Cardiologia
Federico II

DOPPIA TERAPIA ANTIPIASTRINICA PROTRATTA NEL PAZIENTE CON SINDROME CORONARICA ACUTA

IL PROBLEMA

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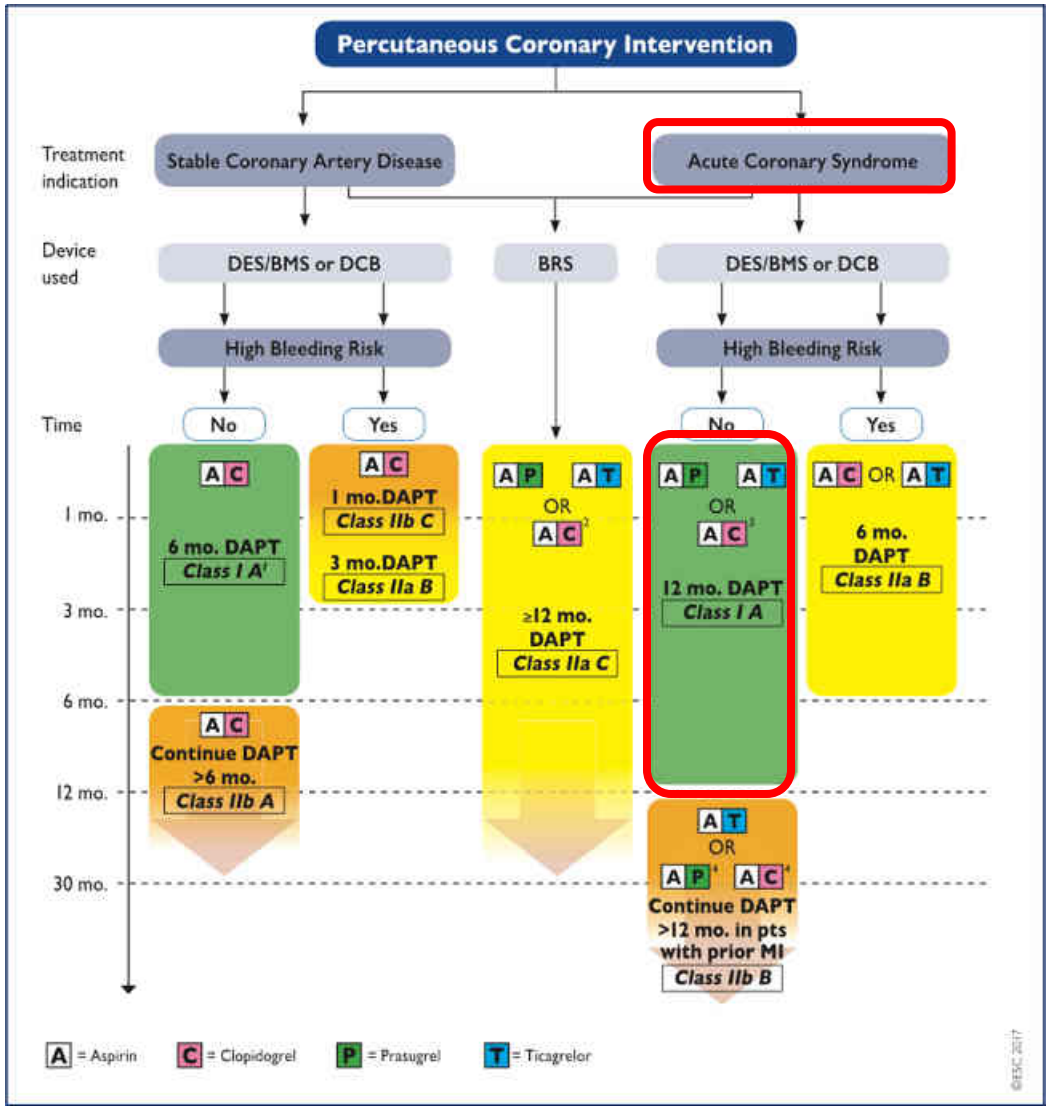
ANTITHROMBOTIC THERAPY POST-PCI IN PATIENTS WITH ACS



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European Heart Journal (2017) 0, 1–48

PATIENTS WITH A HISTORY OF A PREVIOUS ACUTE CORONARY EVENT ARE EXPOSED TO A HIGH RESIDUAL ISCHEMIC RISK

High-risk patients (defined by diabetes mellitus, at least one: prior MI, CABG, peripheral arterial disease, stroke, heart failure, or chronic renal dysfunction)

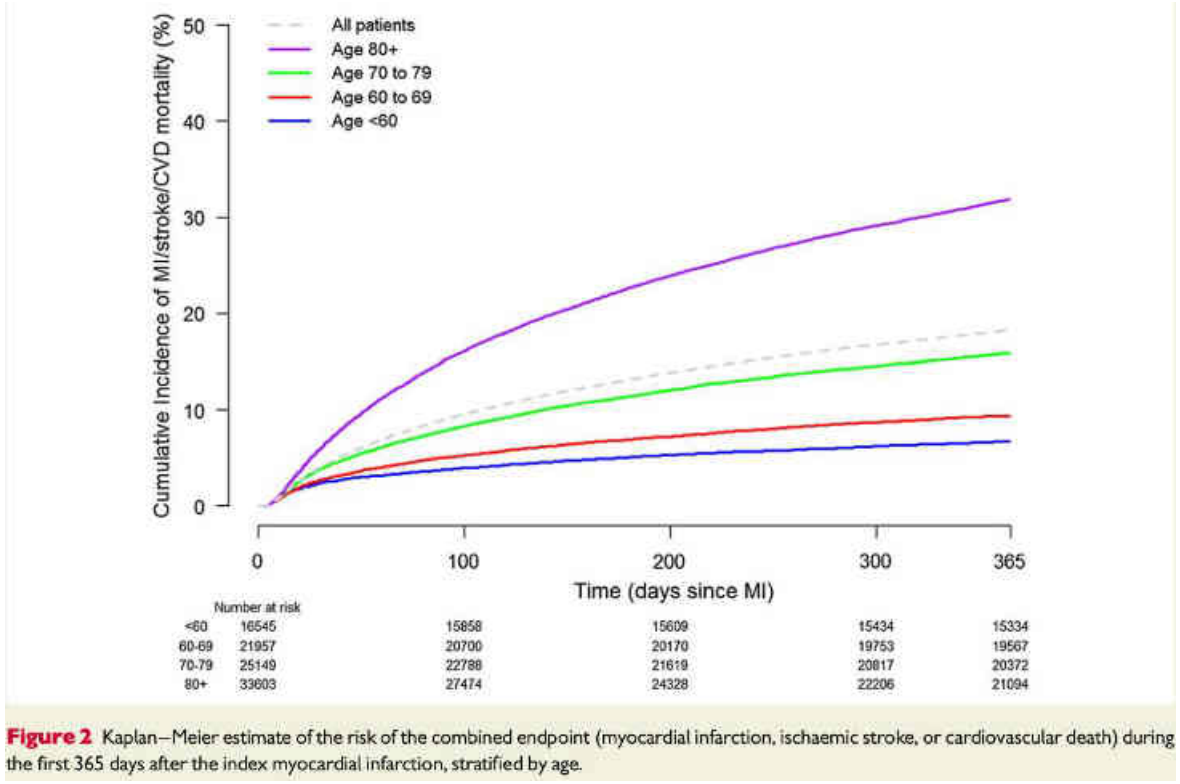


Figure 2 Kaplan–Meier estimate of the risk of the combined endpoint (myocardial infarction, ischaemic stroke, or cardiovascular death) during the first 365 days after the index myocardial infarction, stratified by age.

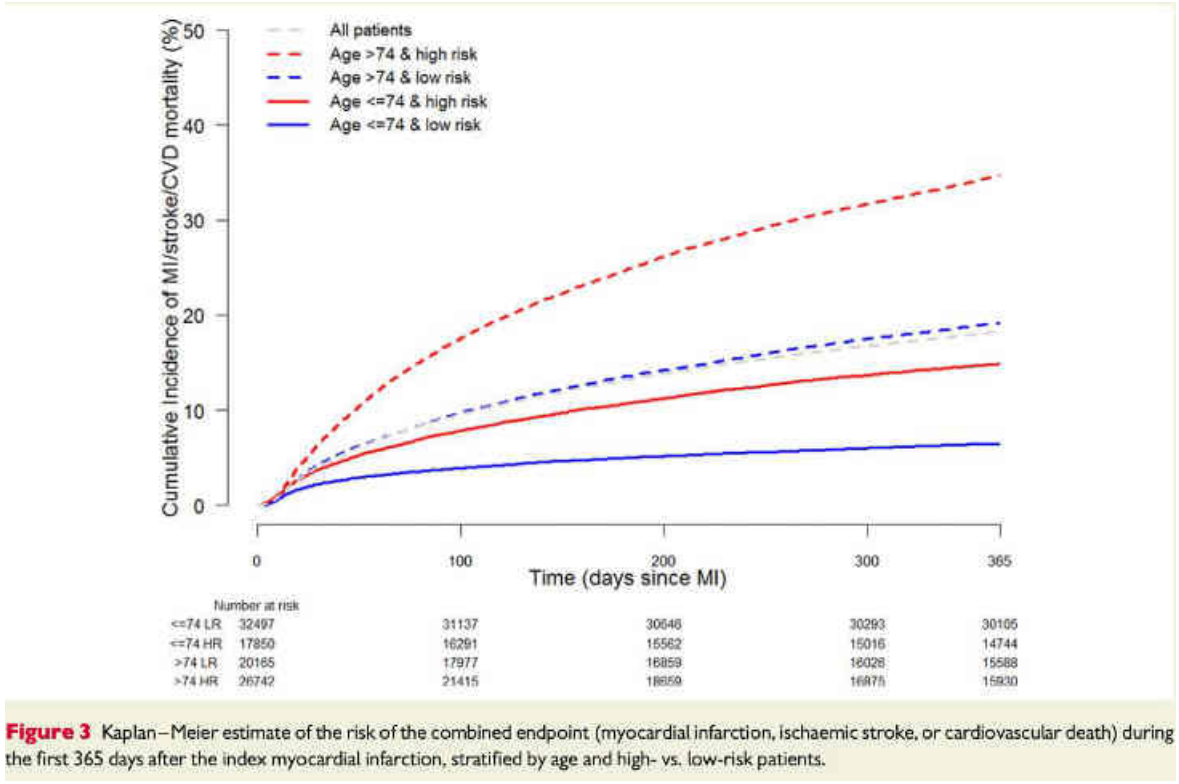


Figure 3 Kaplan–Meier estimate of the risk of the combined endpoint (myocardial infarction, ischaemic stroke, or cardiovascular death) during the first 365 days after the index myocardial infarction, stratified by age and high- vs. low-risk patients.

