between women and men (appendix pp 12–14).

Clinical experience of scoring criteria for Familial Hypercholesterolaemia (FH) genetic testing in Wales

Table 1

Wales FH service genotype scoring criteria.

Family history	1st/2nd degree relative:	
	• known with premature (<60yrs) CHD	1
	• known with premature (<45yrs) CHD	2
	• known with LDL-C > 4.9 mmol/l (or total chol > 7.5 mmol/l)	1
	• <18 yrs with LDL-C > 4.0 mmol/l (or total chol > 6.7 mmol/l)	2
	Please specify relation to index case	
Physical examination	Tendon xanthomata (in patient or 1st/2nd degree relative)	6
	Premature corneal arcus (no score for arcus senilis)	4
Clinical history	Patient with premature CHD (<45 yrs)	4
	Patient with premature CHD (<50 yrs)	3
	Patient with premature CHD (<60 yrs)	2
	Patient with premature (<60yrs) strokes and/or peripheral vascular disease	1
Untreated or corrected	LDL-C ≥ 8.5	8
LDL-Cholesterol Concentrations (mmol/l)	LDL-C 6.5–8.4	5
	LDL-C 5.0–6.4	3
	LDL-C 4.0–4.9	1
Fasting triglycerides (mmol/l)	If untreated LDL-C values are unobtainable see attached sheet (Correction Factor Table) and calculate estimated value.	
	Triglyceride 2.5–3.4	Minus 2
	Triglyceride 3.5–4.9	Minus 3
	Triglyceride ≥ 5.0	Minus 4
	Please record in the narrative box any 2 ^o causes that predispose to raised triglycerides, e.g. diabetes.	

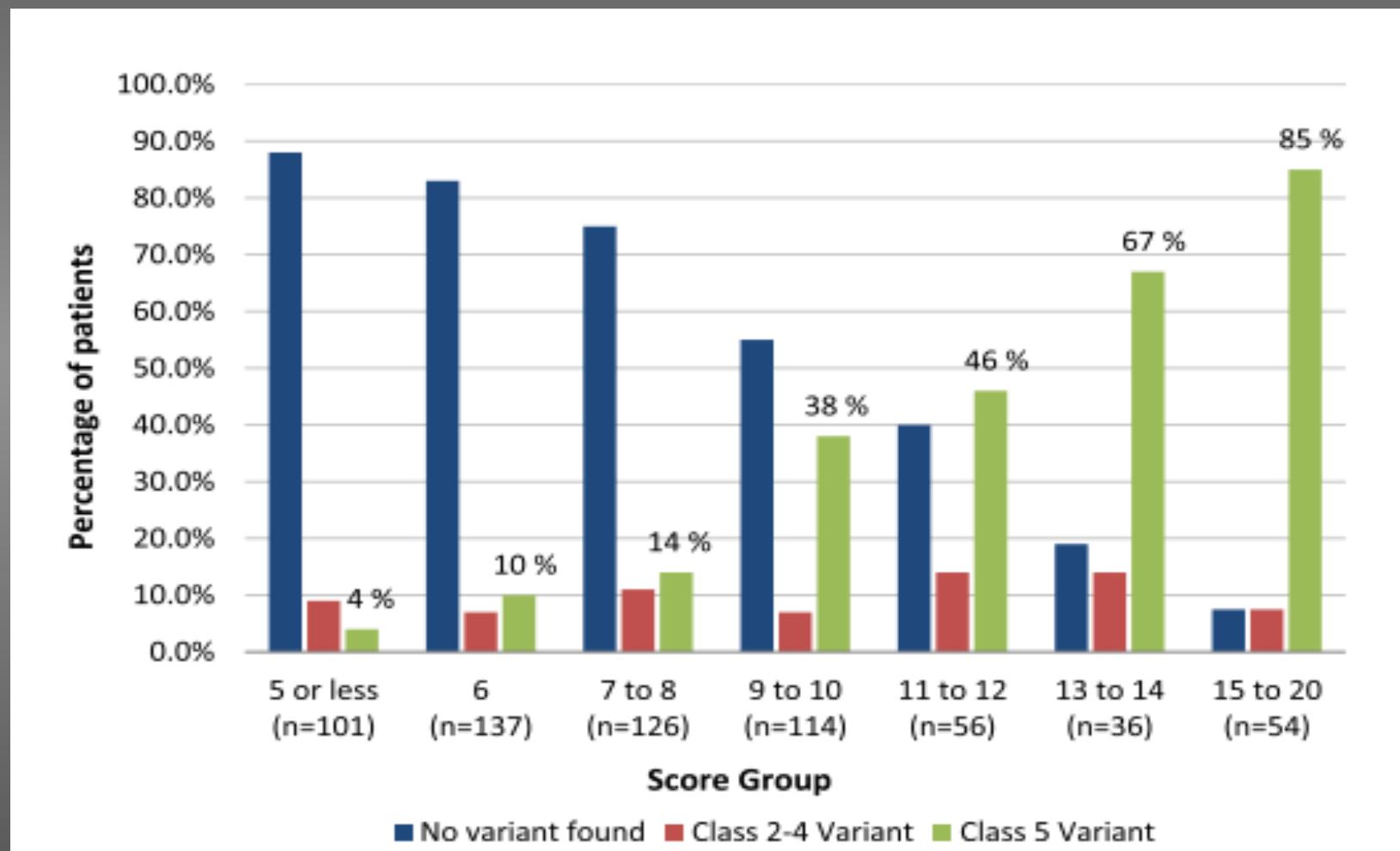
The highest score is circled from each section and the overall score is obtained by totalling all scores together. If the score is 6 or greater, the patient would be offered genetic testing for FH. If the score was below 6, the criteria form would need to be approved by the FH medical advisor before the patient was offered testing.

Table 2
LDL-cholesterol correction factor table for patients on statins ± ezetimibe medication.

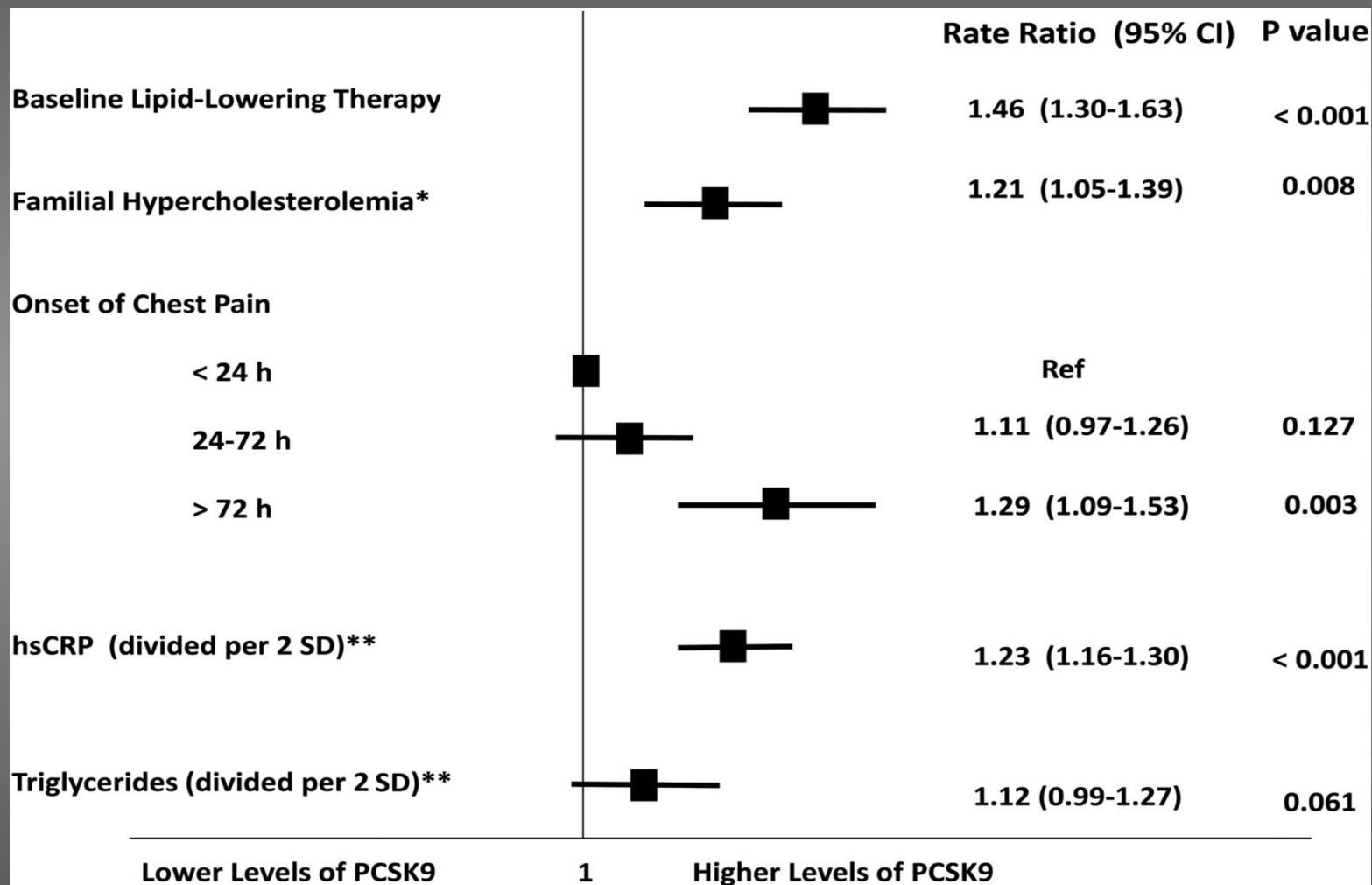
Statin/dose (mg)	Correction factor
Ezetimibe	
10	1.2
Pravastatin	
10	1.2
20	1.3
40	1.5
Pravastatin + Ezetimibe	
10 + 10	1.5
20 + 10	1.6
40 + 10	1.7
Simvastatin	
10	1.4
20	1.6
40	1.7
80	1.9
Simvastatin + Ezetemibe	
10 + 10	1.9
20 + 10	2.0
40 + 10	2.3
80 + 10	2.4
Atorvastatin	
10	1.6
20	1.8
40	2.0
80	2.2
Atorvastatin + Ezetemibe	
10 + 10	2.0
20 + 10	2.2
40 + 10	2.2
80 + 10	2.5
Rosuvastatin	
5	1.8
10	1.9
20	2.1
40	2.4
Rosuvastatin + Ezetimibe	
10 + 10	2.5
20 + 10	2.7
40 + 10	3.3

For a patient on regular medication for whom a pre-treatment LDL-C was not available, an estimate of untreated LDL-C was obtained by multiplying the measured LDL-C by the appropriate factor. The correction factors calculated were based on analysis of 71 original papers that were reviewed prior to setting up these criteria. See [Appendix 1](#) for table of references.

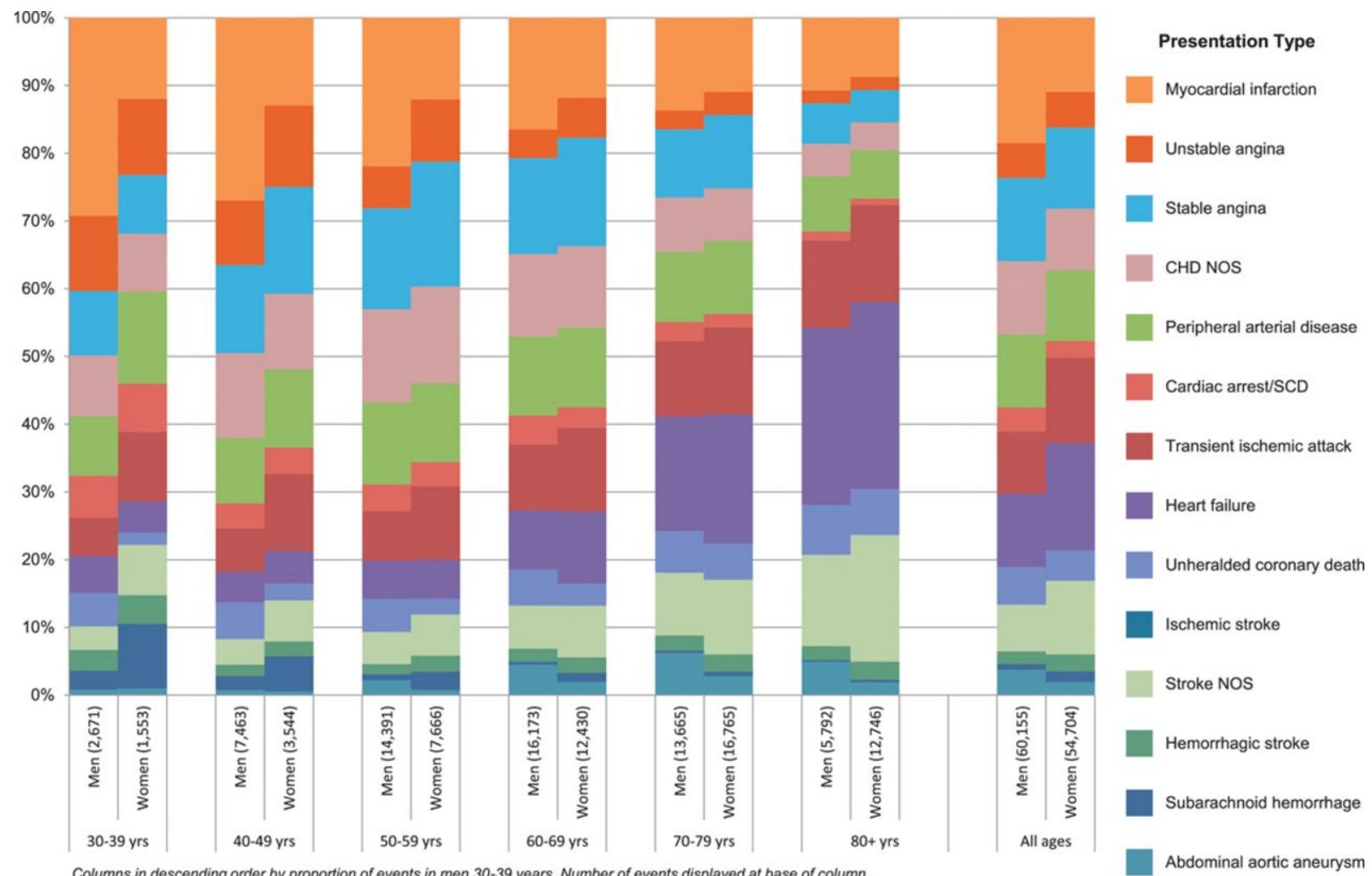
Clinical experience of scoring criteria for Familial Hypercholesterolaemia (FH) genetic testing in Wales



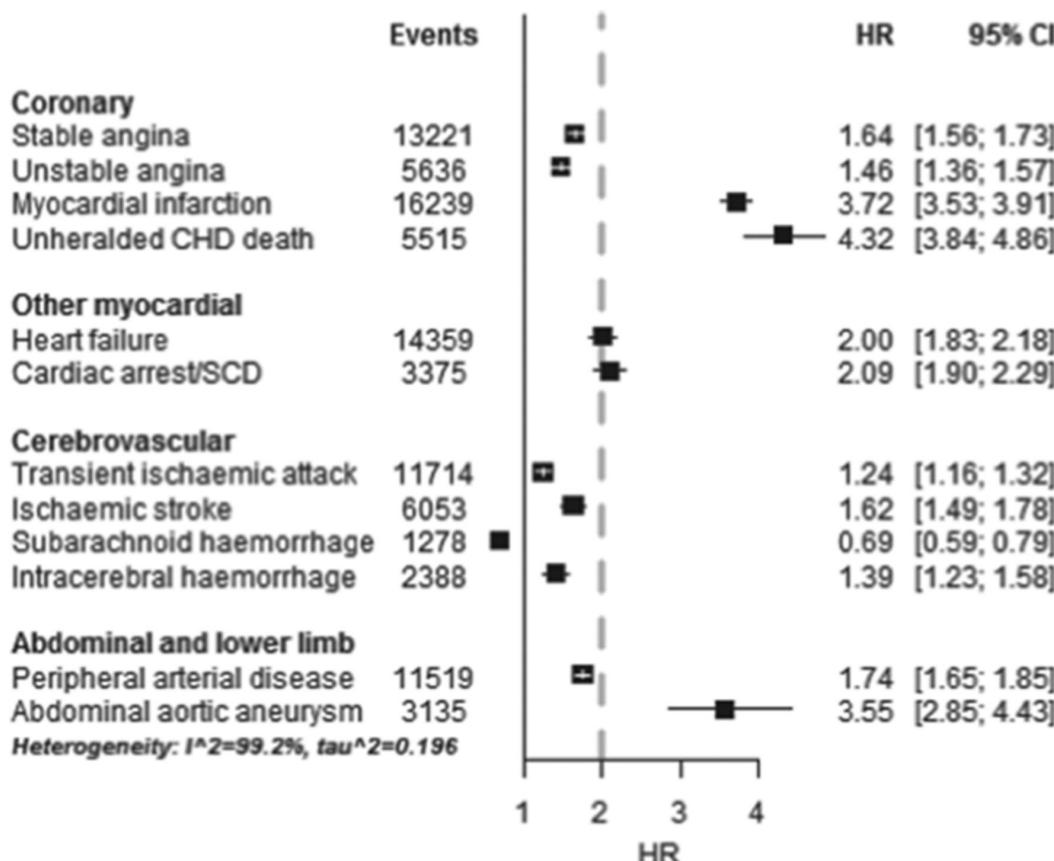
Prognostic value of PCSK9 levels in patients with acute coronary syndromes



Age and sex distribution of 60 155 events in men and 54 704 in women representing the initial presentation of a wide range of CVDs. CHD indicates coronary heart disease; CVD, cardiovascular disease; NOS, not otherwise specified; and SCD, sudden cardiac death.