European Heart Journal (2015) 36

CARDIOVASCULAR RISK IN POST-MYOCARDIAL INFARCTION PATIENTS: NATIONWIDE REAL WORLD DATA DEMONSTRATE THE IMPORTANCE OF A LONG-TERM PERSPECTIVE

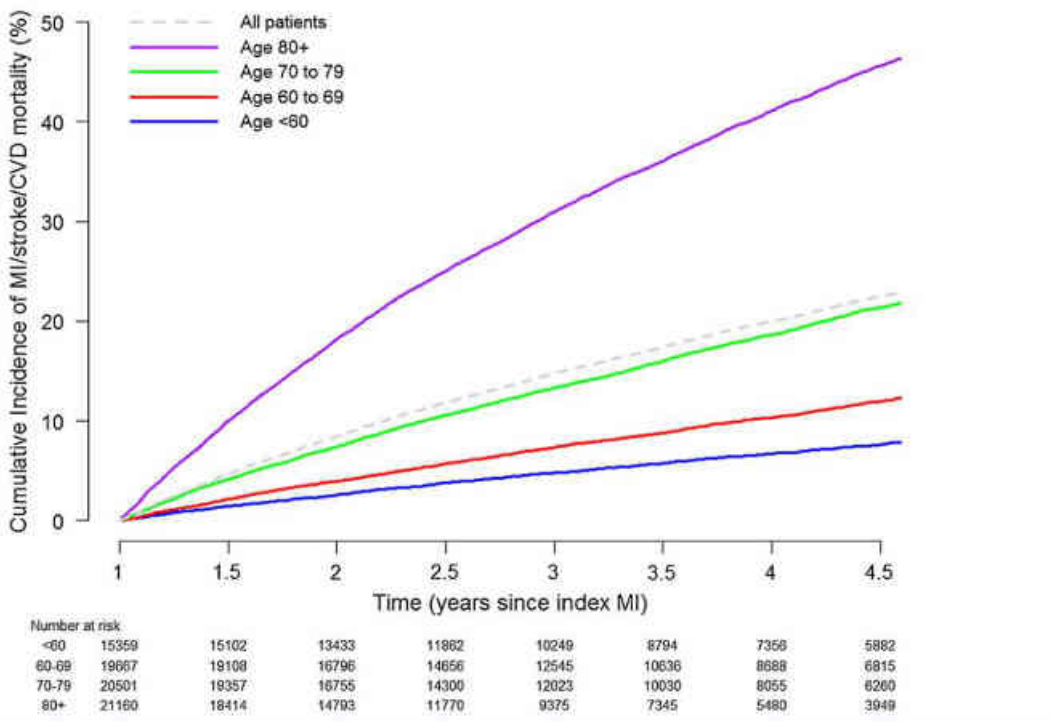


Figure 4 Kaplan–Meier estimate of the risk of the combined endpoint (myocardial infarction, ischaemic stroke, or cardiovascular death) after 365 days after index myocardial infarction until end of study for stable post-myocardial infarction patients, stratified by age.

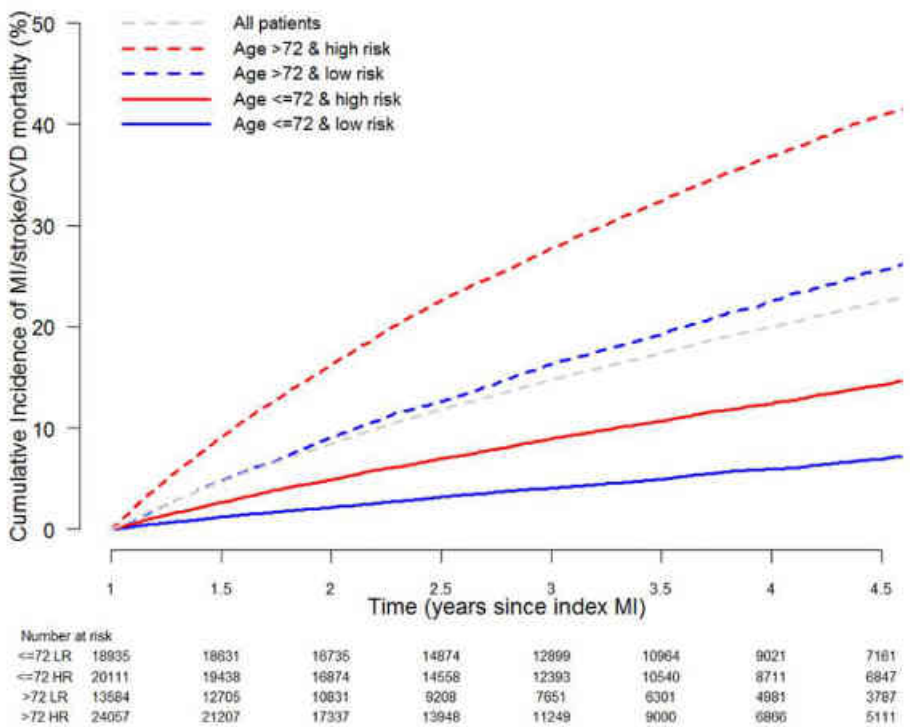
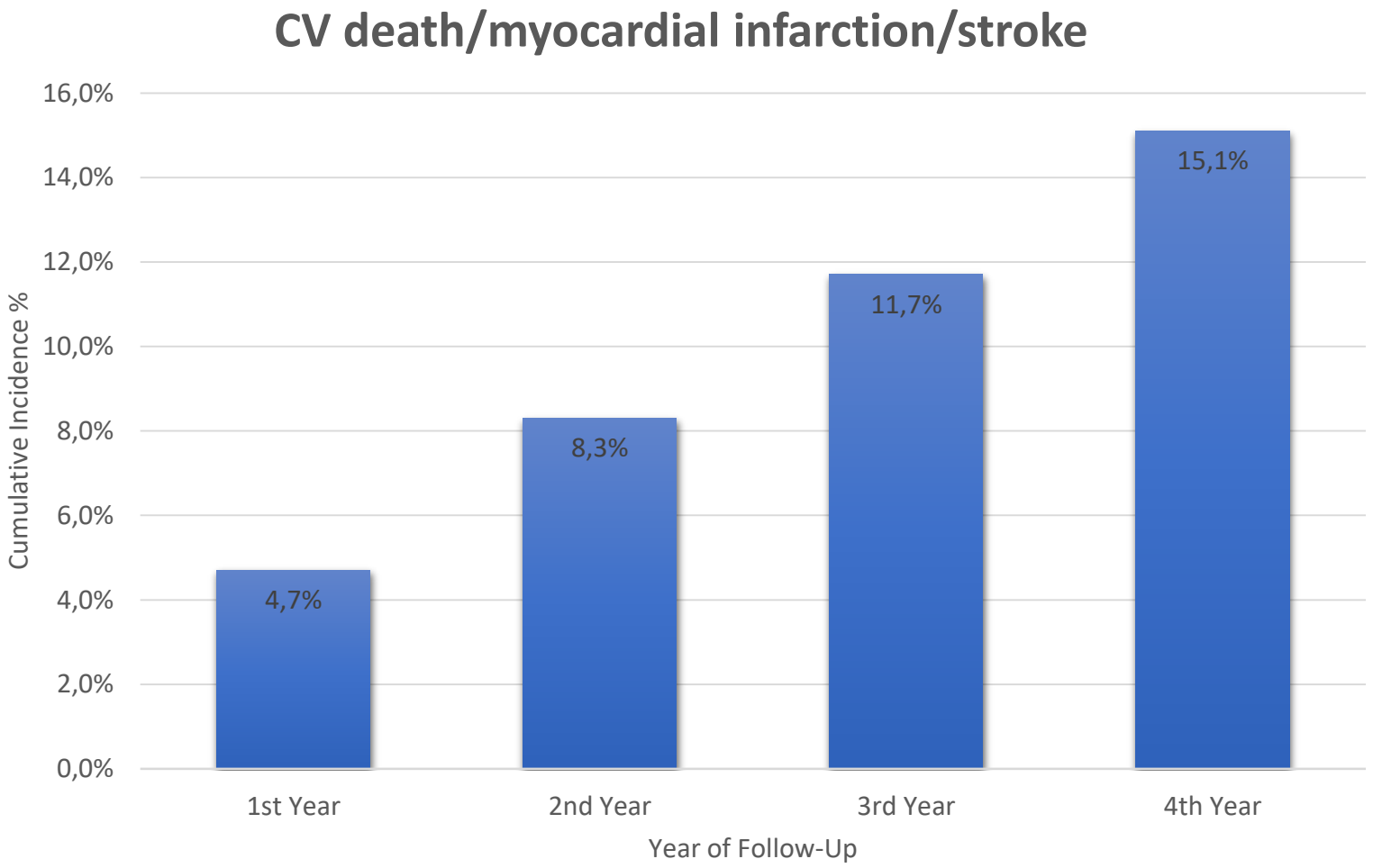


Figure 5 Kaplan–Meier estimate of the risk of the combined endpoint (myocardial infarction, ischaemic stroke, or cardiovascular death) after 365 days after index myocardial infarction until end of study for stable post- myocardial infarction patients, stratified by age and high- vs. low-risk patients.

European Heart Journal (2015) 36

Residual Ischemic Risk and Its Determinants in Patients With Previous Myocardial Infarction and Without Prior Stroke or TIA: Insights From the REACH Registry



Abtan et all.

TICAGRELOR VERSUS CLOPIDOGREL IN PATIENTS WITH ACUTE CORONARY SYNDROMES

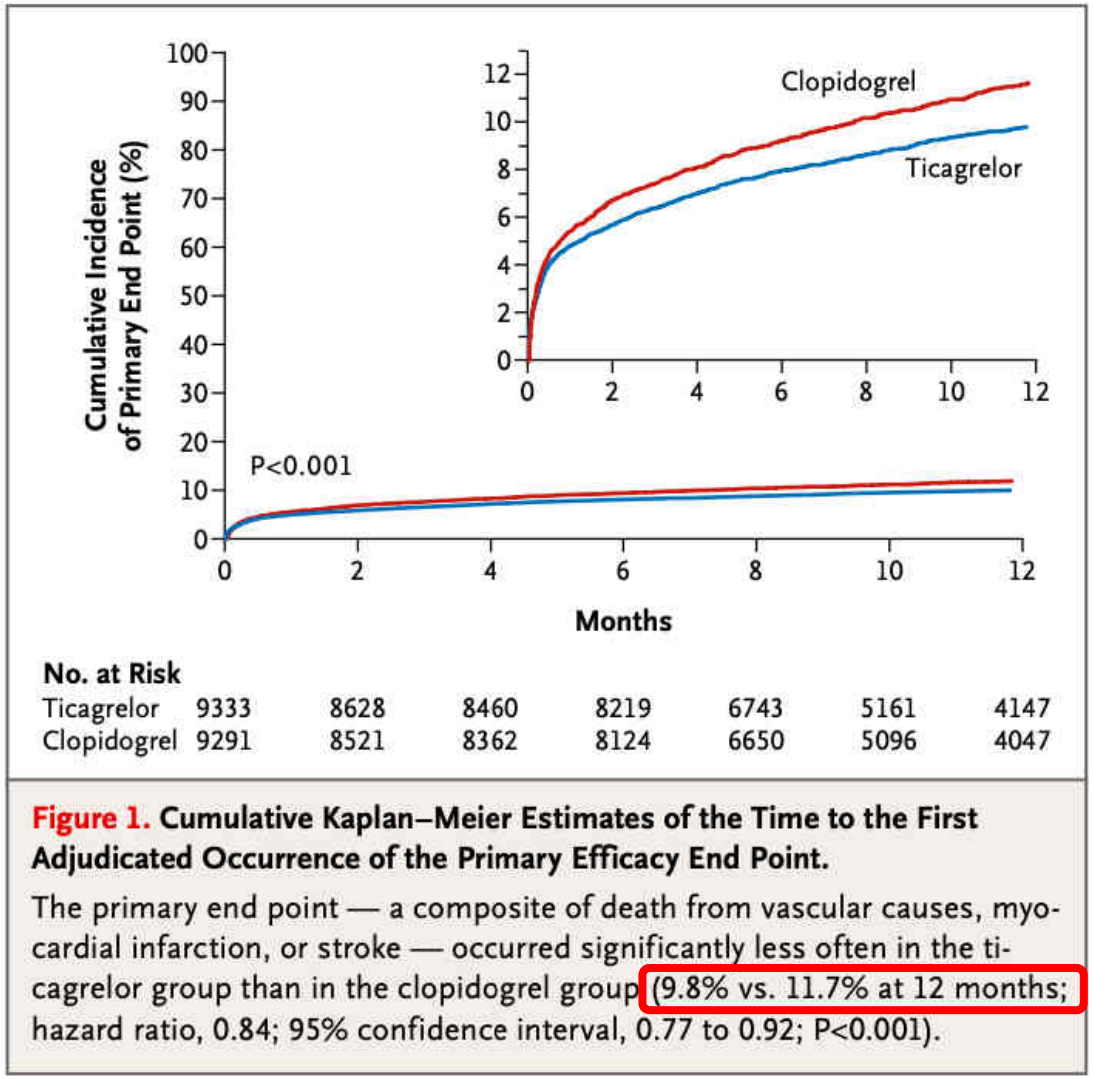
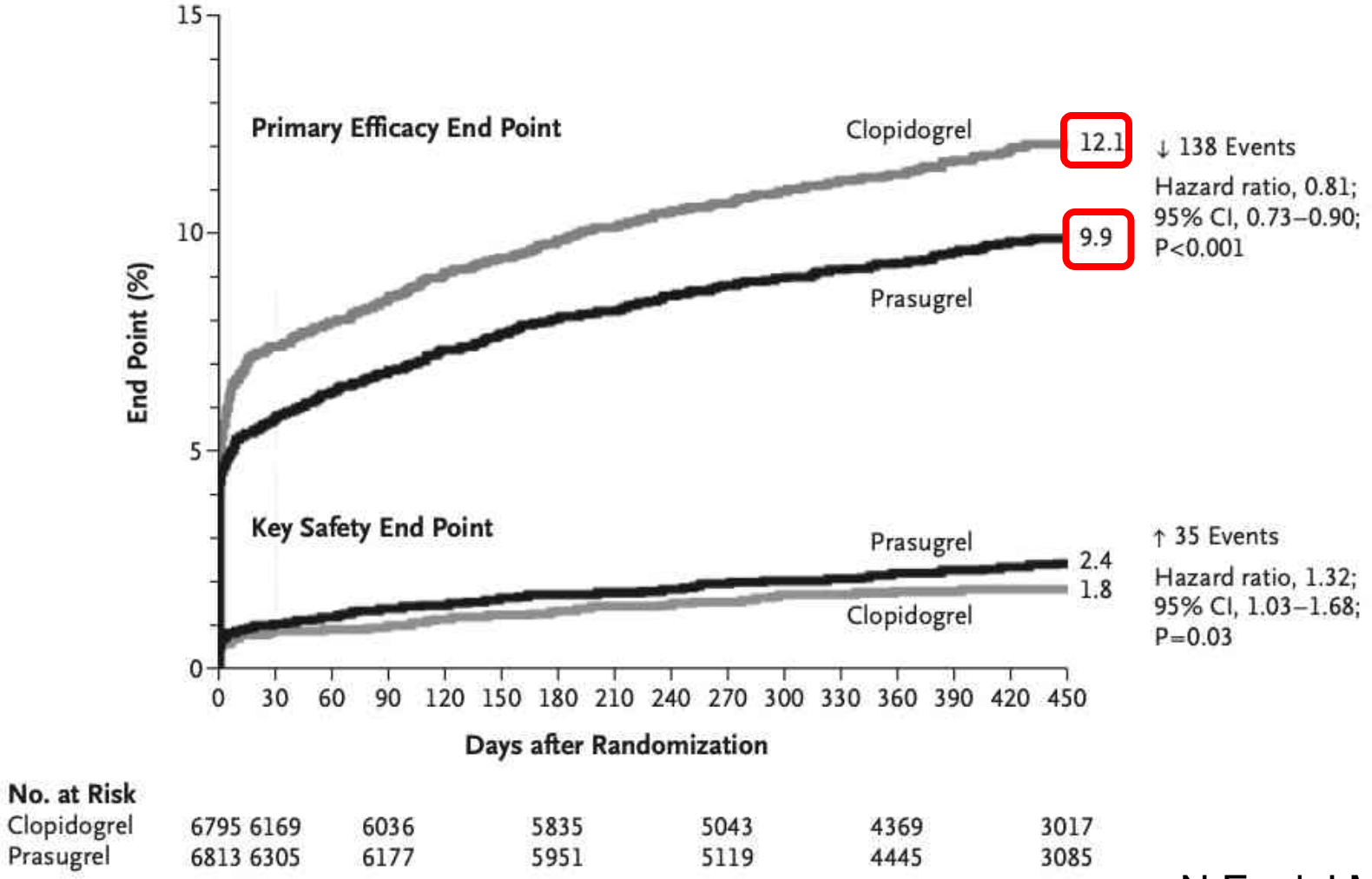


Figure 1. Cumulative Kaplan–Meier Estimates of the Time to the First Adjudicated Occurrence of the Primary Efficacy End Point.

The primary end point — a composite of death from vascular causes, myocardial infarction, or stroke — occurred significantly less often in the ticagrelor group than in the clopidogrel group (9.8% vs. 11.7% at 12 months; hazard ratio, 0.84; 95% confidence interval, 0.77 to 0.92; P<0.001).

N Engl J Med 2009;361:1045-57

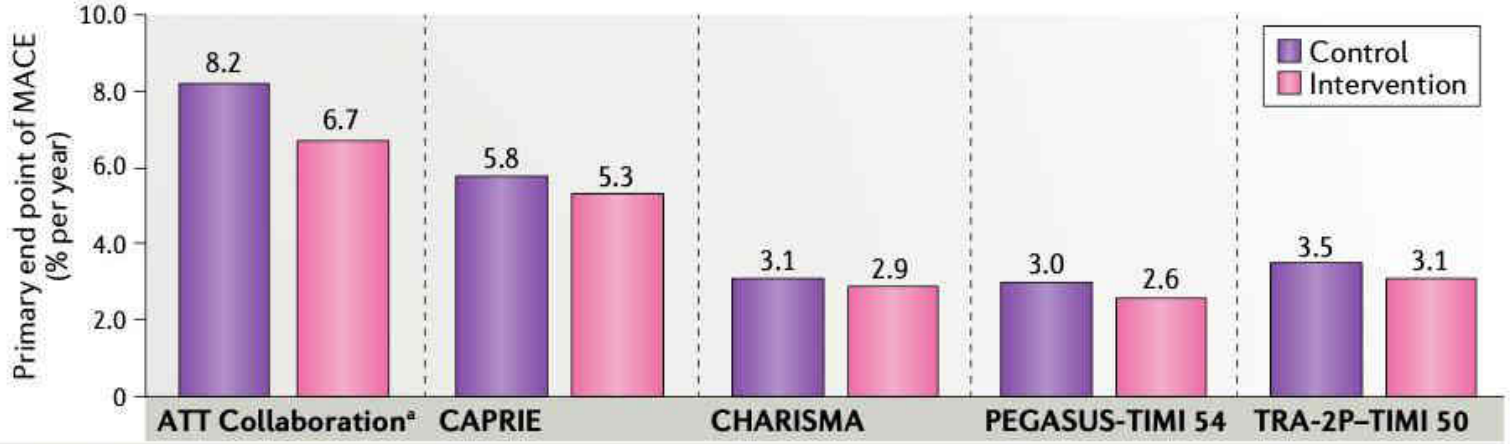
PRASUGREL VERSUS CLOPIDOGREL IN PATIENTS WITH ACUTE CORONARY SYNDROMES



N Engl J Med 2007;357:2001-15

DUAL-PATHWAY INHIBITION FOR SECONDARY AND TERTIARY ANTITHROMBOTIC PREVENTION IN CARDIOVASCULAR DISEASE

The patient cohort had a mean residual risk of MACE of 3% despite the high rates of contemporary medical therapy.

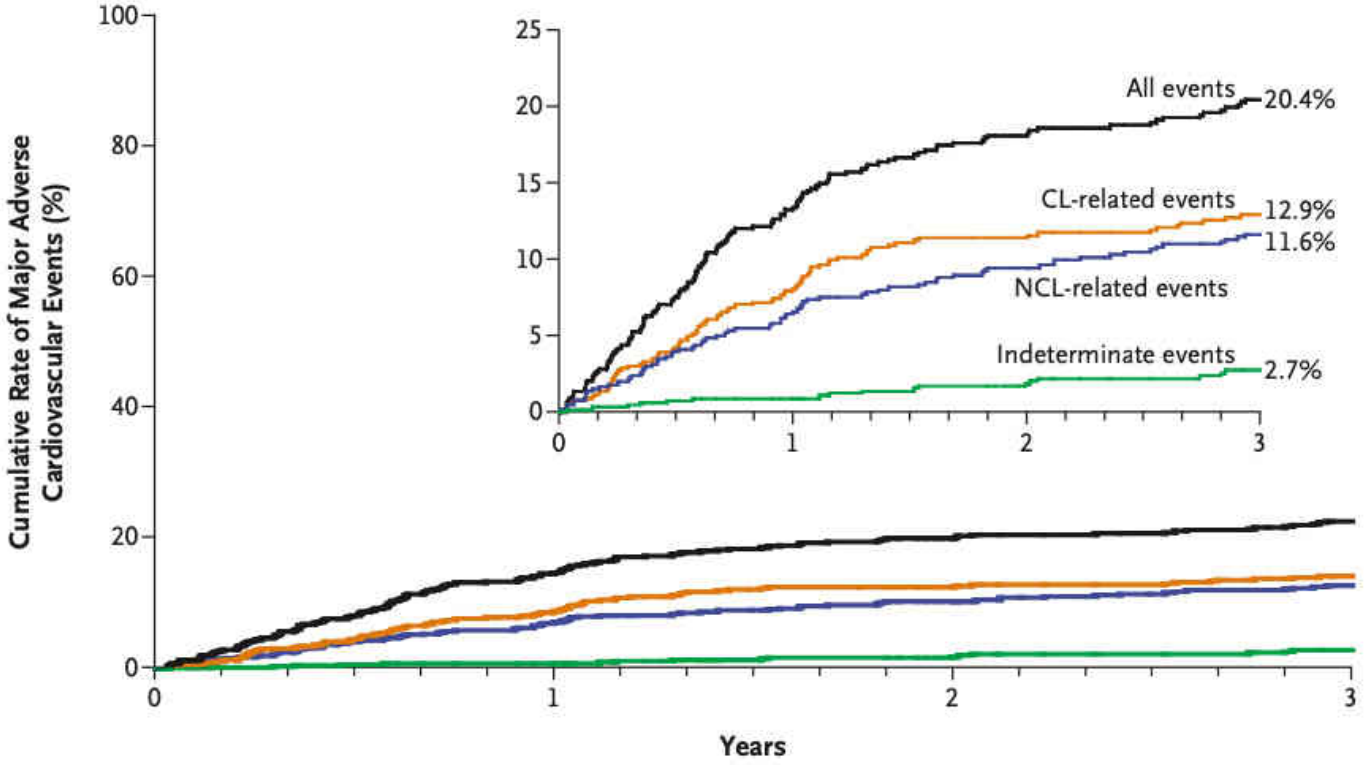


	ATT Collaboration[a]	CAPRIE	CHARISMA	PEGASUS-TIMI 54	TRA-2P–TIMI 50
Publication year	2009	1996	2006	2015	2012
Control	Control	Aspirin	Aspirin	Aspirin	Aspirin
Intervention	Aspirin	Clopidogrel	DAPT (clopidogrel + aspirin)	DAPT (ticagrelor + aspirin)	Vorapaxar + aspirin ± thienopyridine
HR (95% CI)	0.81 (0.75–0.87)	0.91 (0.84–1.00)	0.83 (0.72–0.96)	0.84 (0.74–0.95)	0.87 (0.80–0.94)
Therapy use in intervention group (%):					
ACEI or ARB	NA	NA	85.3	80.4	73.5
Lipid-lowering therapies	NA	NA	77.1–89.3	92.4	91.0