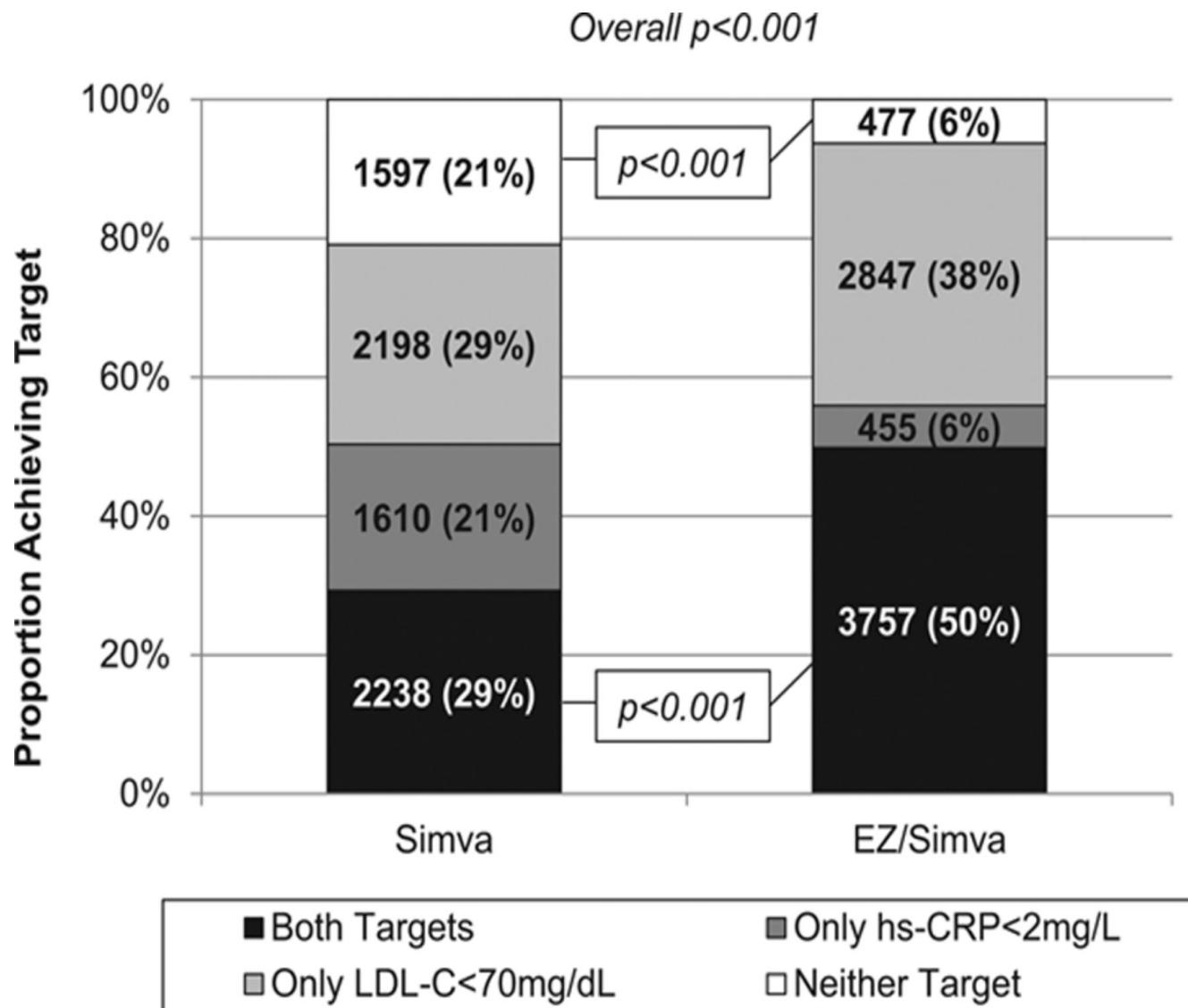


Hazard ratios of men in comparison with women for initial presentation of 12 different cardiovascular diseases among a population of 1.93 million adults.



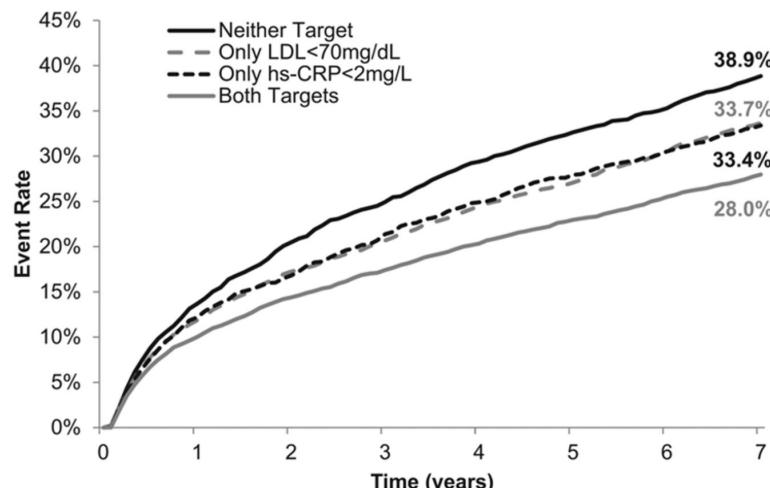
The vertical grey dotted line corresponds to the HR of the composite CVD endpoint. CHD NOS and Stroke NOS excluded from the main display because non-specific endpoints; their corresponding estimates are HR 2.03 (95% CI, 1.92-2.15; n=10,895) and 1.37 (95% CI, 1.26-1.49; n=9,532).

Prespecified LDL-C and hs-CRP target achievement at 1 month by randomized treatment.



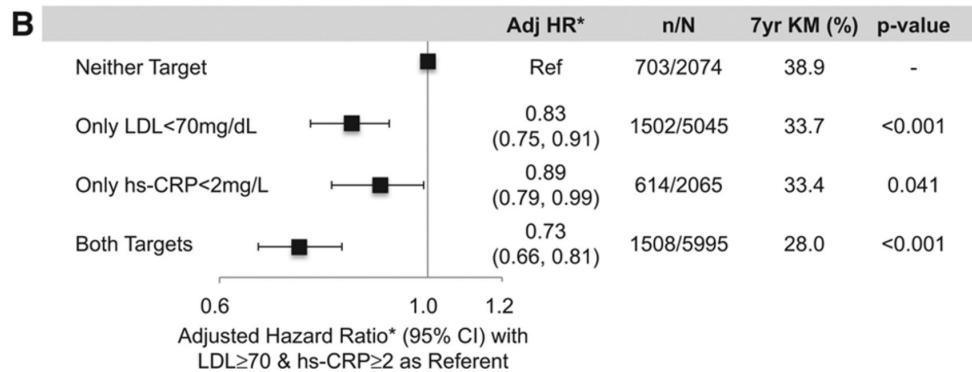
Primary end point by 1 month prespecified LDL-C and hs-CRP target achievement.

A

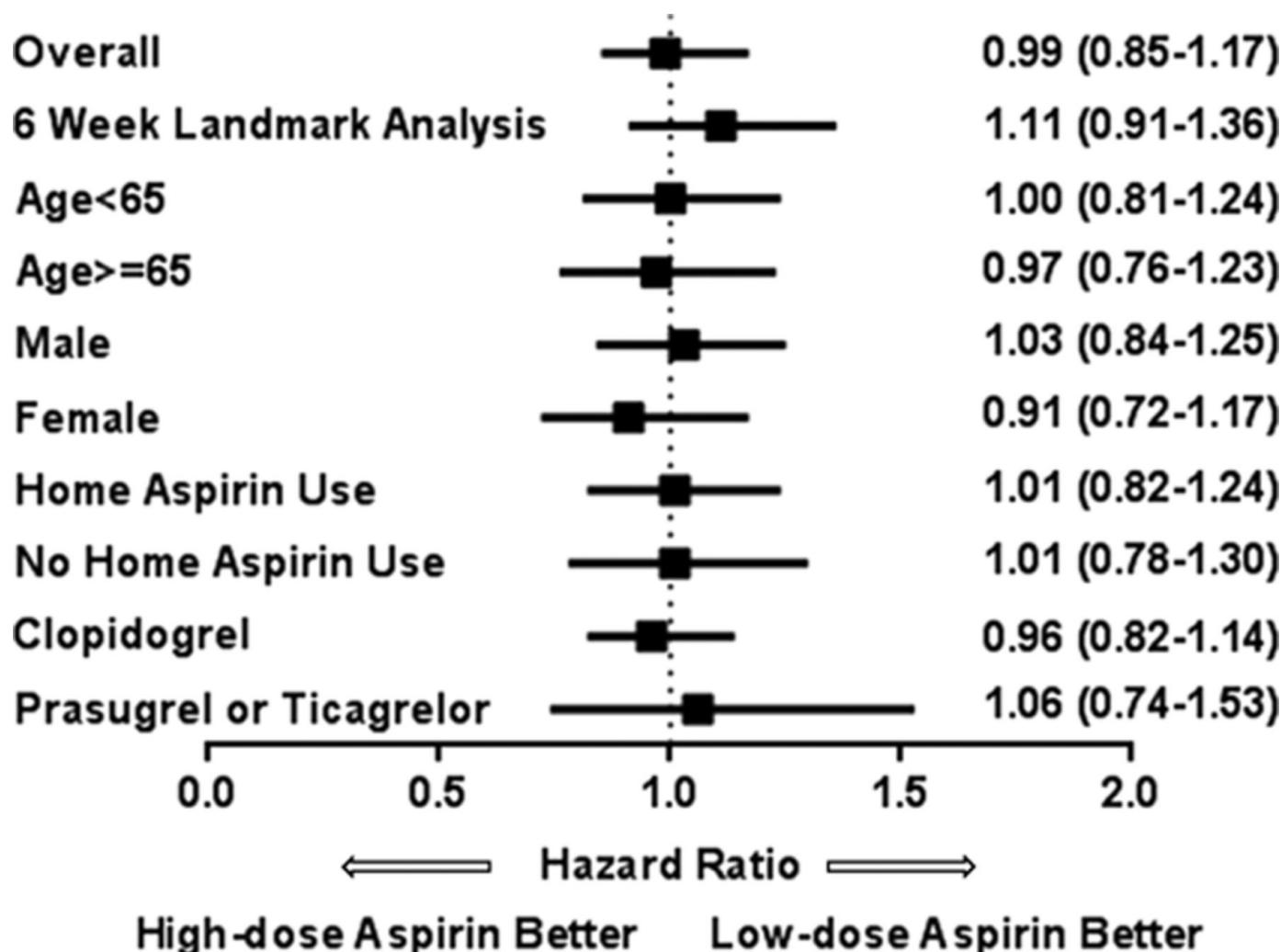


	0	1	2	3	4	5	6	7
Neither Target	2074	1730	1540	1414	1256	898	704	370
Only LDL<70	5045	4311	3938	3667	3328	2468	1858	1072
Only hs-CRP<2	2065	1753	1619	1500	1386	1041	826	478
Both Targets	5995	5295	4930	4664	4318	3257	2612	1537

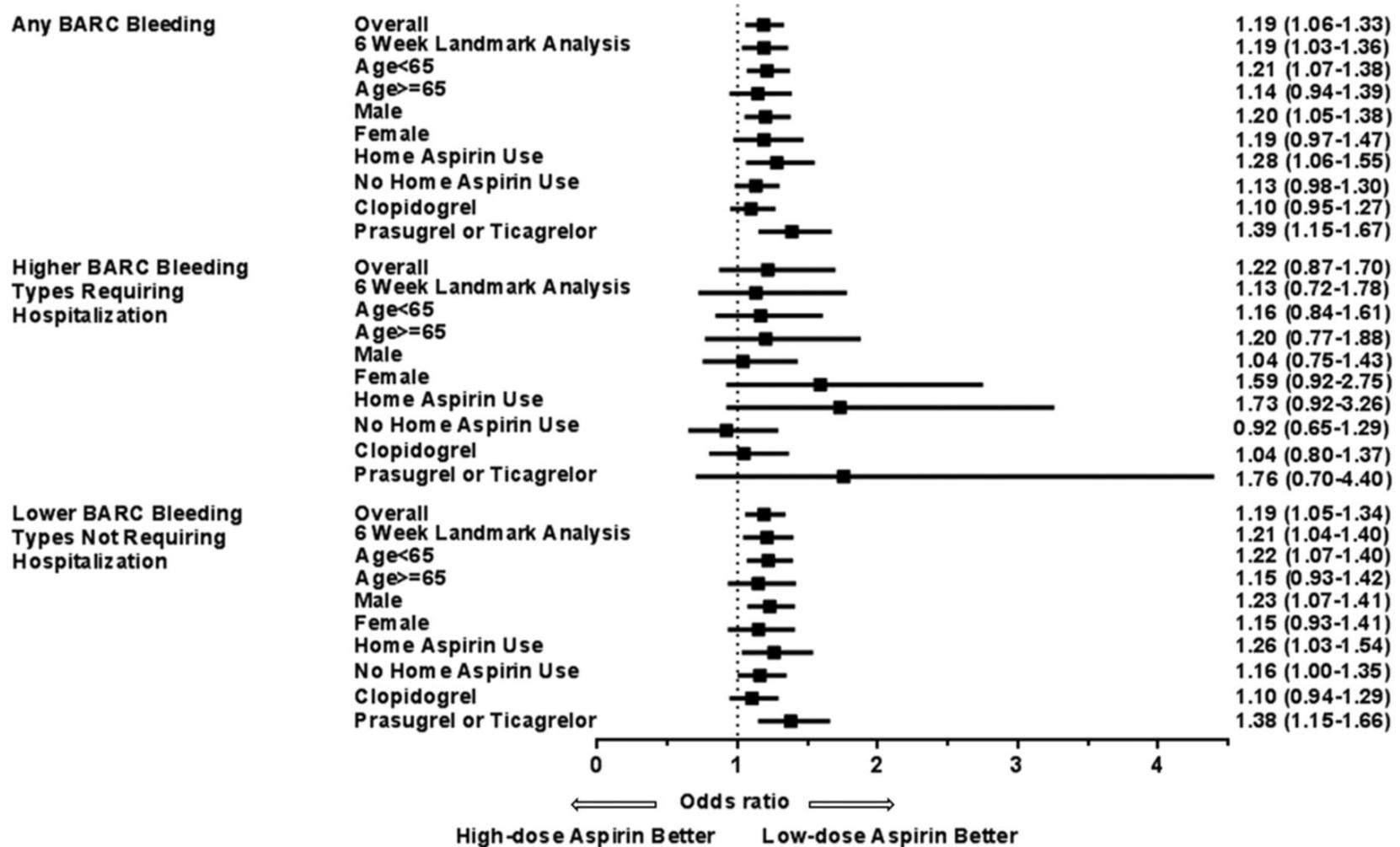
B



Major adverse cardiac events within 6 months according to discharge aspirin dose (325 mg vs 81 mg).