Davide Capodanno et all. 2020

A Prospective Natural-History Study of Coronary Atherosclerosis

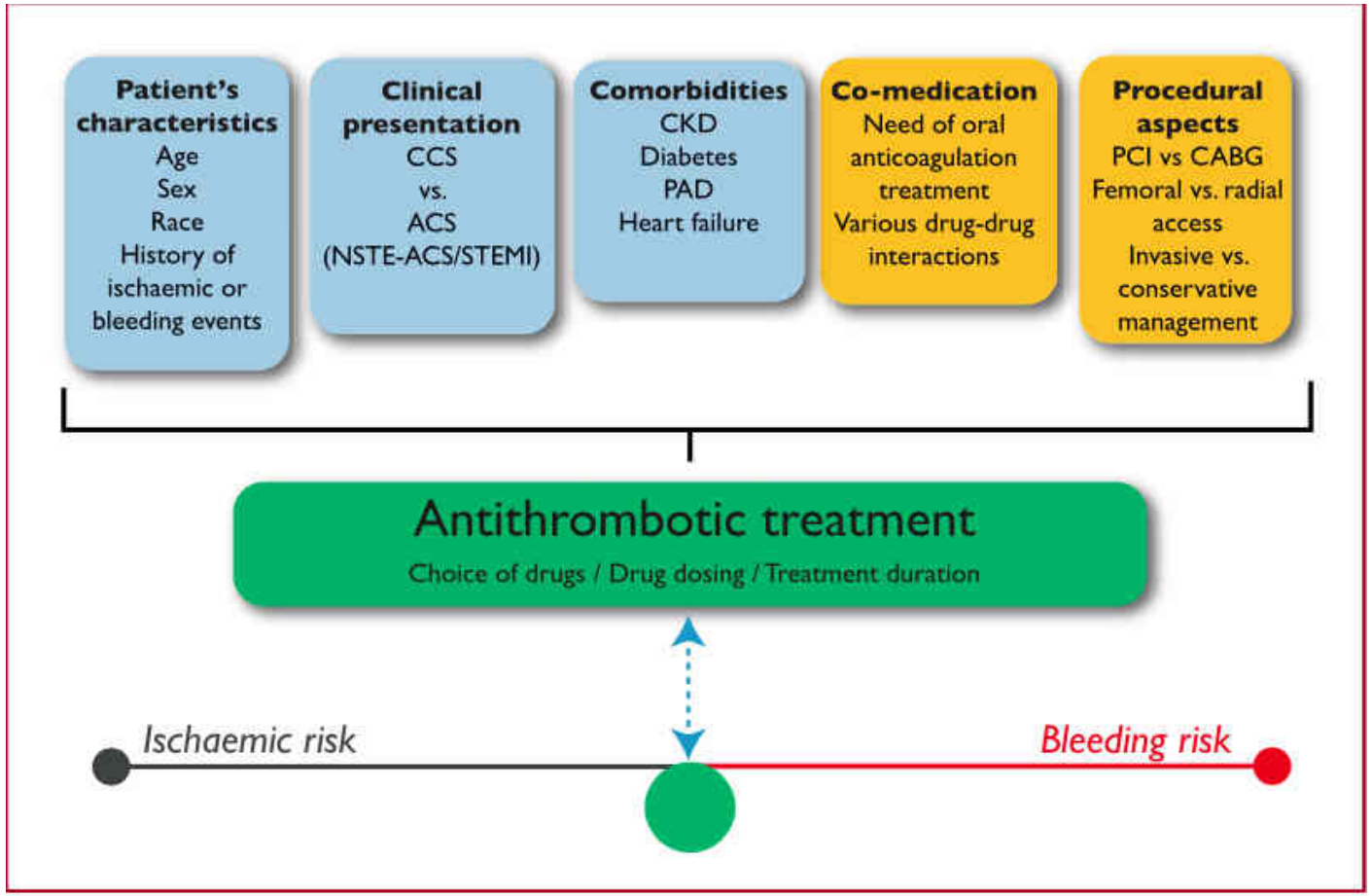
In a prospective study, 697 patients with acute coronary syndromes underwent three-vessel coronary angiography and gray-scale and radiofrequency intravascular ultrasonographic imaging after percutaneous coronary intervention



No. at Risk				
All patients	697	557	506	480
Patients with CL-related events	697	590	543	518
Patients with NCL-related events	697	595	553	521
Patients with indeterminate events	697	634	604	583

N Engl J Med 2011;364:226-35

ANTITHROMBOTIC THERAPY



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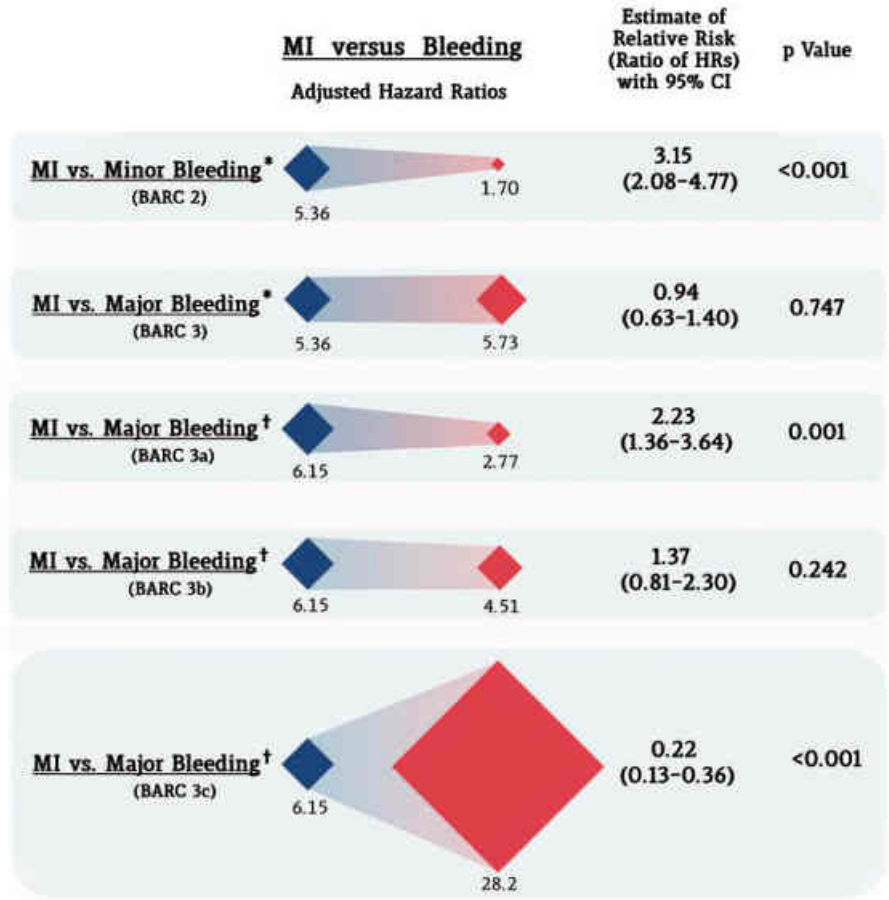
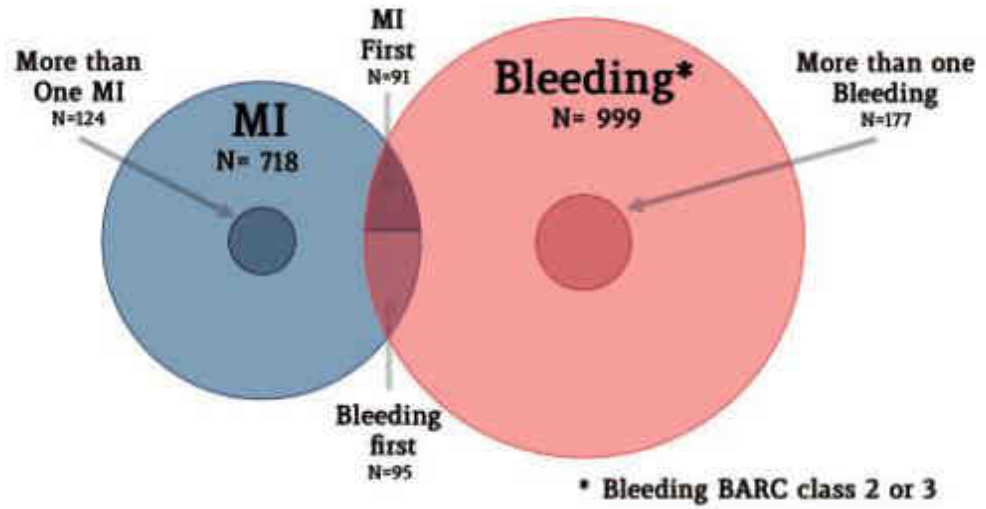
European Heart Journal (2020) 00, 1-79

TRACER
RANDOMIZED TRIAL

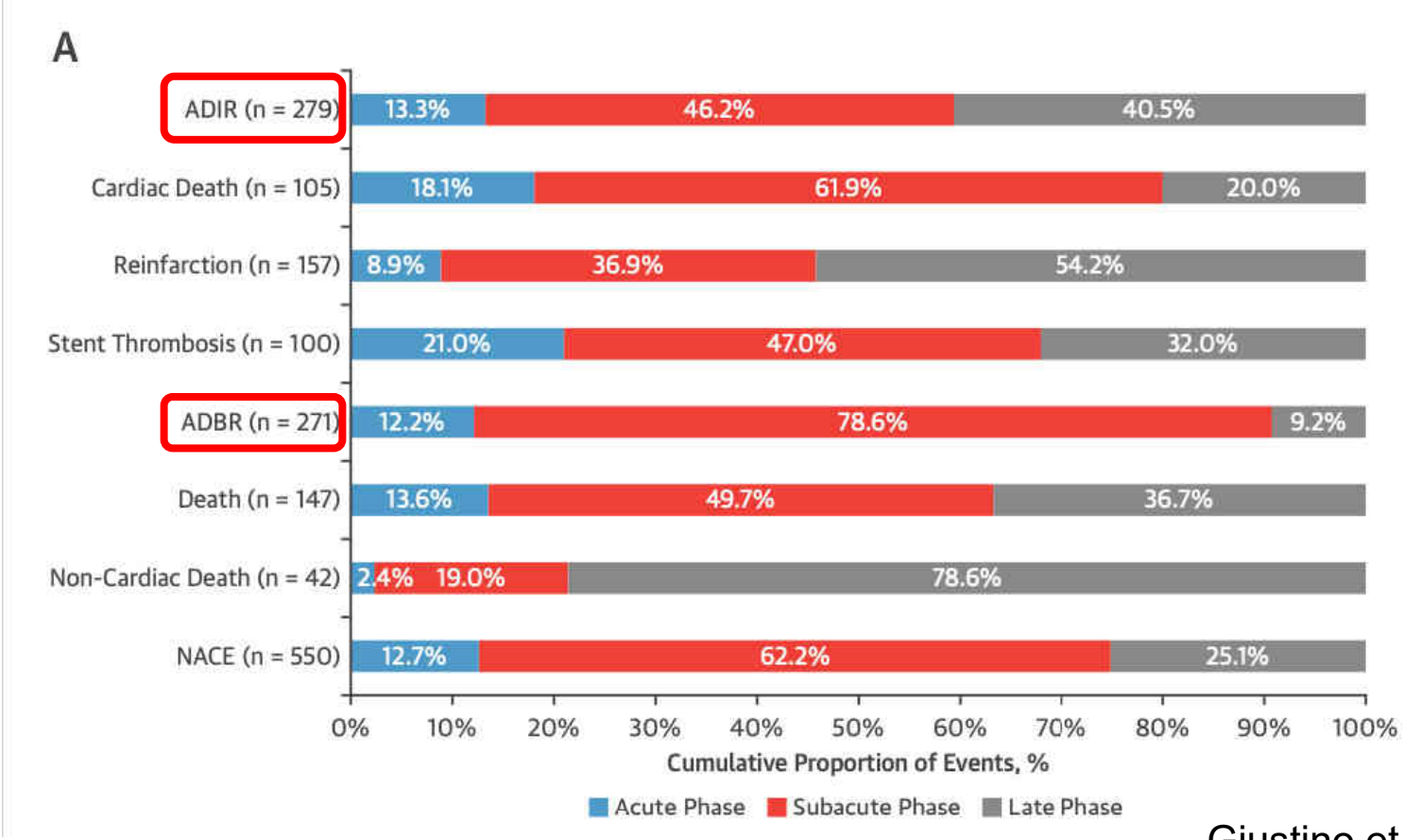




Trade-off of myocardial infarction vs. bleeding types on mortality after acute coronary syndrome: lessons from the Thrombin Receptor Antagonist for Clinical Event Reduction in Acute Coronary Syndrome European Heart Journal (2016) 0, 1–9

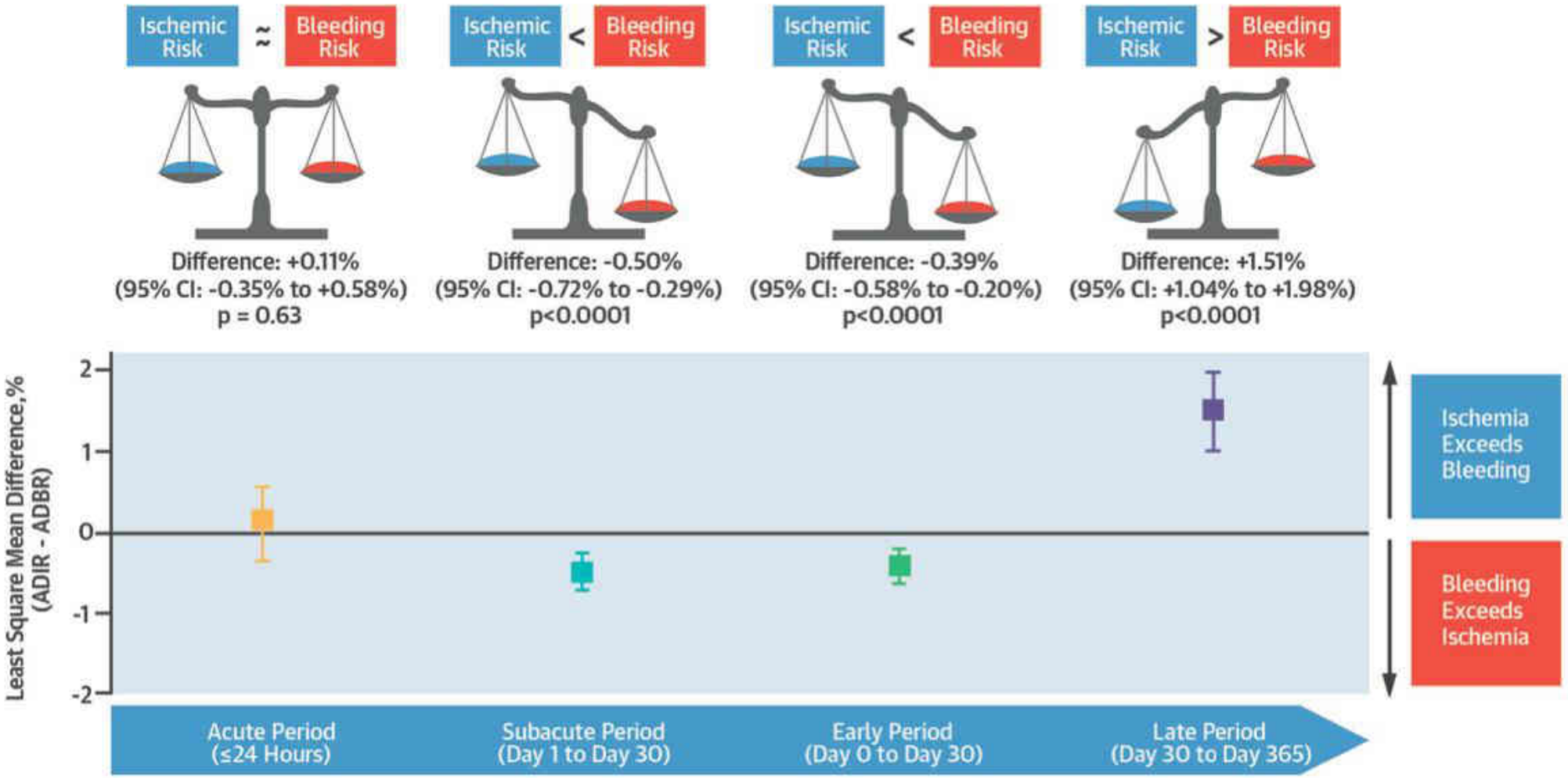
Characterization of the Average Daily Ischemic and Bleeding Risk After Primary PCI for STEMI

Among 3,602 patients with STEMI who were enrolled in the HORIZONS-AMI trial, all ischemic and bleeding events, including recurrent events, were classified according to the timing of their occurrence as acute (24 h after PCI), subacute (1 day to 30 days), and late (30 days to 1 year)



Giustino et al. JACC 2017:1846–57

CENTRAL ILLUSTRATION **Temporal Differences in Ischemic and Bleeding Rates After Primary PCI for STEMI**

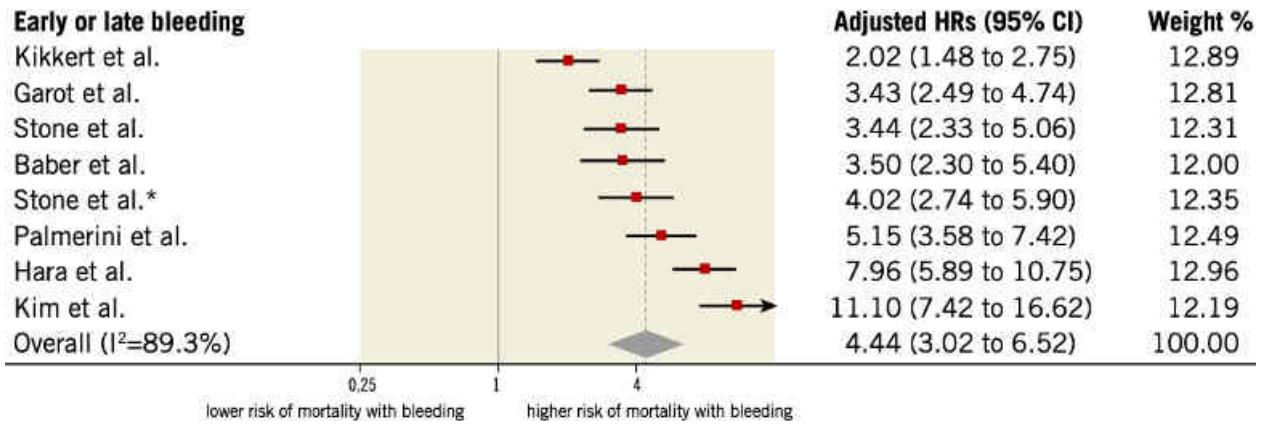


Giustino, G. et al. J Am Coll Cardiol. 2017;70(15):1846-57.

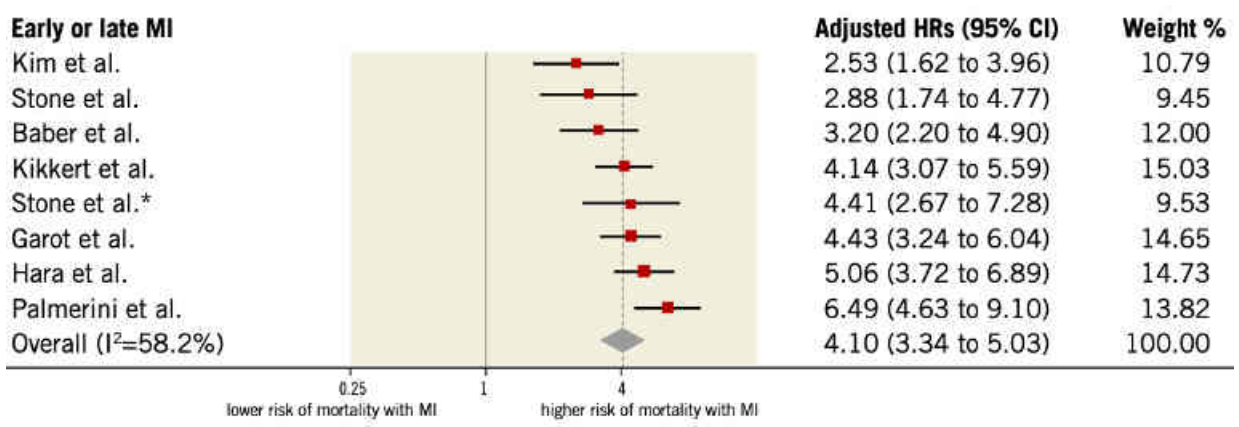
Giustino et al. JACC 2017:1846–57

MORTALITY AFTER BLEEDING VS. MYOCARDIAL INFARCTION IN CAD

Risk of Death after Bleeding



Risk of Death after Myocardial



No difference in the risk of Death after Bleeding vs. MI (ratio of HR 1.10, 95%CI 0.71-1.71)