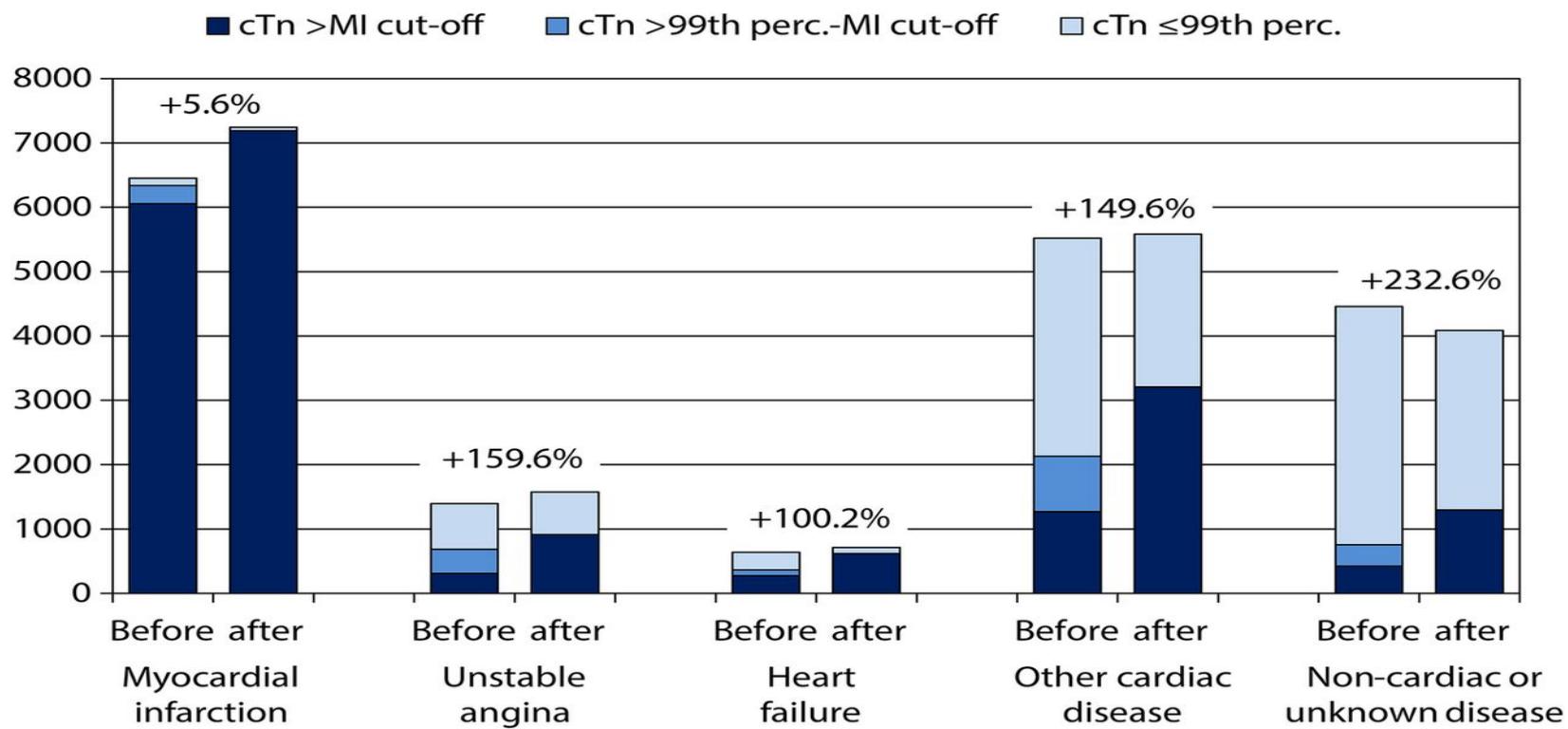
Bleeding Academic Research Consortium (BARC)-defined bleeding events within 6 months according to discharge aspirin dose (325 mg vs 81 mg).



Ying Xian et al. Circulation. 2015;132:174-181

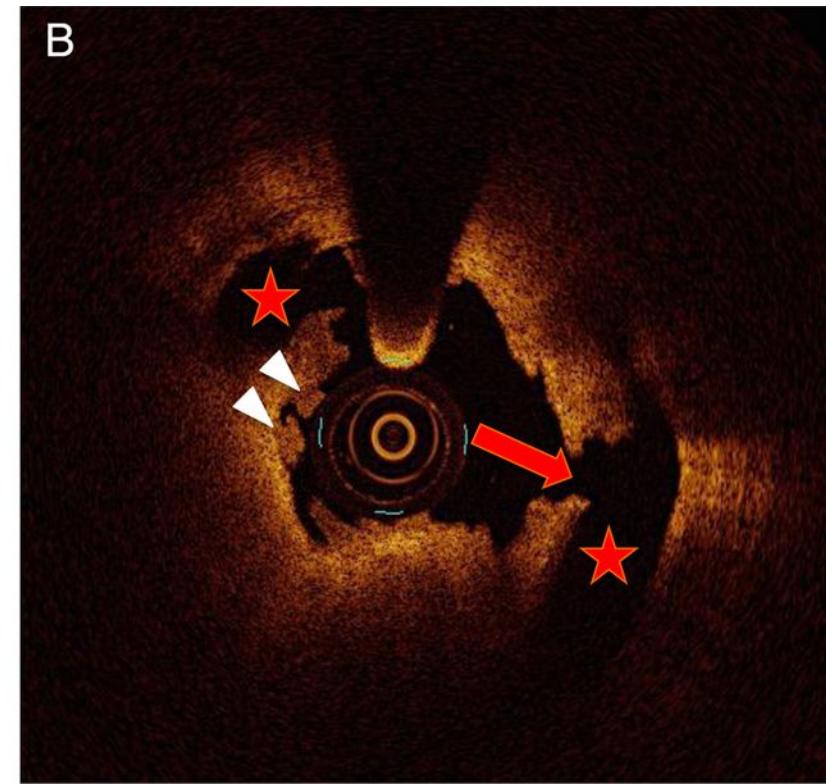
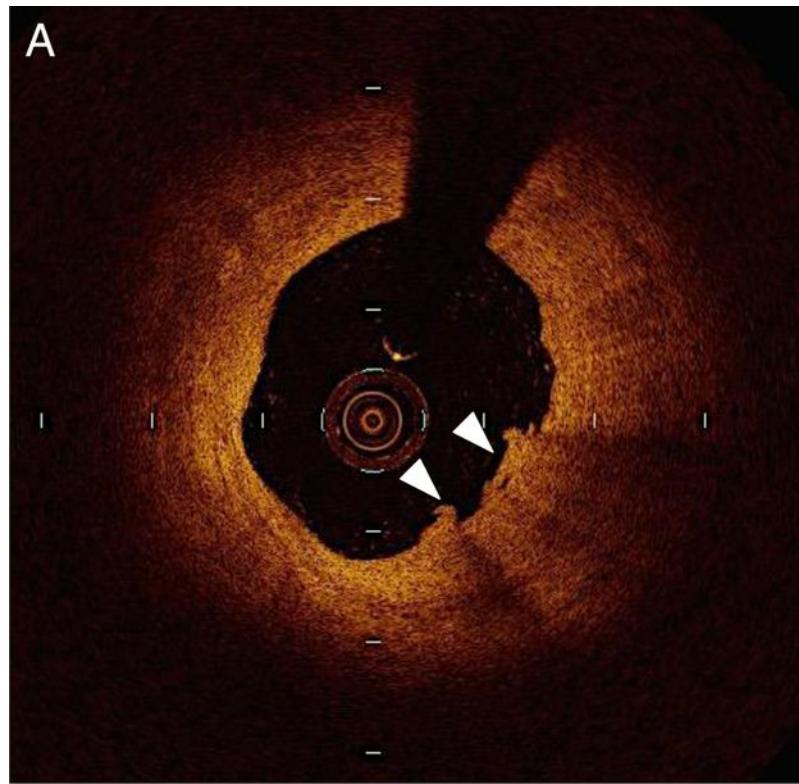
Consequences of implementing a cardiac troponin assay with improved sensitivity at Swedish coronary care units: an analysis from the SWEDEHEART registry

Discharge diagnoses in relation to cardiac troponin levels before and after the implementation of the more sensitive cTnT assay.

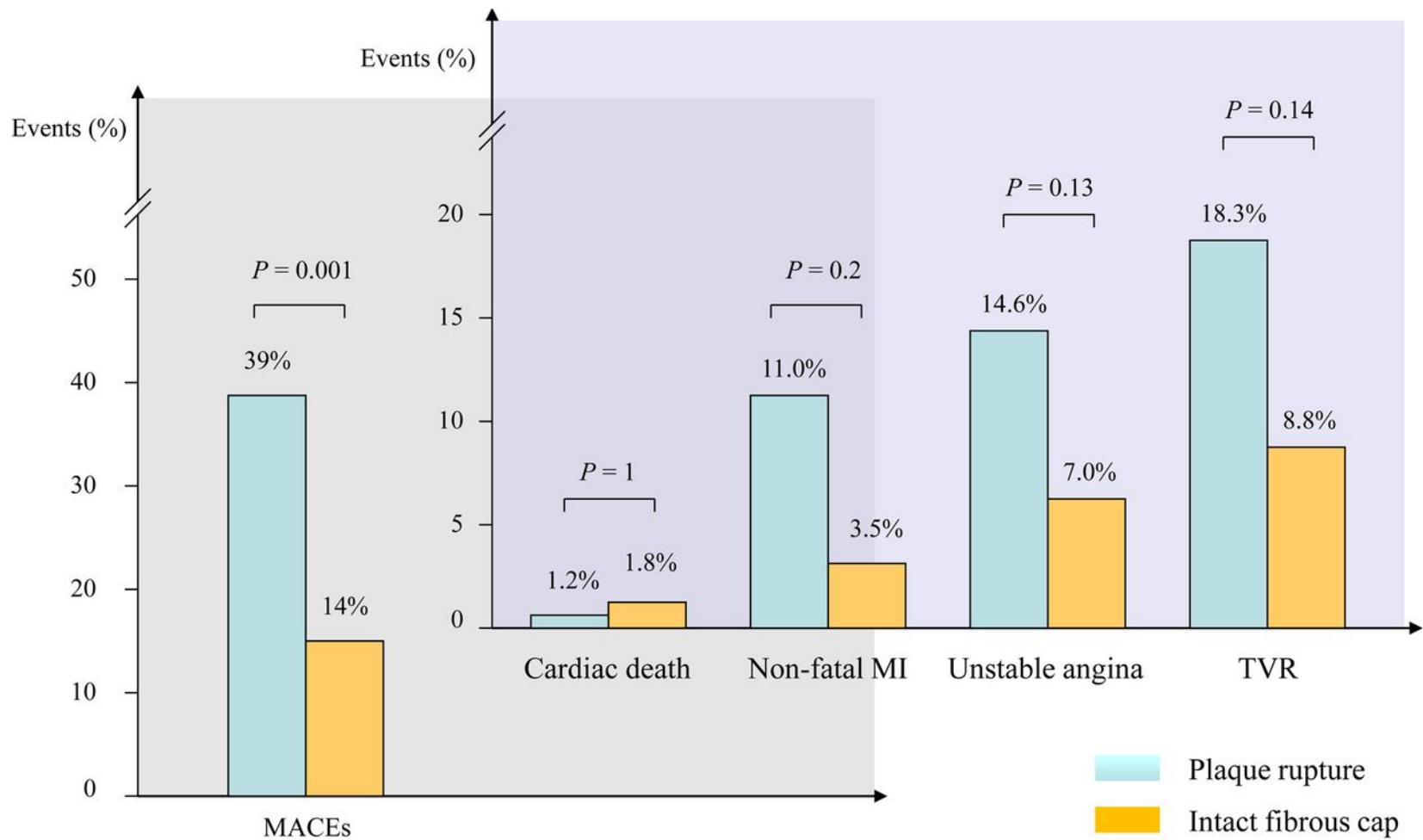


Plaque rupture and intact fibrous cap assessed by optical coherence tomography portend different outcomes in patients with acute coronary syndrome

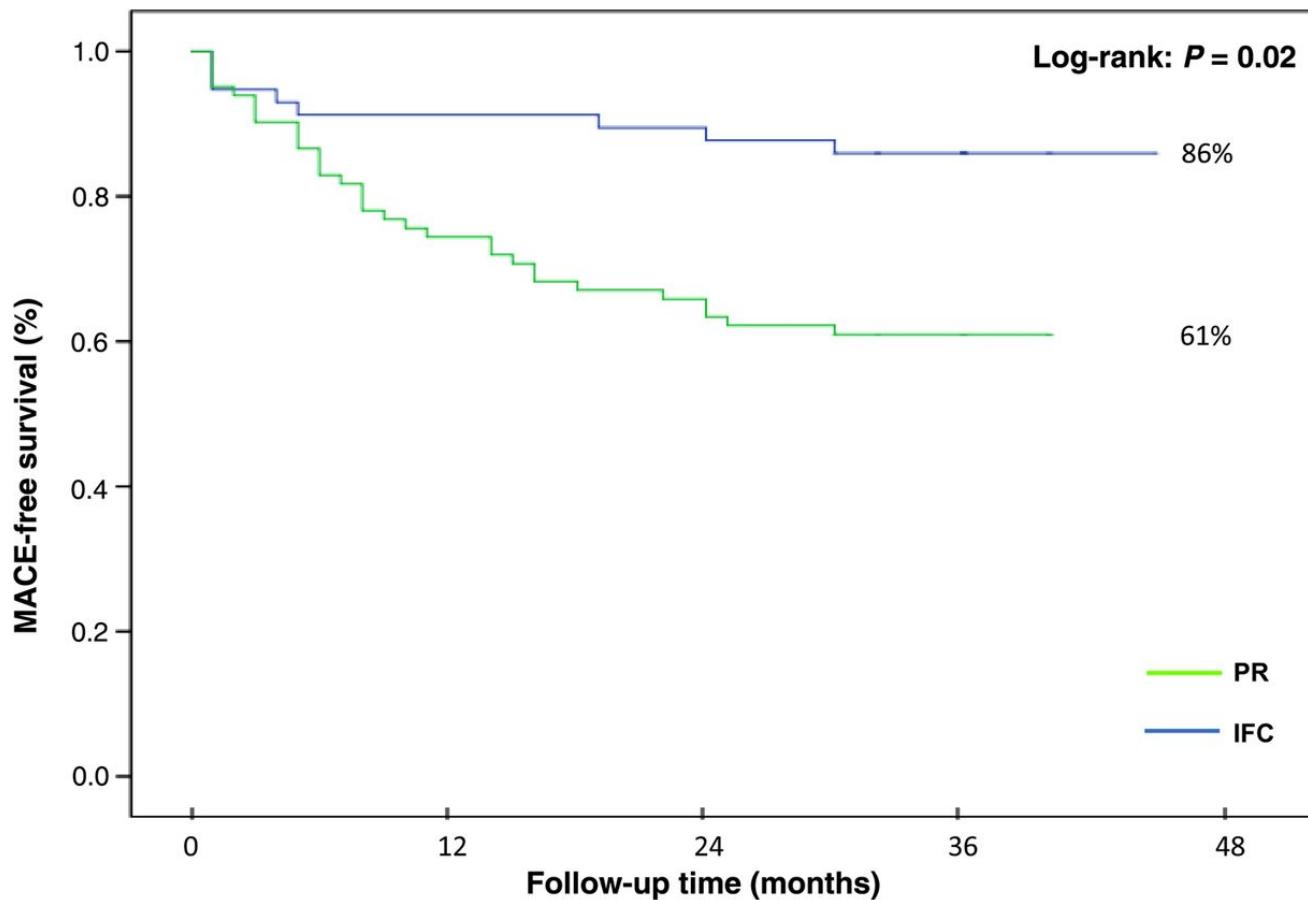
Representative optical coherence tomography images of intact fibrous cap and plaque rupture.