Piccolo R. et al. *EuroIntervention 2021*;17:1-11

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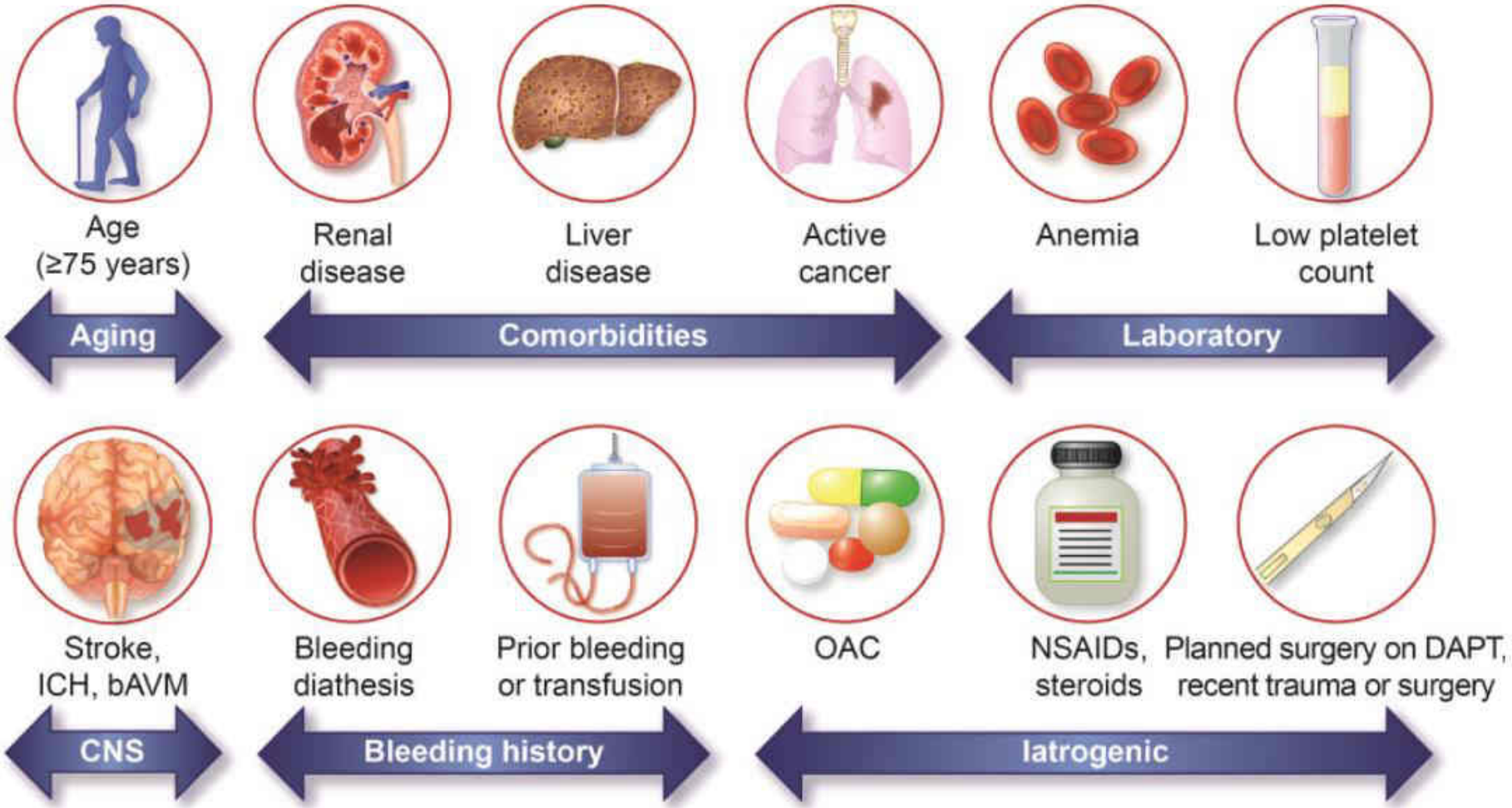
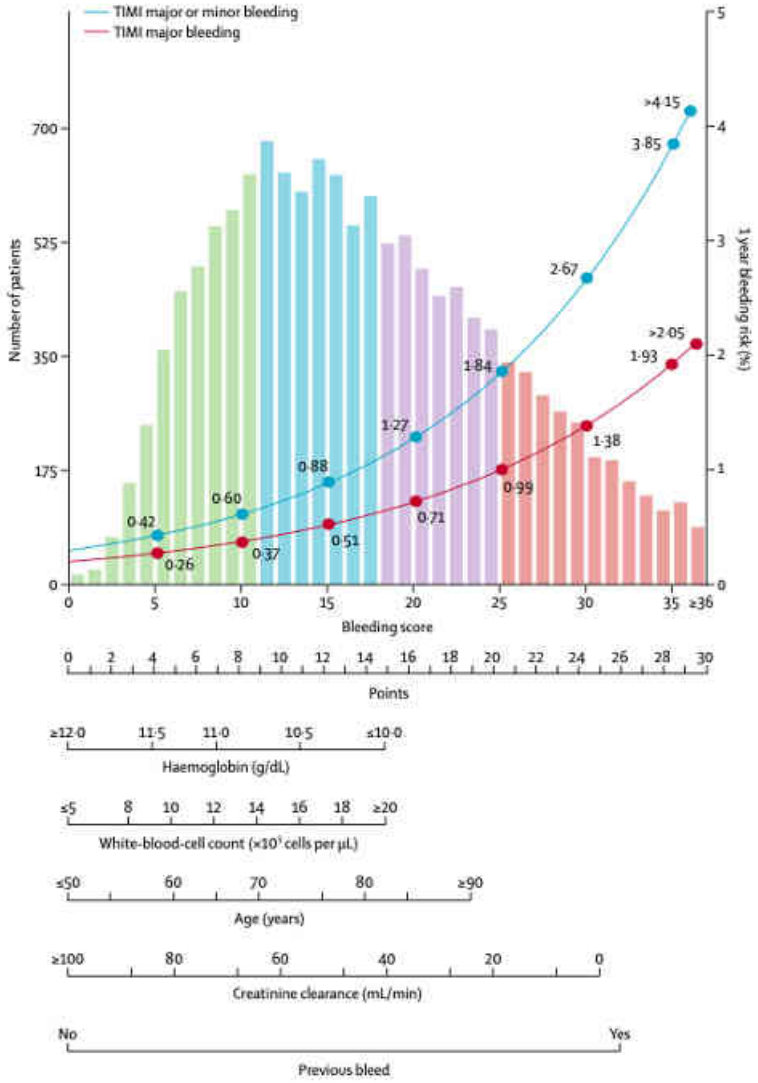


European Heart Journal (2019) 0,1-22

PRECISE-DAPT Score

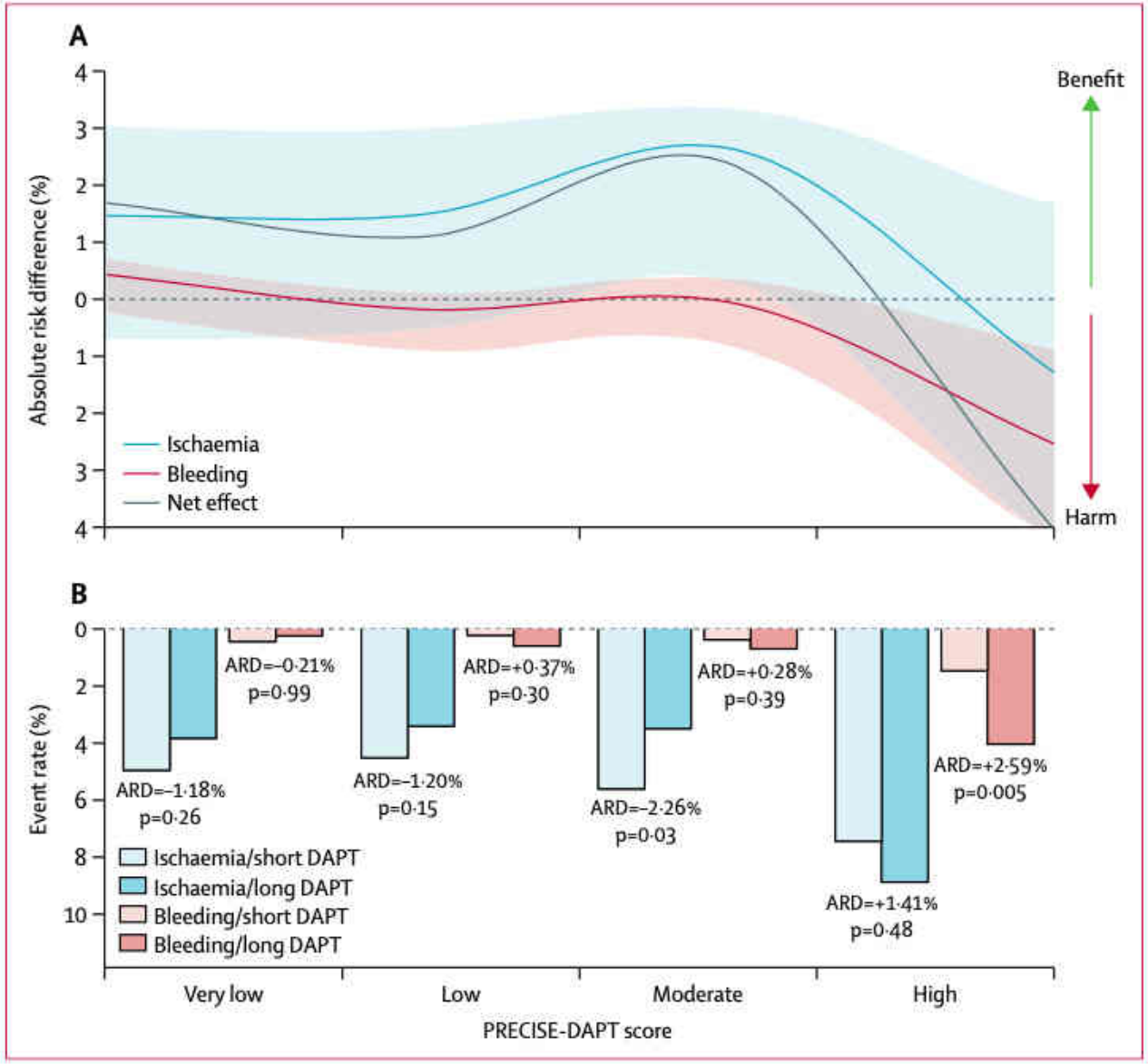


	Hazard ratio (95% CI)	p value
Age (for each increase of 10 years)	1·34 (1·11–1·48)	0·005
Previous bleeding	4·14 (1·22–14·02)	0·023
White-blood-cell count (for each increase of 10^3 cells per µL)	1·06 (0·99–1·13)	0·078
Haemoglobin at baseline (for each increase of 1 g/dL)	0·67 (0·53–0·84)	0·001
Creatinine clearance (for each increase of 10 mL/min)	0·90 (0·82–0·99)	0·004

Age was truncated above 90 years and below 50 years. Haemoglobin at baseline was truncated above 12 g/dL and below 10 g/dL. Creatinine clearance was truncated above 100 mL/min. White-blood-cell count was truncated above 20×10^3 cells per µL and below 5×10^3 cells per µL.

Table 1: **Multivariable analysis for out-of-hospital Thrombosis in Myocardial Infarction major or minor bleeding, study stratified with backward selection at an α level of 0·1**

Derivation and validation of the predicting bleeding complications in patients undergoing stent implantation and subsequent dual antiplatelet therapy (PRECISE-DAPT) score: a pooled analysis of individual-patient datasets from clinical trials Lancet 2017; 389: 1025–34



Derivation and validation of the predicting bleeding complications in patients undergoing stent implantation and subsequent dual antiplatelet therapy (PRECISE-DAPT) score: a pooled analysis of individual-patient datasets from clinical trials *Lancet* 2017; 389: 1025–34

ANTITHROMBOTIC THERAPY POST-PCI IN PATIENTS WITH NSTE-ACS

After stent implantation with high risk of bleeding (e.g. PRECISE-DAPT ≥25 or ARC-HBR criteria met), discontinuation of $P2Y_{12}$ receptor inhibitor therapy after 3 months should be considered.[154,226]	IIa	B