Major adverse cardiac event (MACE) rates in patients with plaque rupture and in those with intact fibrous cap.



Major adverse cardiac event (MACE)-free survival Kaplan–Meier curves according to the presence of plaque rupture or intact fibrous cap.

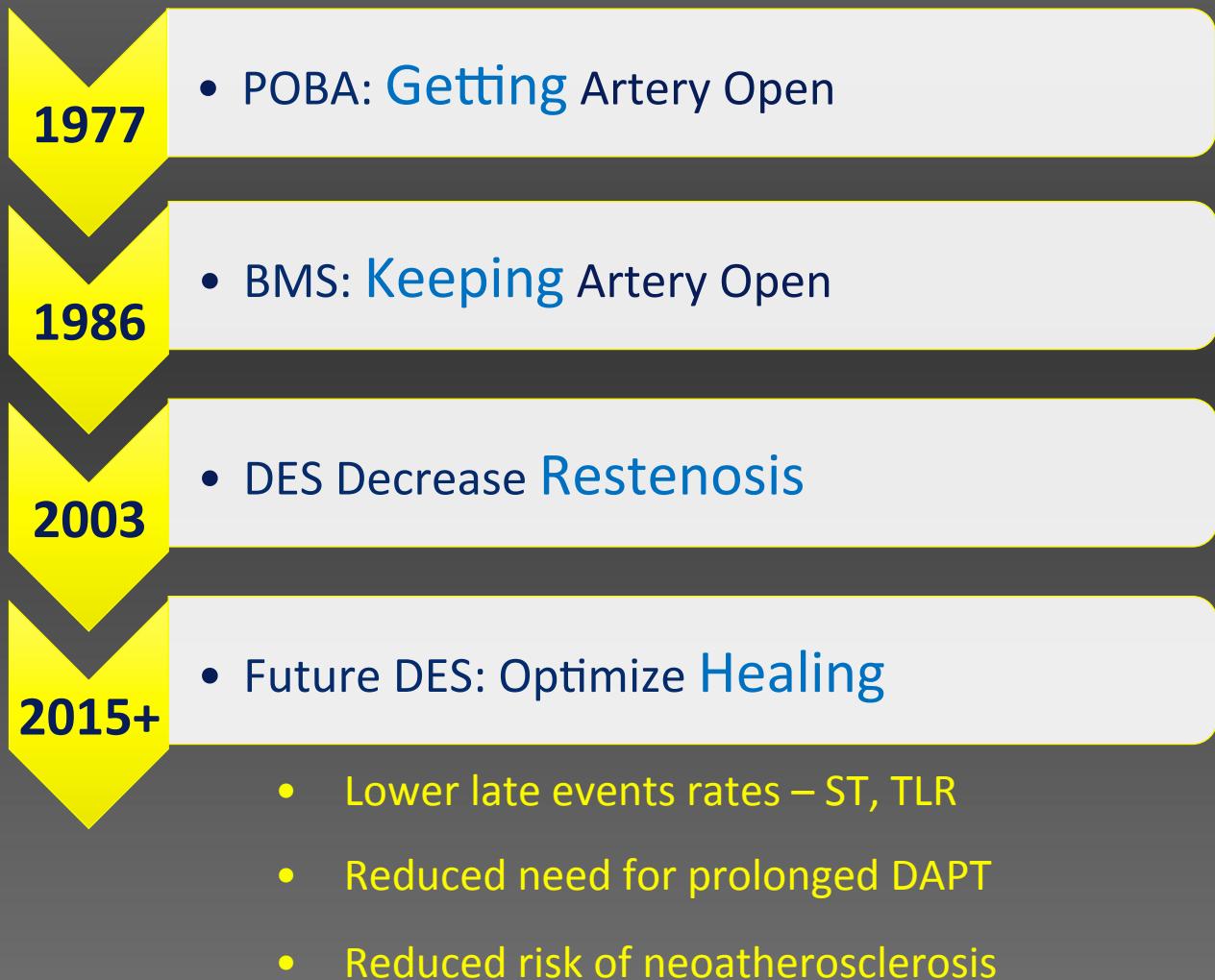


No. at risk

Intact fibrous cap	57	52	51	49
Plaque rupture	82	61	54	50

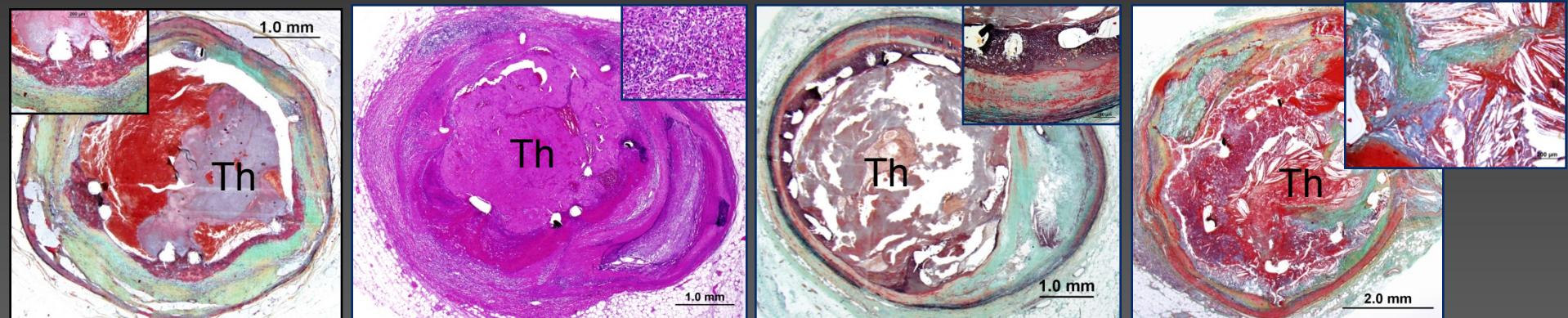
Next phase for the future of PCI: Optimal Healing

PCI EVOLUTION
Continuous improvement in platform design and acute performance



1st-Generation DES was not ideal for healing

- Thick struts
 - Thick, durable coating ($\sim 15 \mu\text{m}$)
 - High drug dose
 - High polymer load
- ✓ Uncovered struts
 - ✓ Hypersensitivity
 - ✓ Malapposition
 - ✓ Late stent thrombosis
 - ✓ Neoatherosclerosis



Uncovered struts

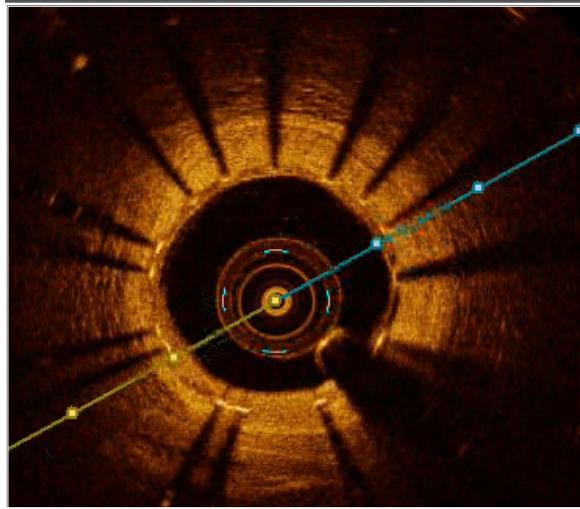
Hypersensitivity reaction

Malapposition from
excessive fibrin
deposition

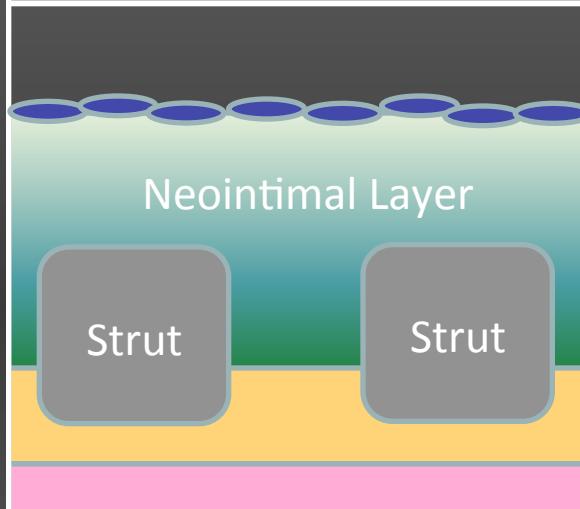
Neoatherosclerosis

What is optimal healing post-implant?

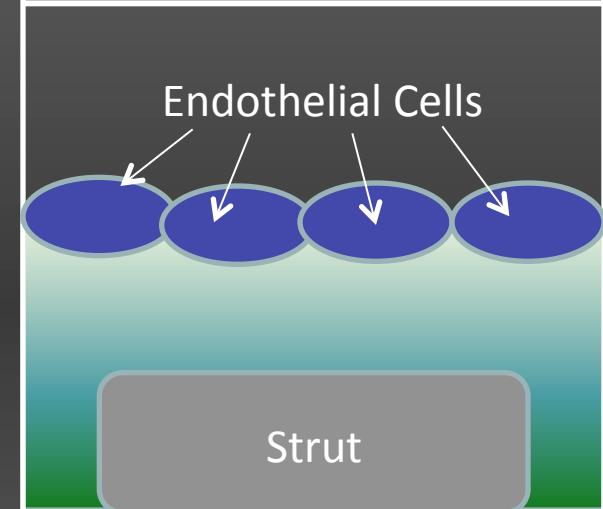
Uniform
Strut Coverage



Mature
Neointimal Layer



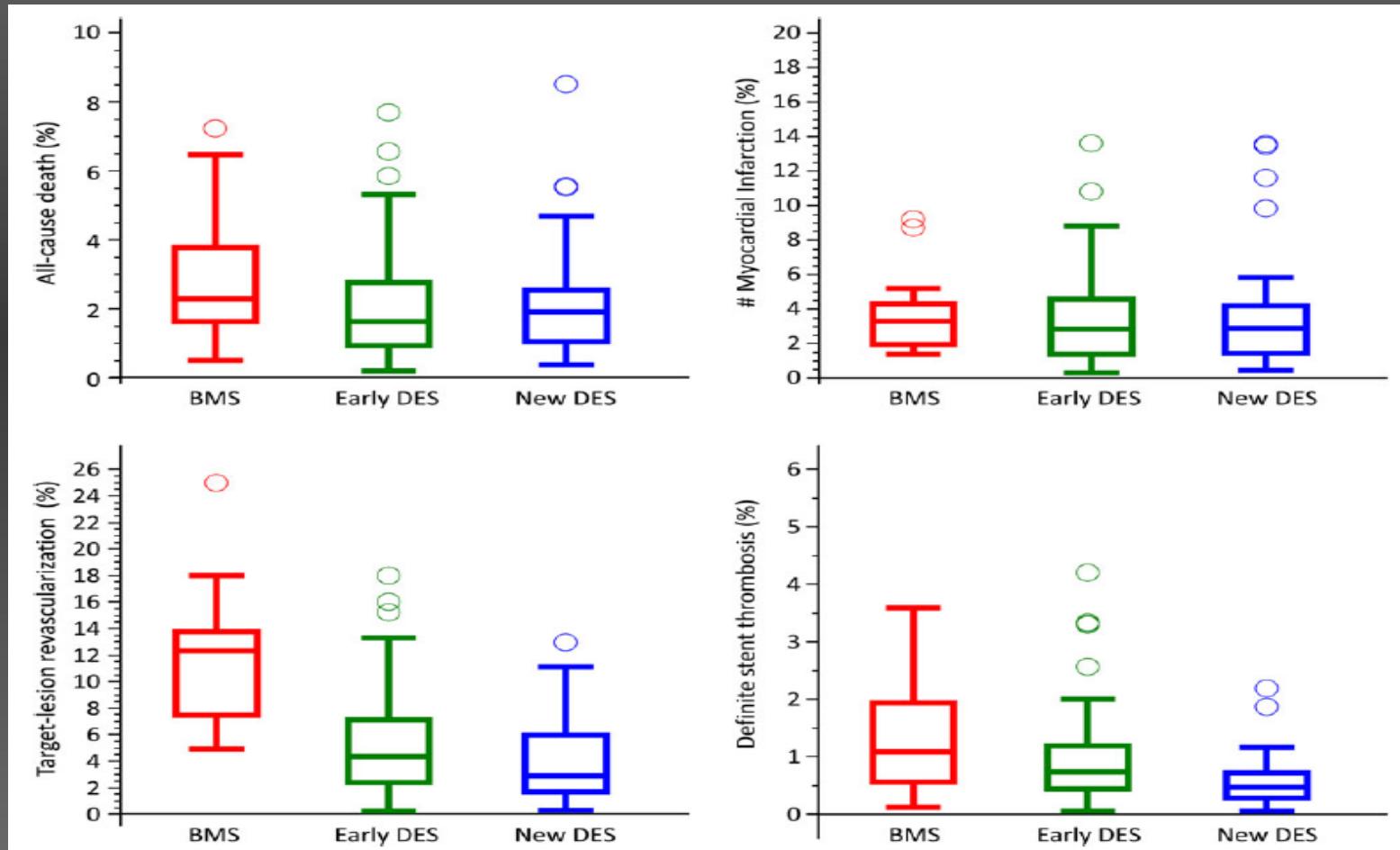
CONTINUOUS, FUNCTIONAL
Endothelial Layer



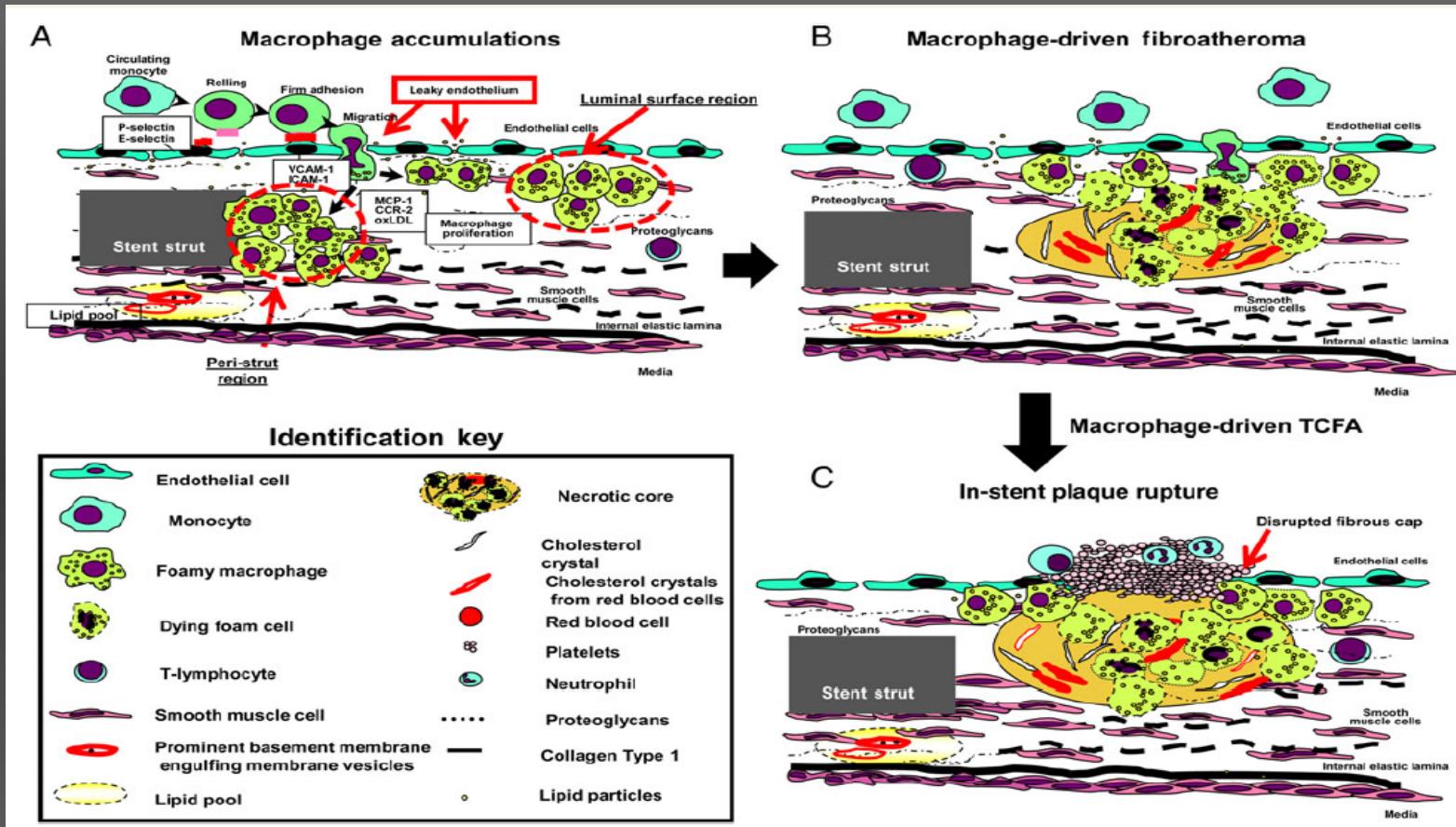
Role of Endothelial Cell:

- Communicate
- Stabilize
- Prevent further neointimal formation
- Provide a barrier for thrombosis

Report of a European Society of Cardiology-European Association of Percutaneous Cardiovascular Interventions task force on the evaluation of coronary stents in Europe: executive summary

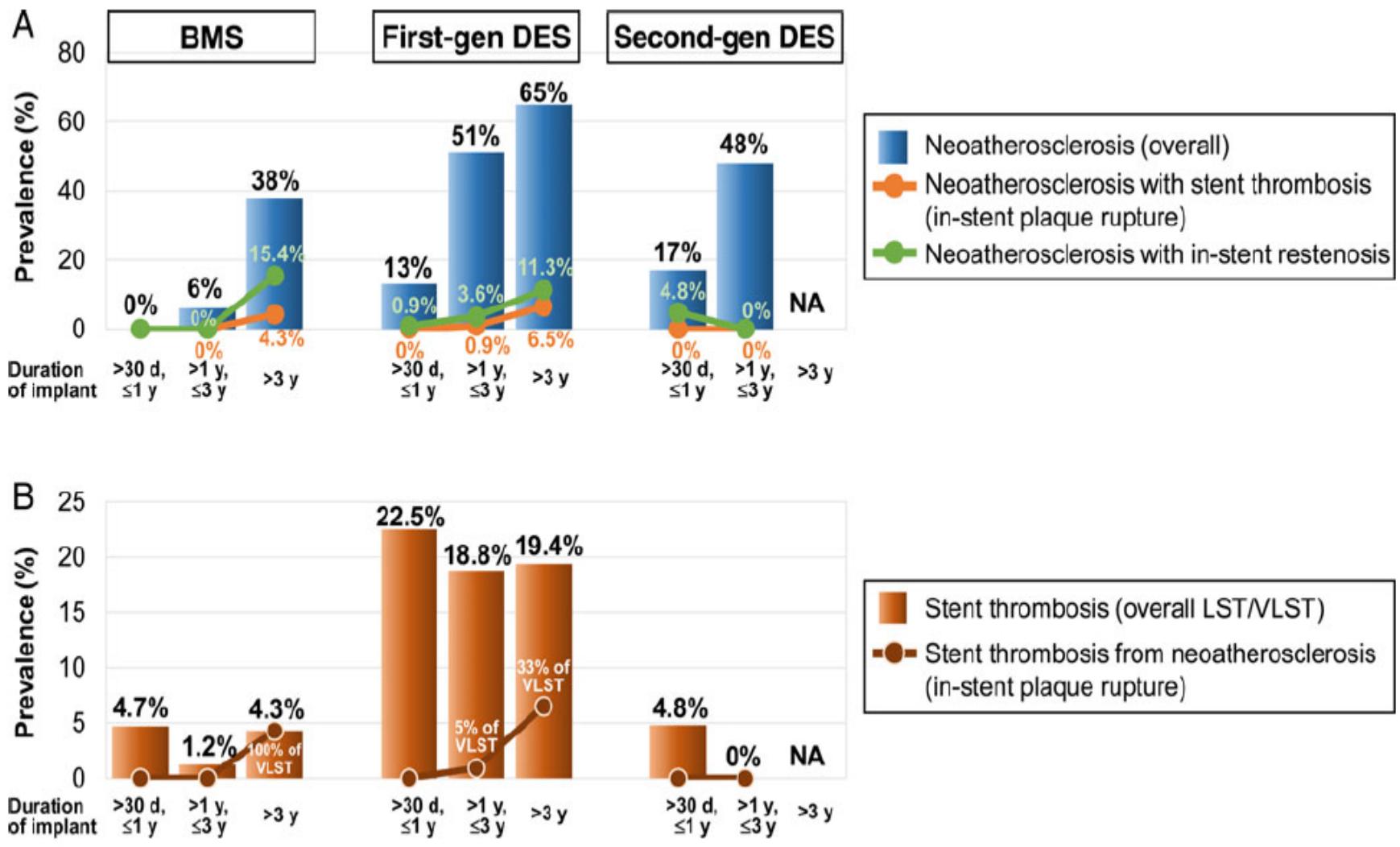


Neoatherosclerosis: overview of histopathologic findings and implications for intravascular imaging assessment

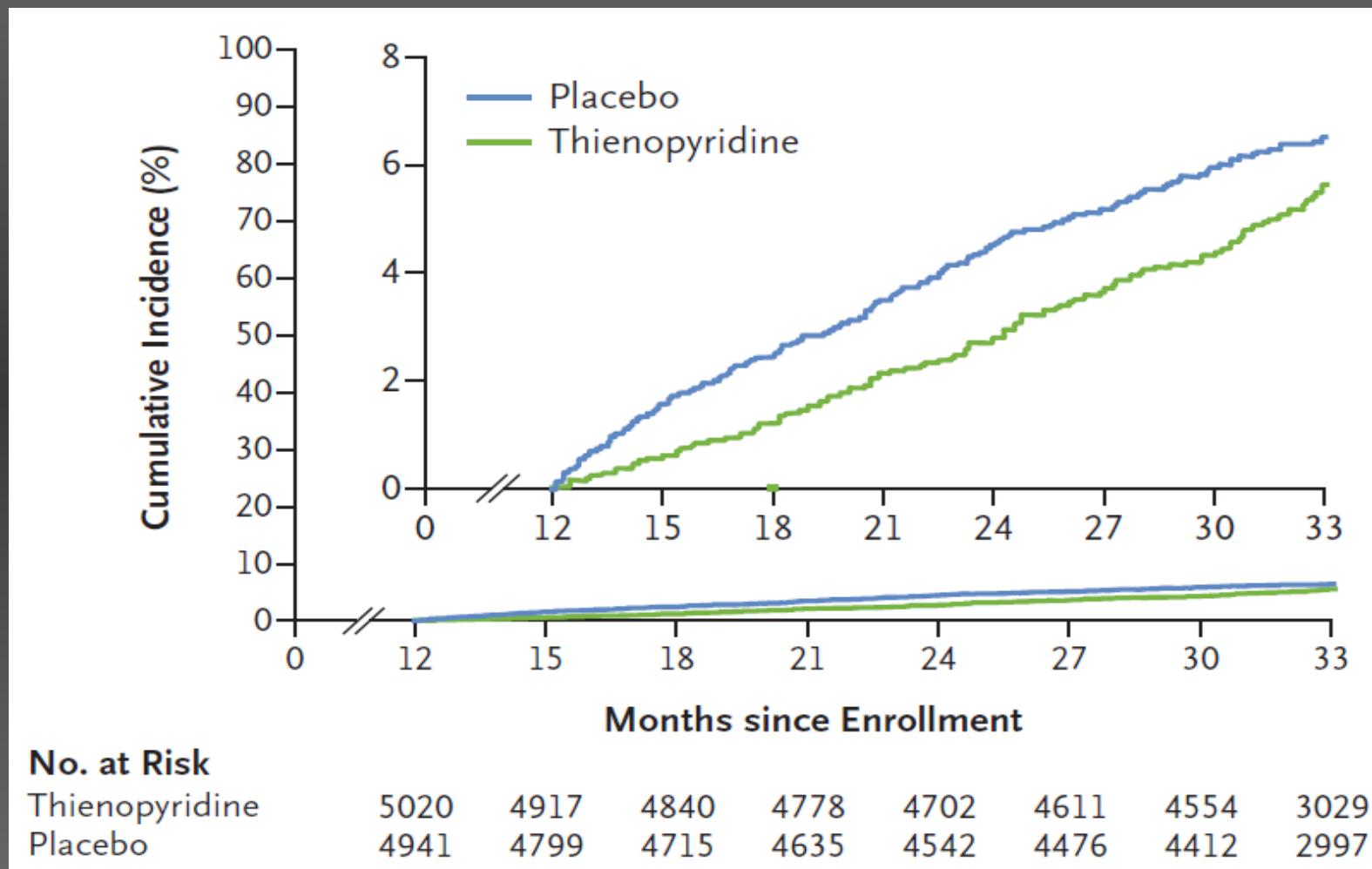


- (A) Incompetent and dysfunctional endothelial coverage following stent
- (B) Accumulation of foamy macrophages and their persistent apoptosis
- (C) Further enlargement of the necrotic core over time results in the formation of thin-cap fibroatheroma

Neoatherosclerosis: overview of histopathologic findings and implications for intravascular imaging assessment



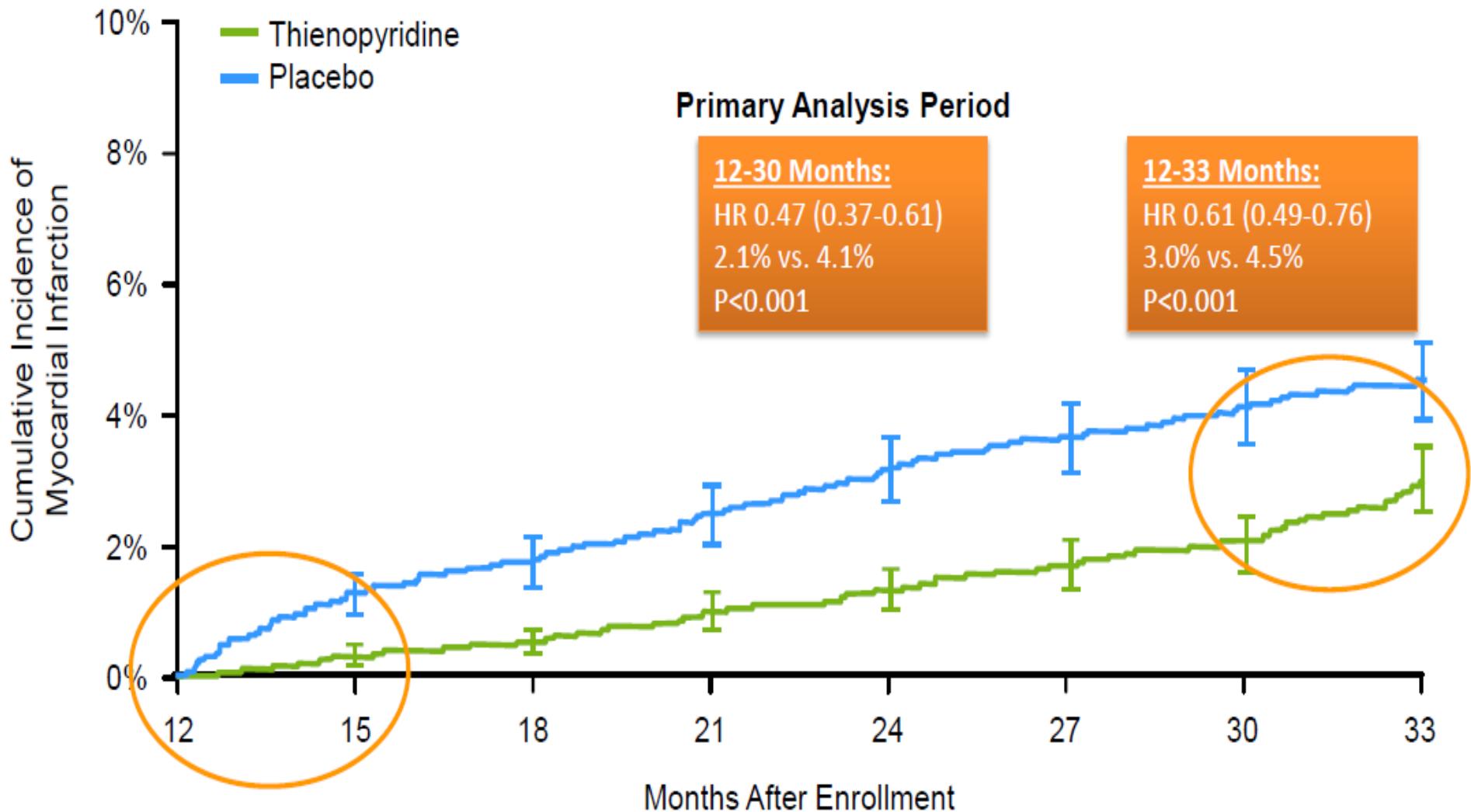
Twelve or 30 months of dual dual antiplatelet therapy after drug-eluting stents