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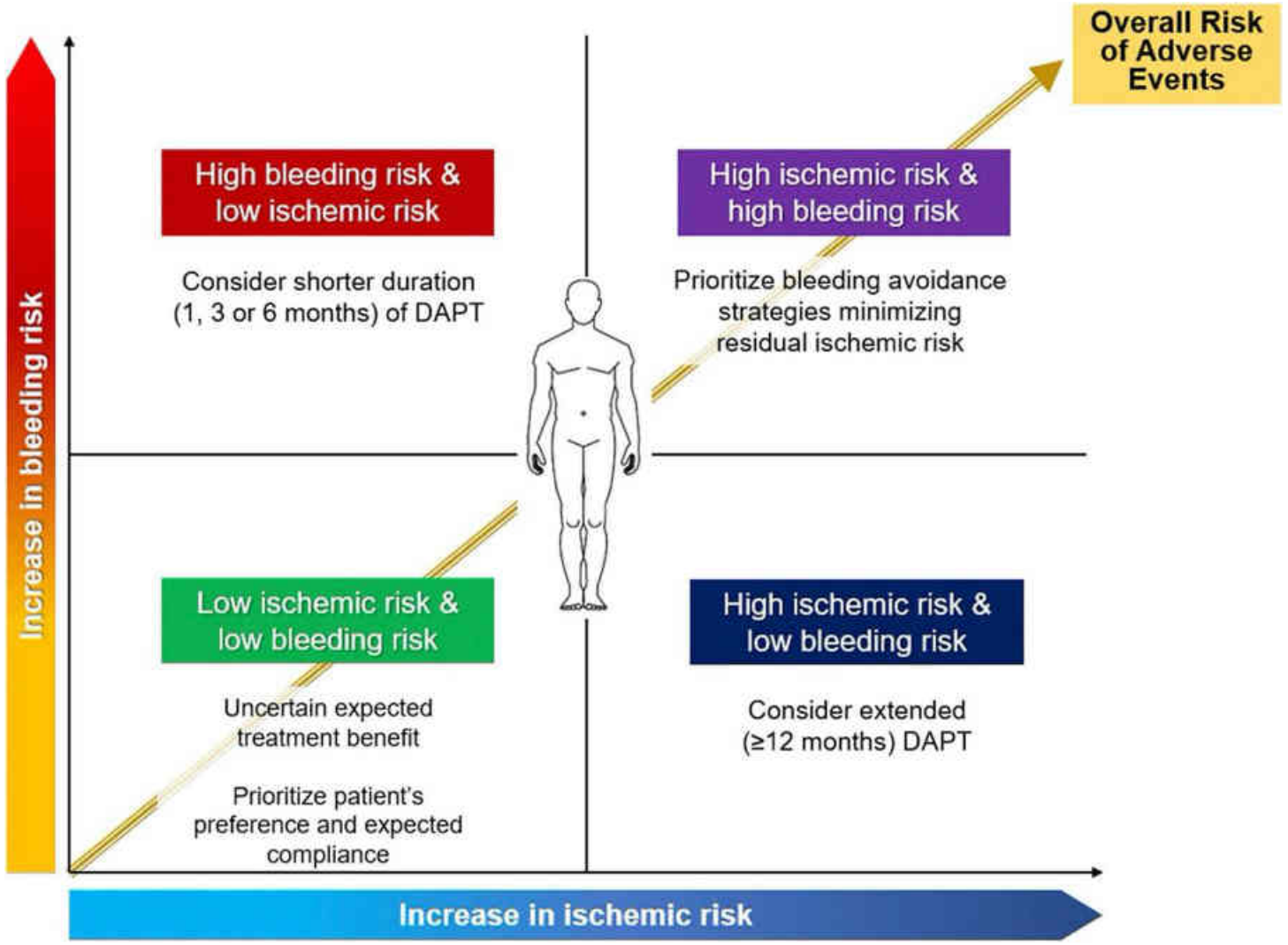
European Heart Journal (2020) 00, 1-79

CHARACTERIZATION OF THE INDIVIDUAL PATIENT RISK AFTER PCI



European Heart Journal (2018) 39, 3281–3300

- **Clinical factors**

- **Anatomical and procedural factors**

COMBINED ASSOCIATION OF KEY RISK FACTORS ON ISCHAEMIC OUTCOMES AND BLEEDING IN PATIENTS WITH MYOCARDIAL INFARCTION

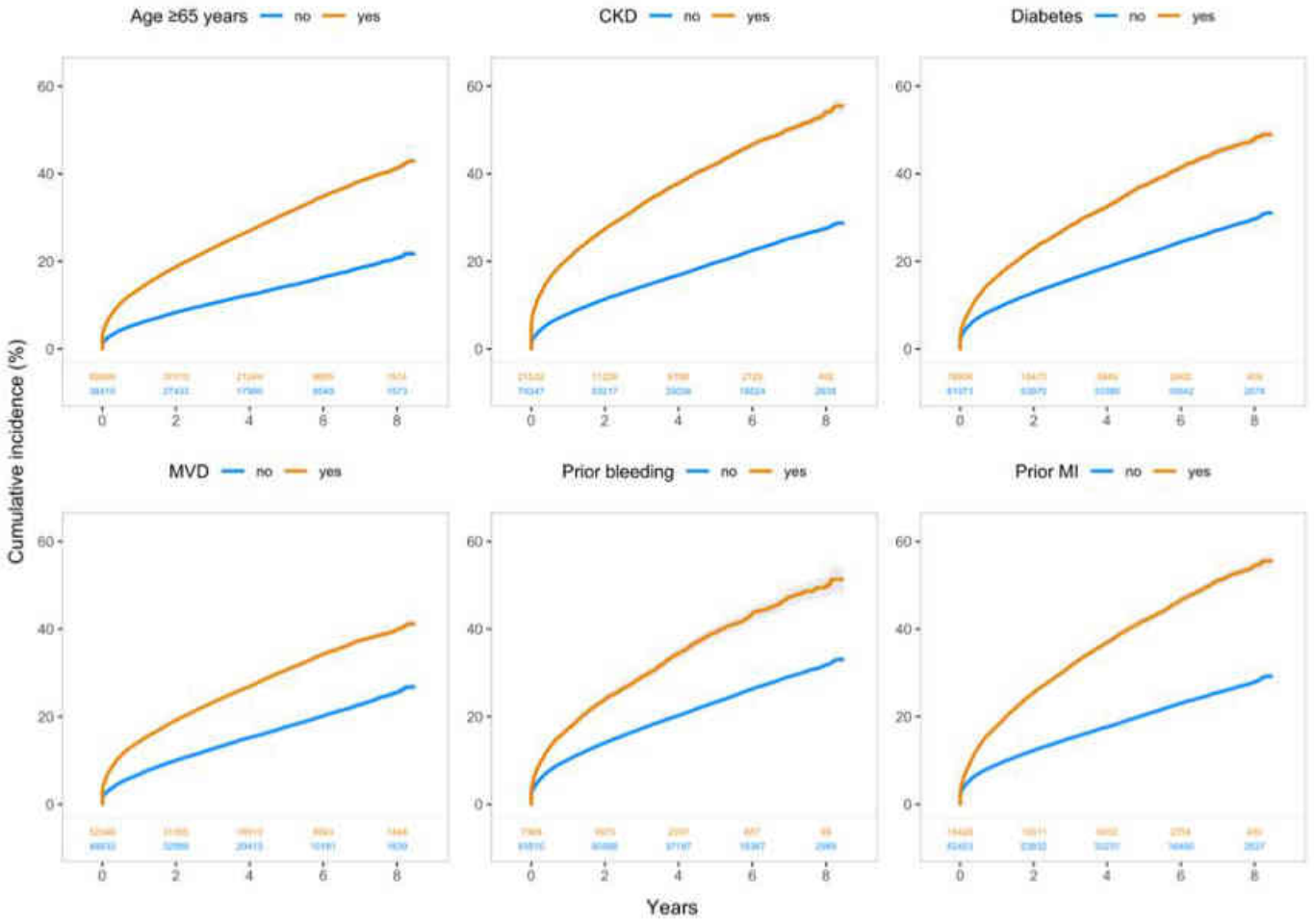


Figure 2 CVD/MI/stroke: Kaplan-Meier estimates of CVD/MI/stroke in relation to risk factors. CKD, chronic kidney disease; CVD, cardiovascular death; MI, myocardial infarction; MVD, multivessel disease.