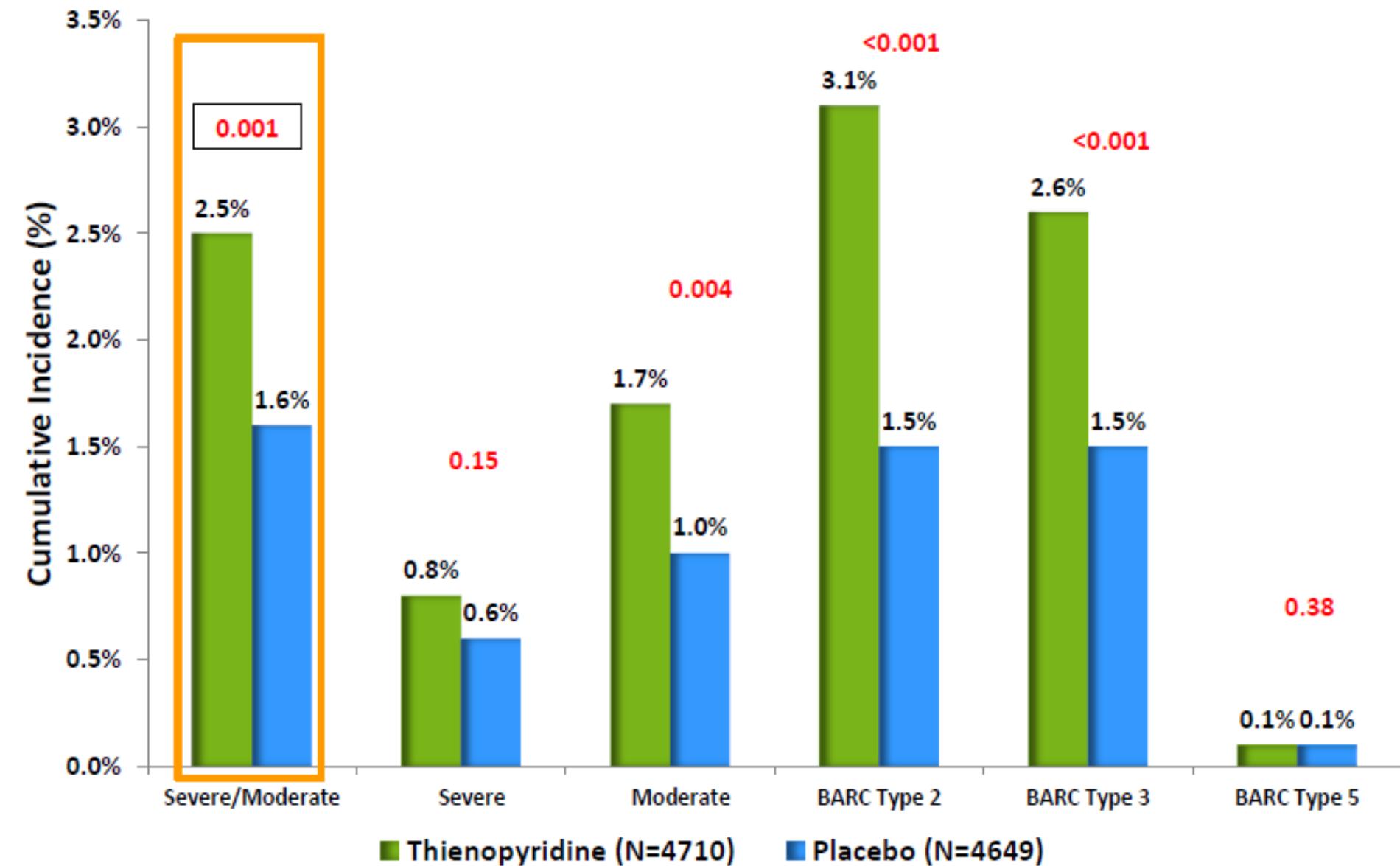
Death, MI or stroke

Mauri L, et al. New Engl J Med. 2014;37

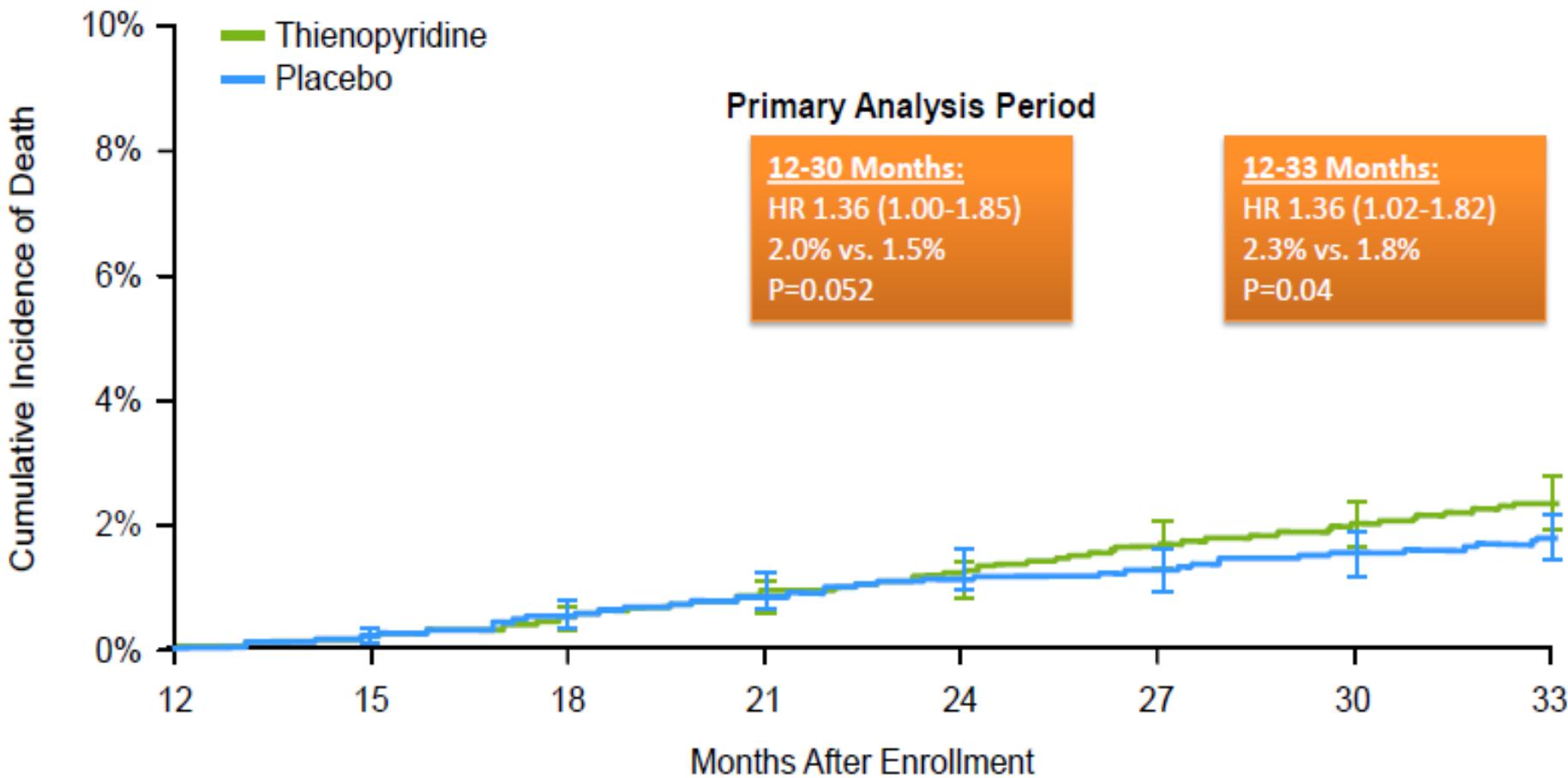
Myocardial Infarction



Primary Safety End Point & Components: 12-30 Months



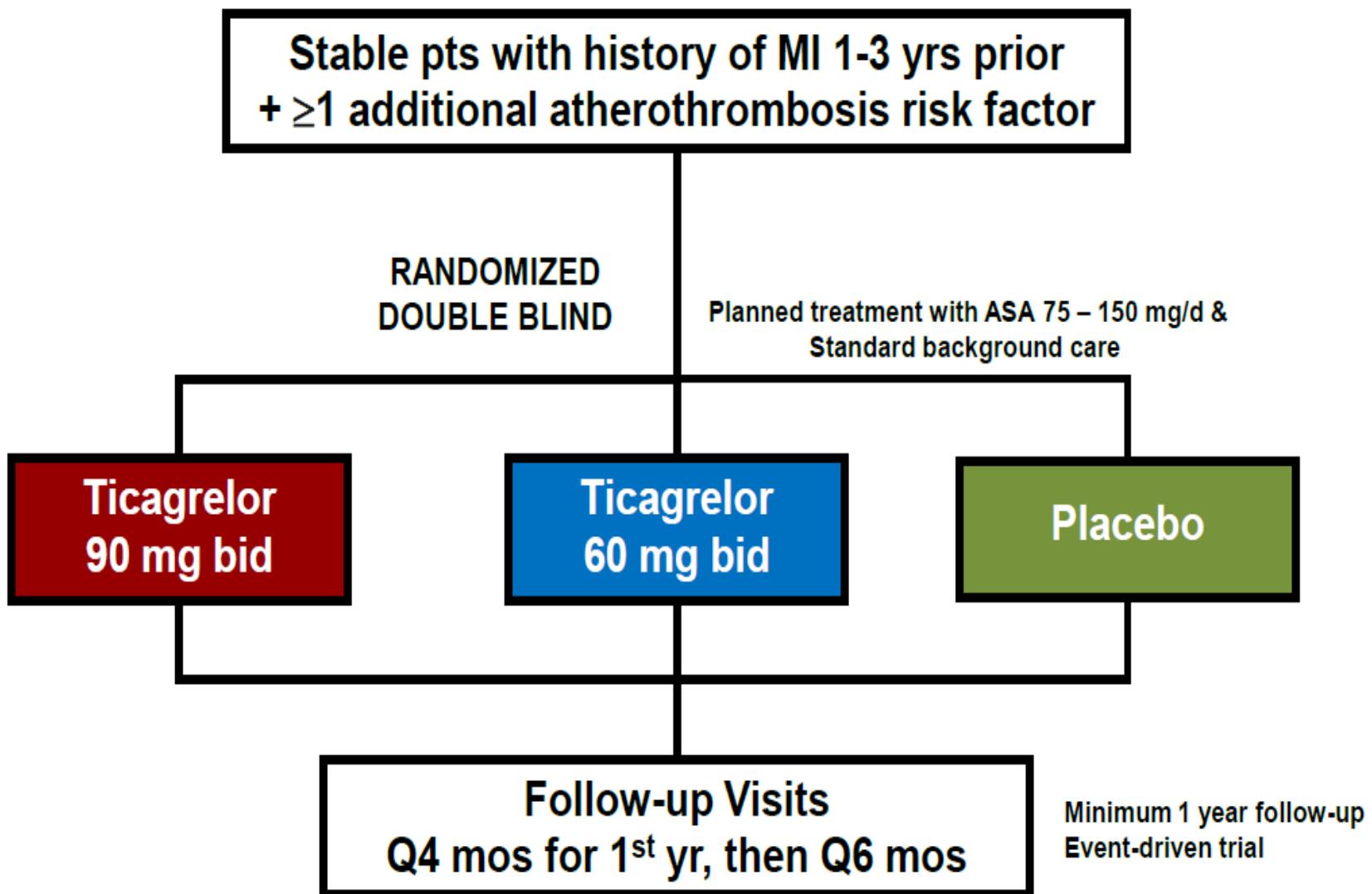
All-Cause Mortality



At Risk

Thienopyridine	5020	4936	4875	4835	4777	4703	4663	3139
Placebo	4941	4866	4805	4761	4700	4659	4618	3159

Trial Design



Key Inclusion & Exclusion Criteria



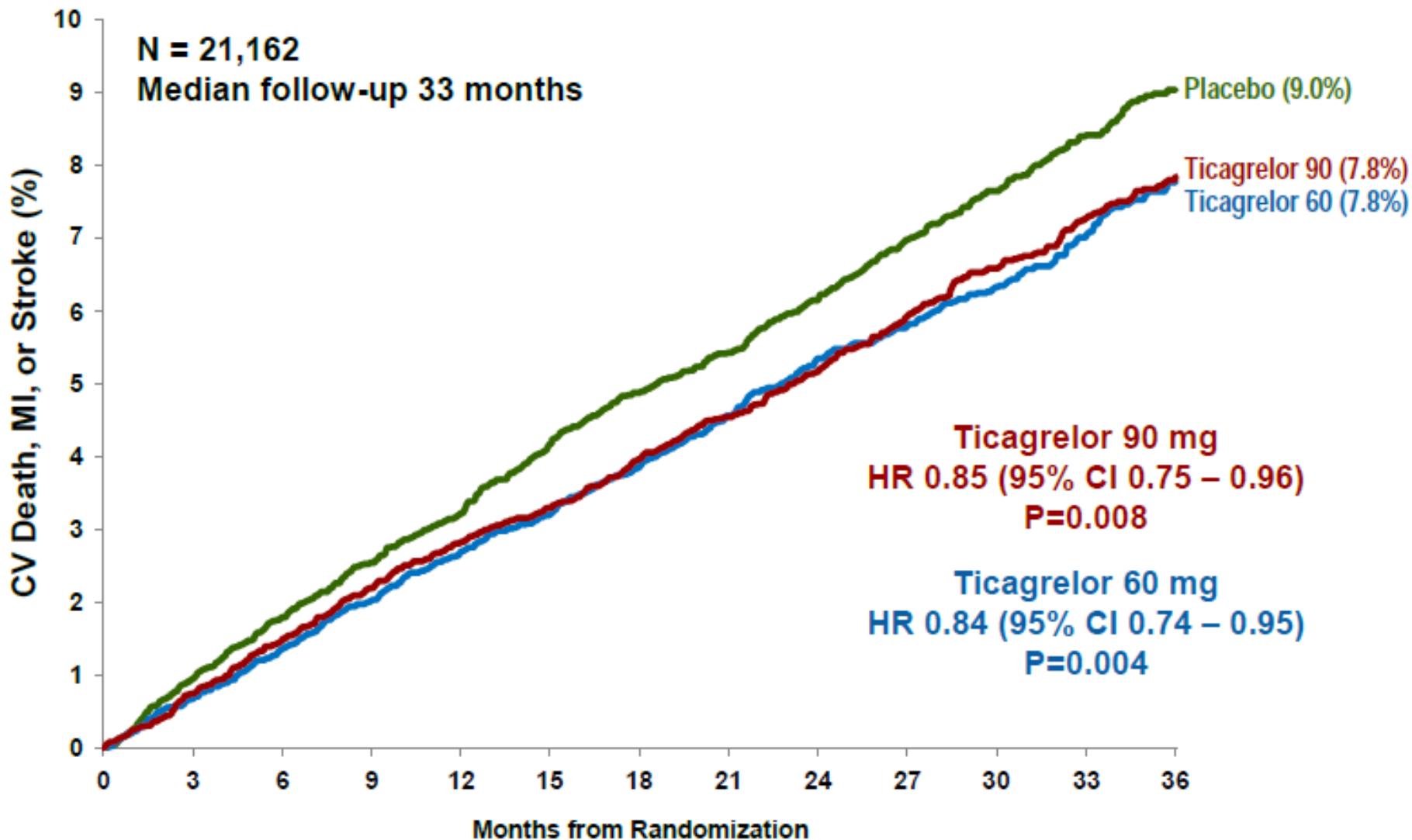
KEY INCLUSION

- Age ≥ 50 years
- At least 1 of the following:
 - Age ≥ 65 years
 - Diabetes requiring medication
 - 2nd prior MI (>1 year ago)
 - Multivessel CAD
 - CrCl < 60 mL/min
- Tolerating ASA and able to be dosed at 75-150 mg/d

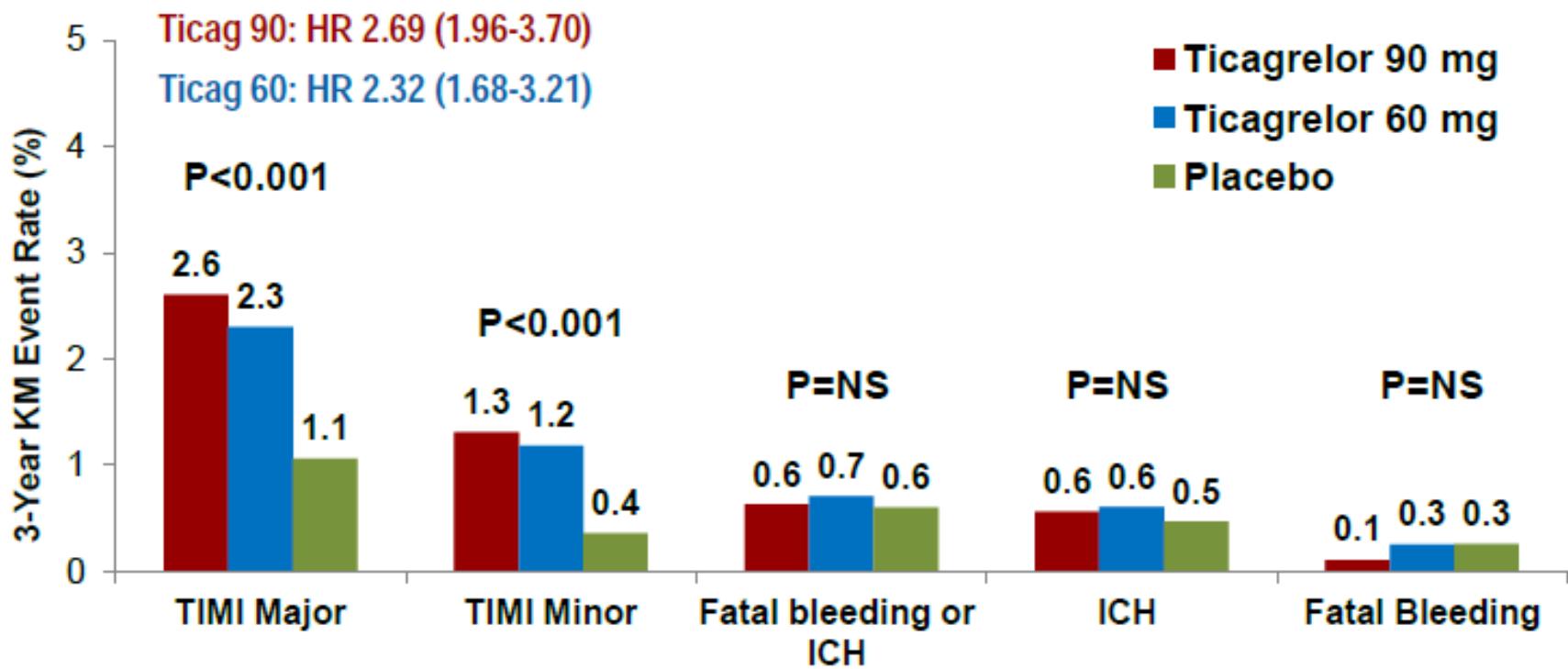
KEY EXCLUSION

- Planned use of P2Y₁₂ antagonist, dipyridamole, cilostazol, or anticoag
- Bleeding disorder
- History of ischemic stroke, ICH, CNS tumor or vascular abnormality
- Recent GI bleed or major surgery
- At risk for bradycardia
- Dialysis or severe liver disease

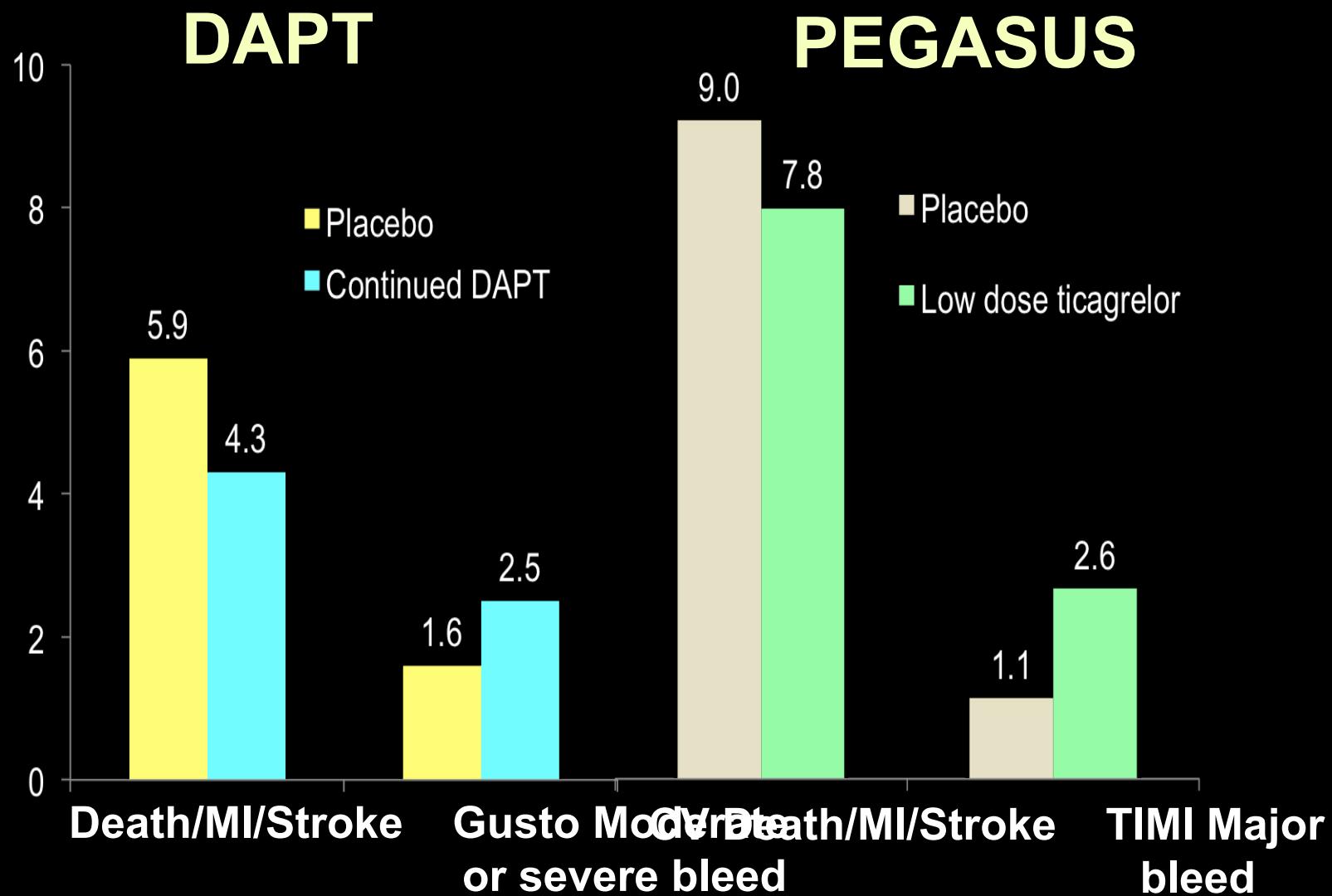
Primary Endpoint



Bleeding

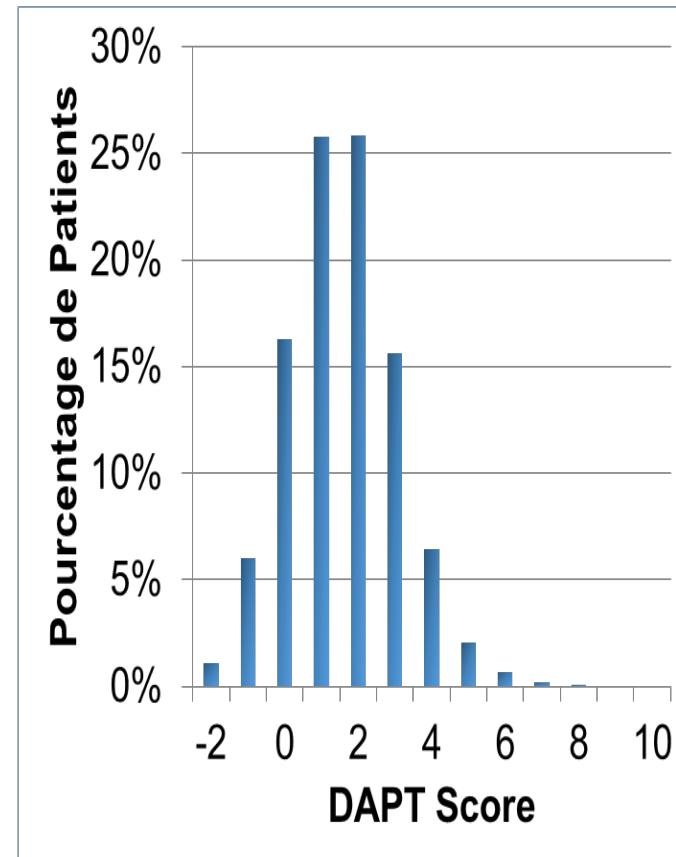


Extended Duration DAPT



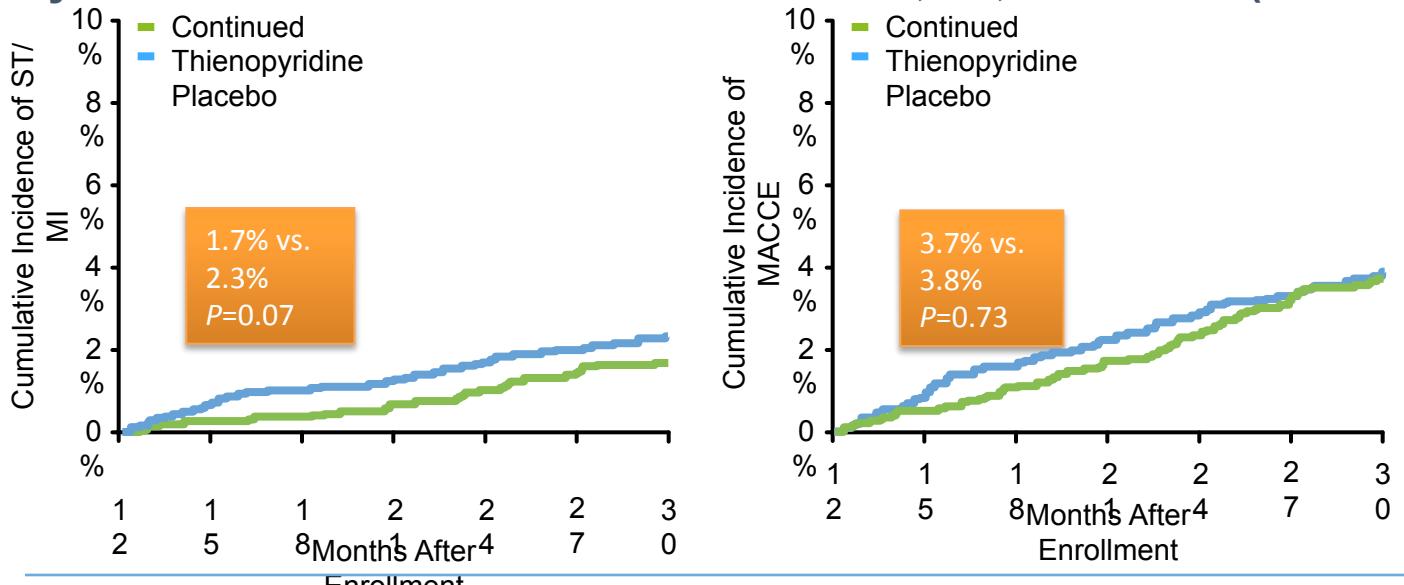
Le score DAPT Score

Variable	Points
Patient	
Age	
≥ 75	-2
$65 - < 75$	-1
< 65	0
Diabète	1
Tabagisme actif	1
ATCD angioplastie ou ATD d' IDM	1
Ins Cardiaque ou FE-VG $< 30\%$	2
Procédure de référence	
Infarctus du myocarde	1
Angioplastie pontage veineux	2
Diamètre du stent 3mm	1

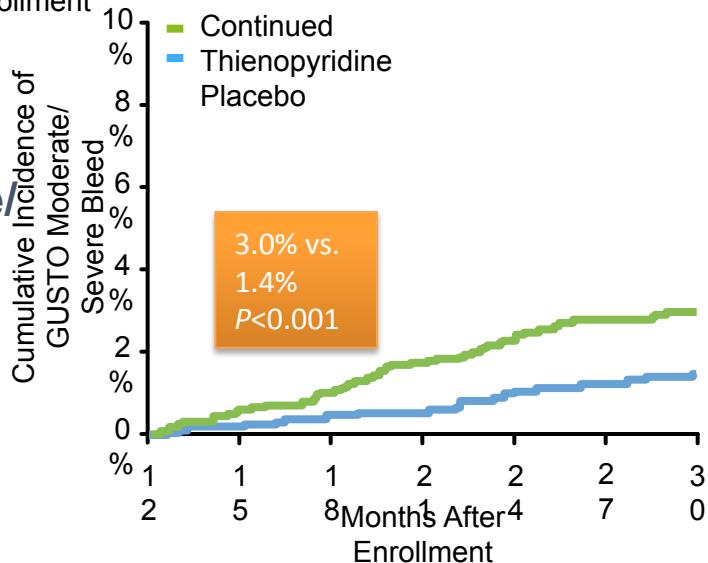


Continued Thienopyridine vs. Placebo DAPT Score <2 (Low); N=5731

Myocardial Infarction or Stent Thrombosis, MI, or Stroke (MACCE)

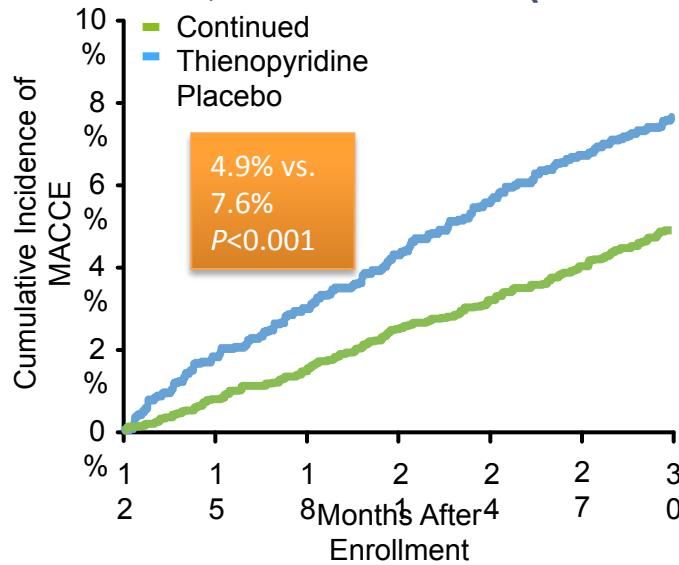
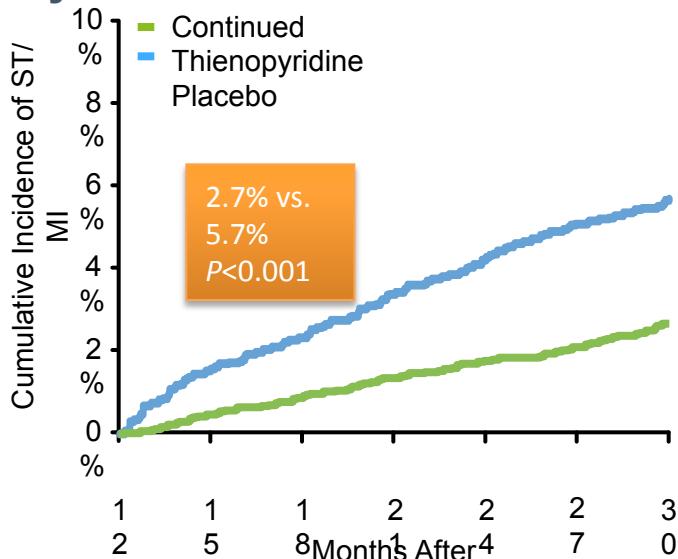


GUSTO Moderate/Severe Bleeding

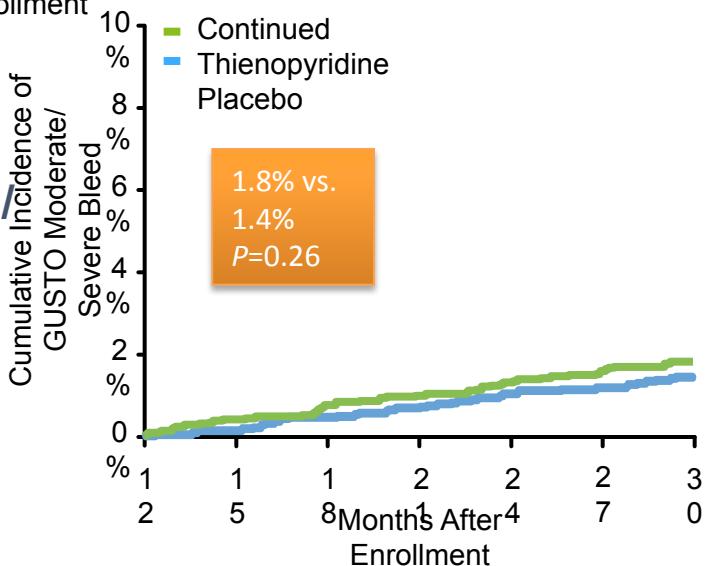


Continued Thienopyridine vs. Placebo DAPT Score ≥ 2 (High); N=5917

Myocardial Infarction or Stent Thrombosis or Stroke (MACCE)

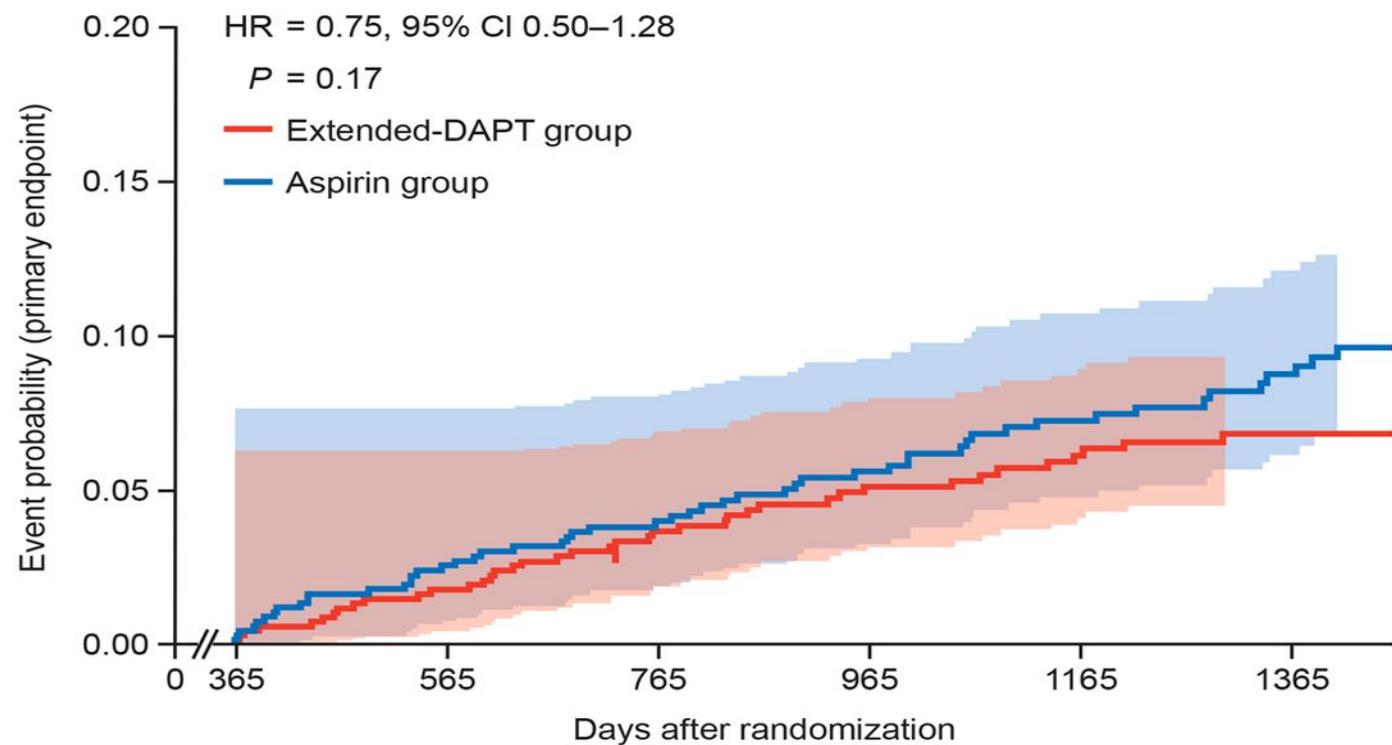


GUSTO Moderate/Severe Bleeding



Stopping or continuing clopidogrel 12 months after drug-eluting stent placement: the OPTIDUAL randomized trial.

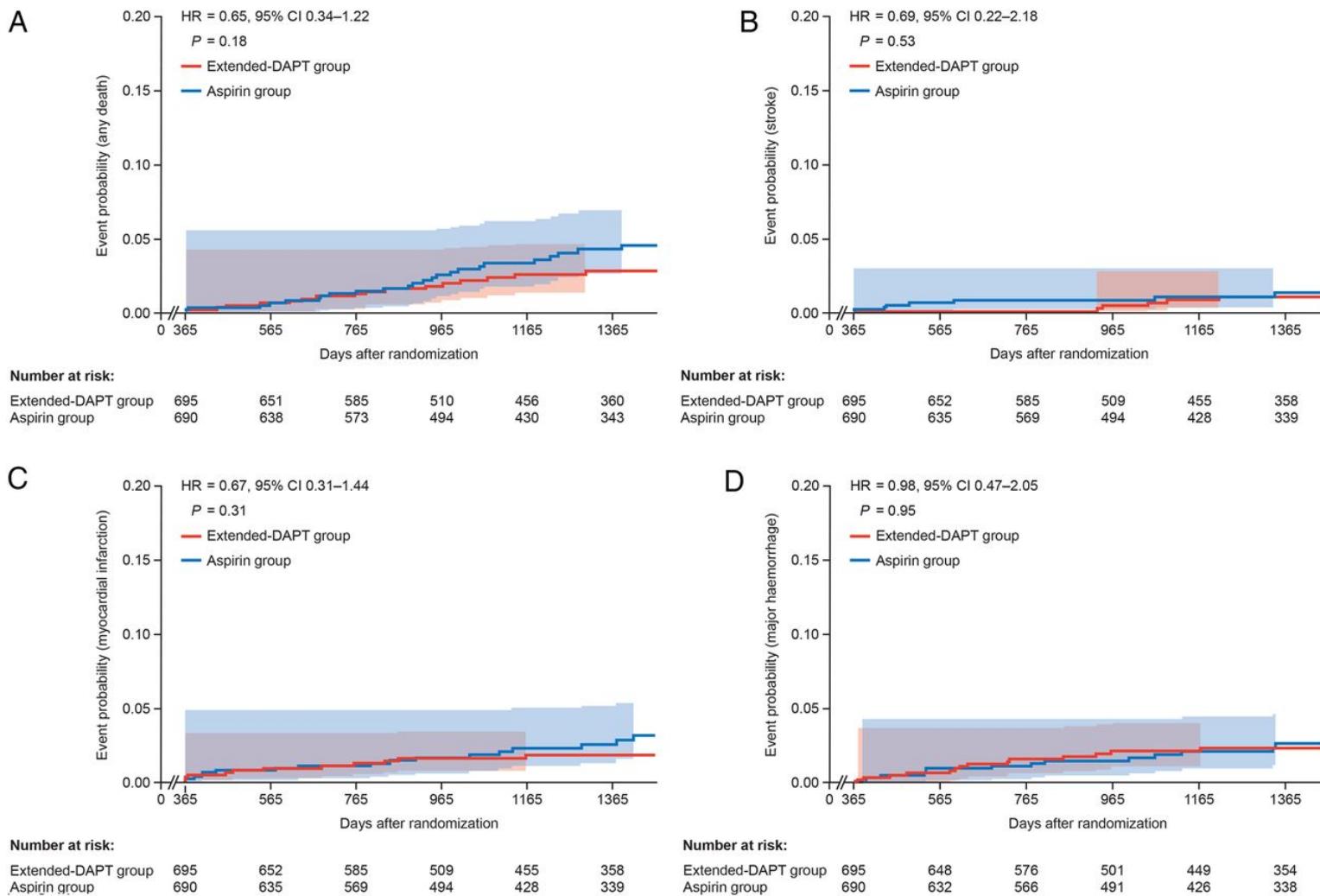
Kaplan–Meier curves for primary outcome of net adverse clinical events (defined as the composite of death, myocardial infarction, stroke, or major International Society on Thrombosis and Haemostasis bleeding).



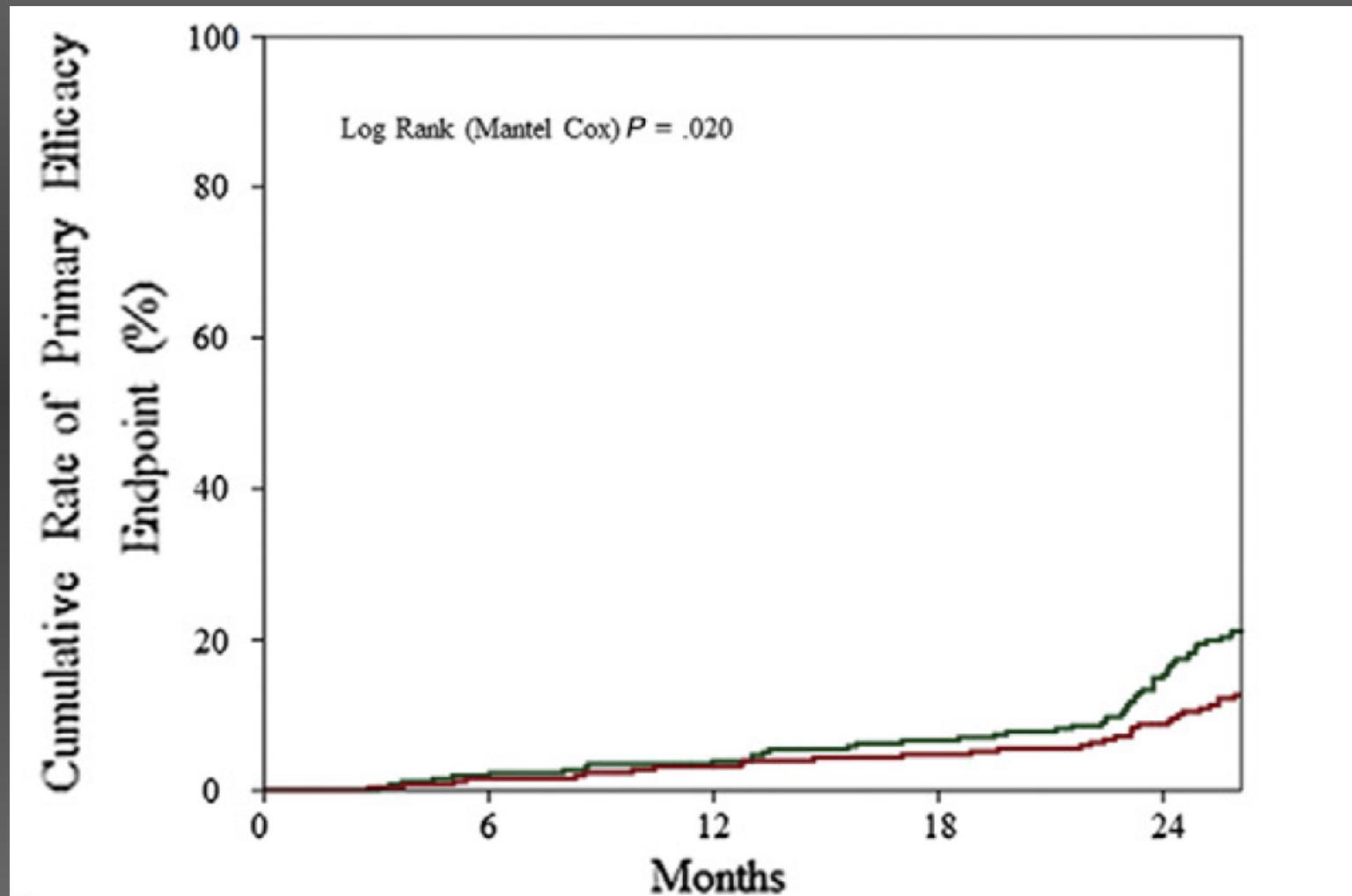
Number at risk:

Extended-DAPT group	695	643	570	493	440	344
Aspirin group	690	626	557	479	415	329

(A) All-cause mortality, (B) stroke, (C) myocardial infarction, and (D) major ISTE bleeding.

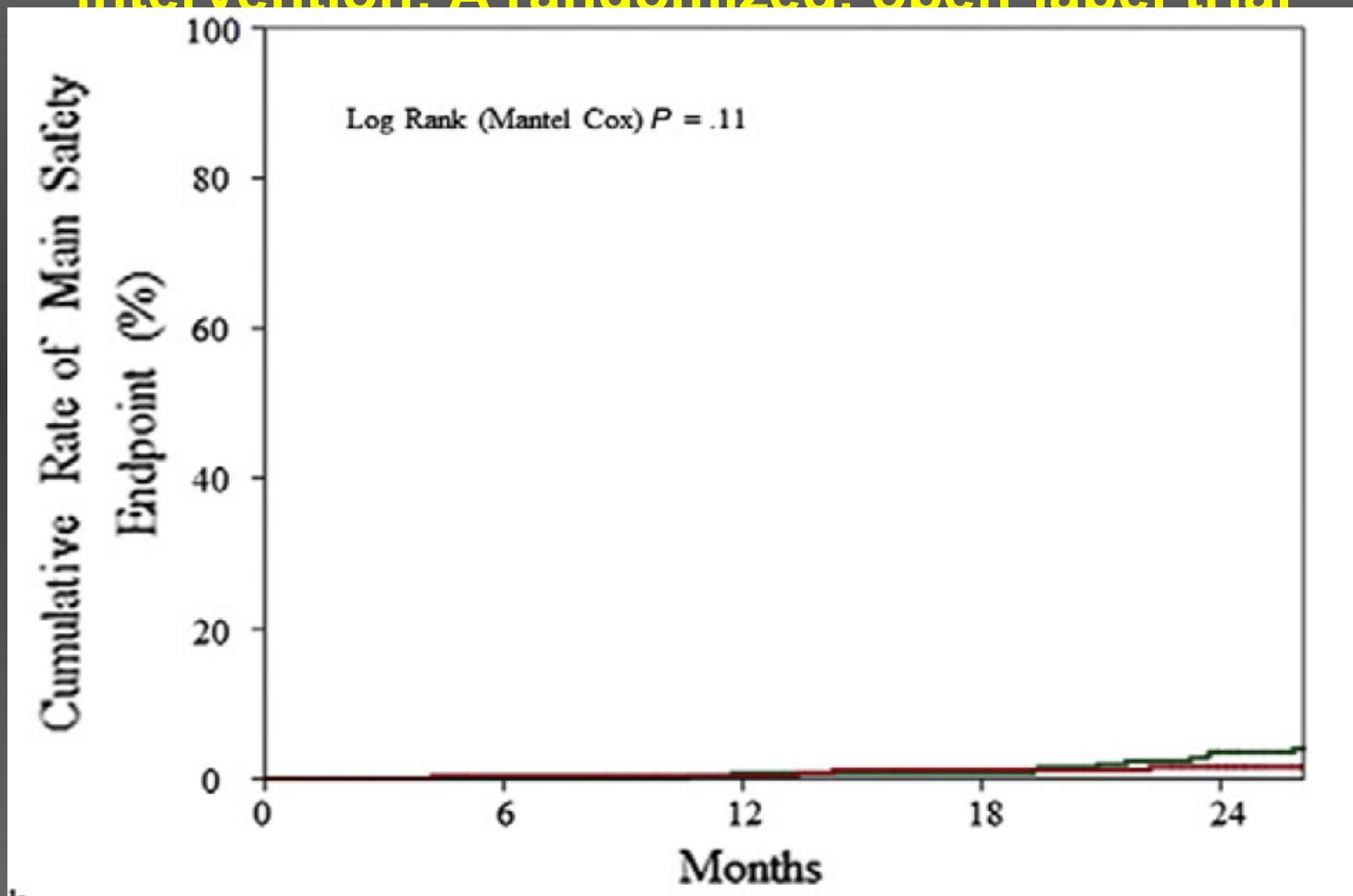


Addition of cilostazol to aspirin therapy for secondary prevention of cardiovascular and cerebrovascular disease in patients undergoing percutaneous coronary intervention: A randomized, open-label trial



Hueda H, et al. Am Heart J. 2016;173:134–142.

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Table III. Multivariate analysis of the primary efficacy end point

Variables	HR (95% CI)	P
Hypertension	1.39 (0.86-2.24)	.18
Prior myocardial infarction	1.42 (0.94-2.16)	.096
Prior stroke	2.09 (1.37-3.17)	.001
Multivessel treatment	2.09 (1.36-3.21)	.001

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Table IV. Adverse events at 2 years

Event	Aspirin plus cilostazol (n = 254)	Aspirin only (n = 260)	P
Bleeding			
Major	2 (0.8%)	4 (1.5%)	.69
Minor	2 (0.8%)	6 (2.3%)	.29
Minimal	17 (6.7%)	14 (5.4%)	.53
Skin eruption	5 (2.0%)	5 (1.9%)	1.00
Pruritus	2 (0.8%)	0	.24
Headache	18 (7.1%)	9 (3.5%)	.066
Facial flushing	0	1 (0.4%)	1.00
Dizziness or vertigo	5 (2.0%)	8 (3.1%)	.58
Tinnitus	2 (0.8%)	0	.24
Dry mouth	1 (0.4%)	0	.49
Palpitations	27 (10.6%)	17 (6.5%)	.097
Gastrointestinal trouble	7 (2.8%)	12 (4.6%)	.26
Hepatic dysfunction	2 (0.8%)	4 (1.5%)	.69
Leukopenia or thrombocytopenia	1 (0.4%)	0	.49
Discontinuation of the study medication	36 (14.2%)	10 (3.8%)	<.001

Values are presented as numbers (relative percentage).