Lindholm D, *et al*. *Heart* 2019;105:1175–1181

COMBINED ASSOCIATION OF KEY RISK FACTORS ON ISCHAEMIC OUTCOMES AND BLEEDING IN PATIENTS WITH MYOCARDIAL INFARCTION

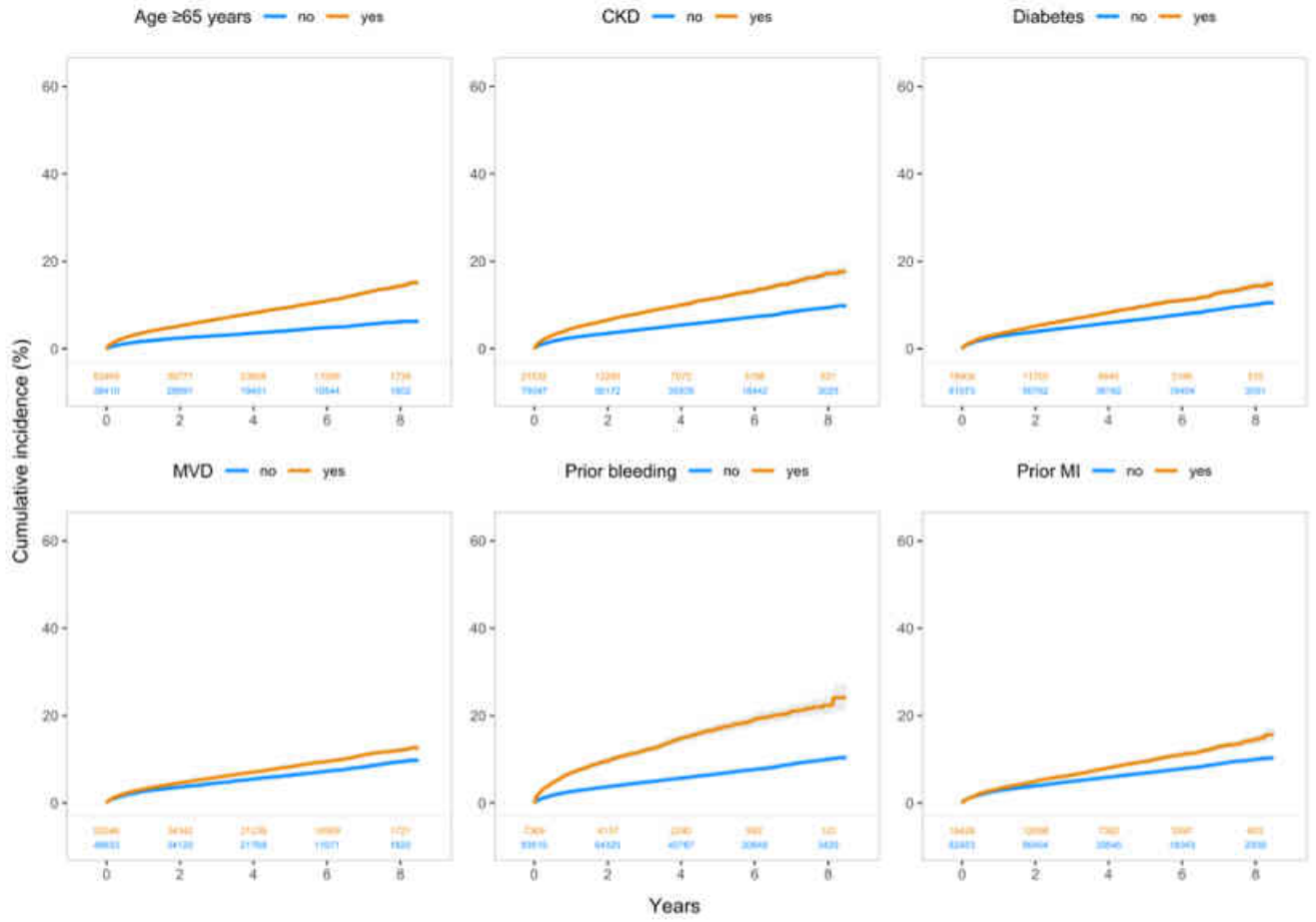


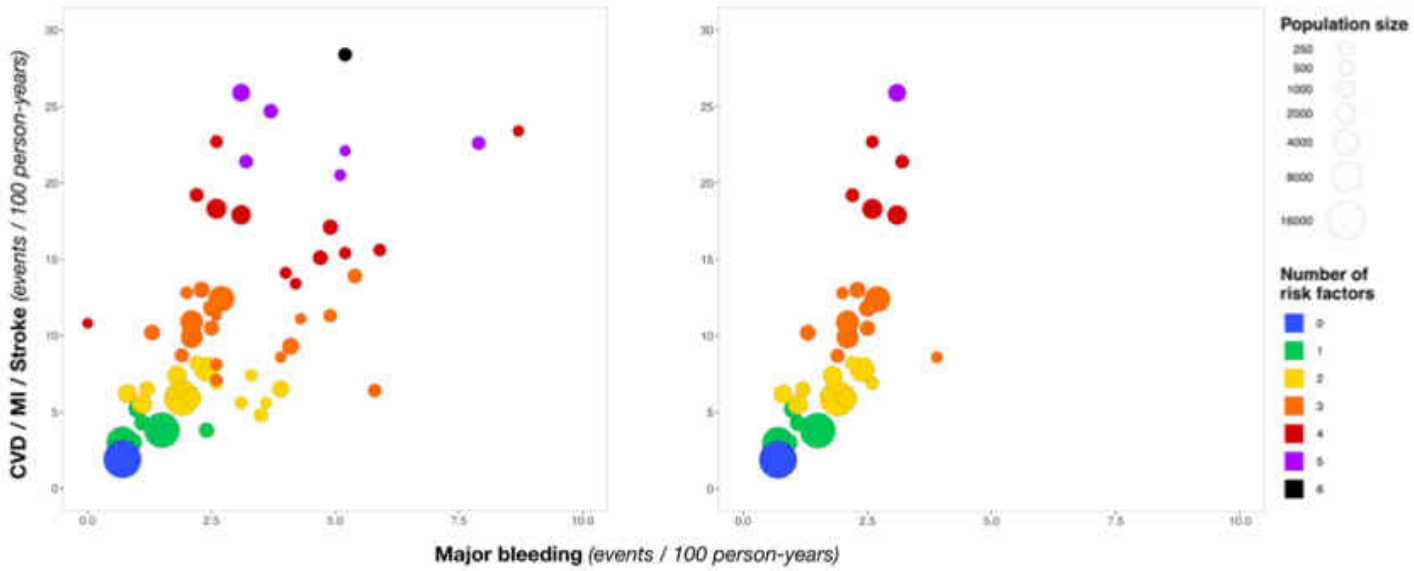
Figure 3 Major bleeding: Kaplan-Meier estimates of major bleeding in relation to risk factors. CKD, chronic kidney disease; MI, myocardial infarction; MVD, multivessel disease.

Lindholm D, *et al*. *Heart* 2019;105:1175–1181

COMBINED ASSOCIATION OF KEY RISK FACTORS ON ISCHAEMIC OUTCOMES AND BLEEDING IN PATIENTS WITH MYOCARDIAL INFARCTION

Table 2 Cox proportional hazards models

	Adjusted* HR (95% CI)	
	CVD/MI/stroke	Major bleeding
Age ≥65 years	1.74 (1.68 to 1.79)	2.07 (1.94 to 2.20)
MVD	1.52 (1.48 to 1.56)	1.09 (1.03 to 1.15)
CKD	1.81 (1.76 to 1.87)	1.43 (1.35 to 1.52)
Diabetes	1.44 (1.40 to 1.49)	1.21 (1.14 to 1.29)
Prior MI	1.71 (1.66 to 1.76)	1.06 (0.99 to 1.12)
Prior bleeding	1.35 (1.29 to 1.41)	2.24 (2.08 to 2.40)



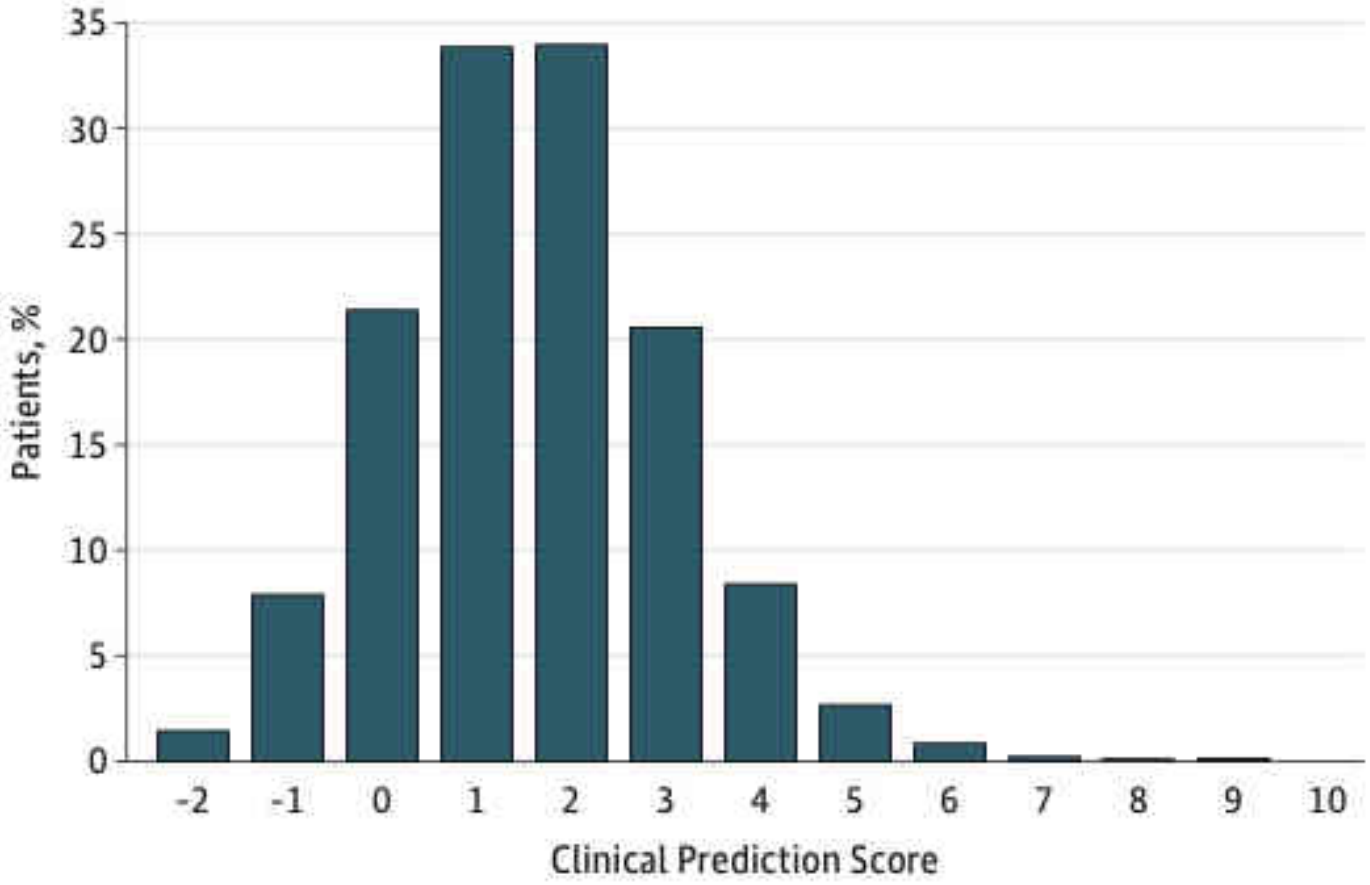
Lindholm D, *et al*. *Heart* 2019;105:1175–1181

- Clinical factors

- **Anatomical and procedural factors**

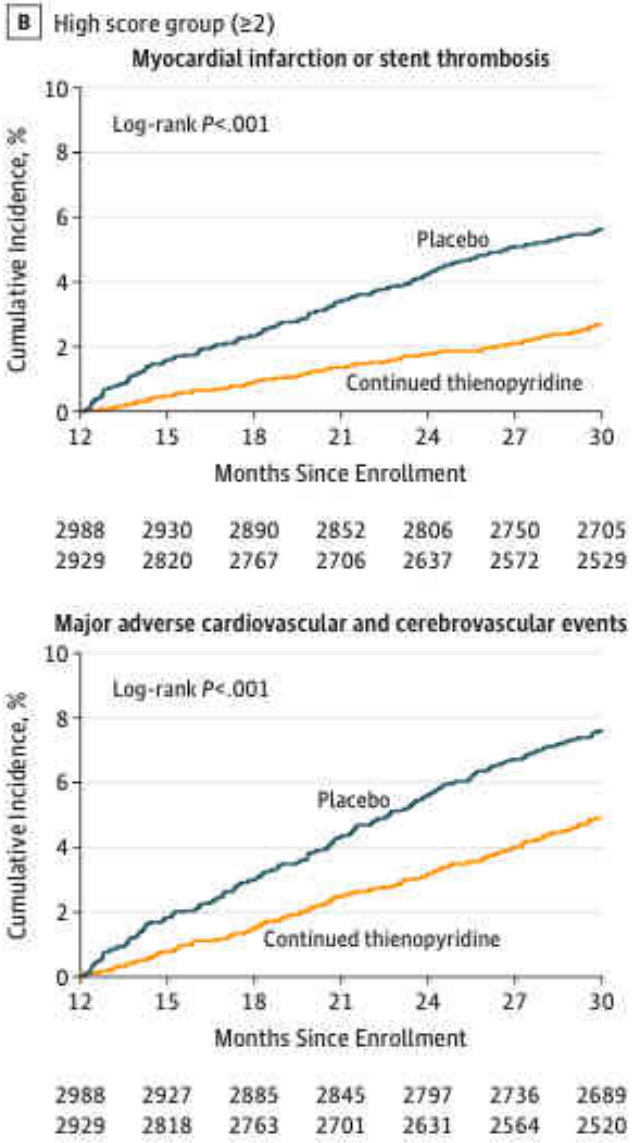
DAPT Score

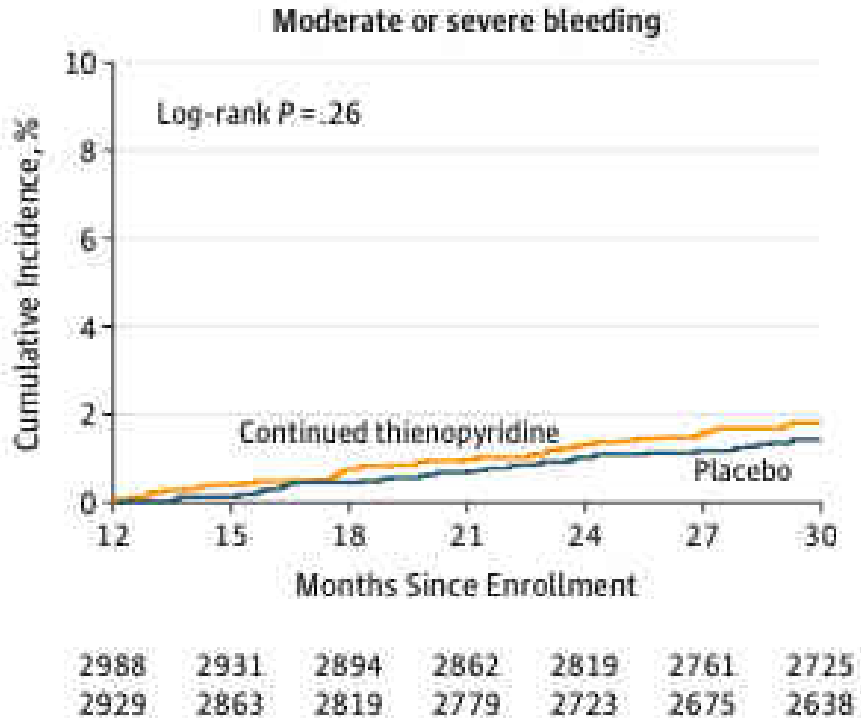
Clinical Prediction Score Variable	Points
Age, y	
≥75	-2
65-<75	-1
<65	0
Cigarette smoking	1
Diabetes mellitus	1
MI at presentation	1
Prior PCI or prior MI	1
Paclitaxel-eluting stent	1
Stent diameter <3 mm	1
CHF or LVEF <30%	2
Vein graft stent	2
Total score range: -2 to 10	



Development and Validation of a Prediction Rule for Benefit and Harm of Dual Antiplatelet Therapy Beyond 1 Year After Percutaneous Coronary Intervention Robert W. Yeh et all.

DAPT Score

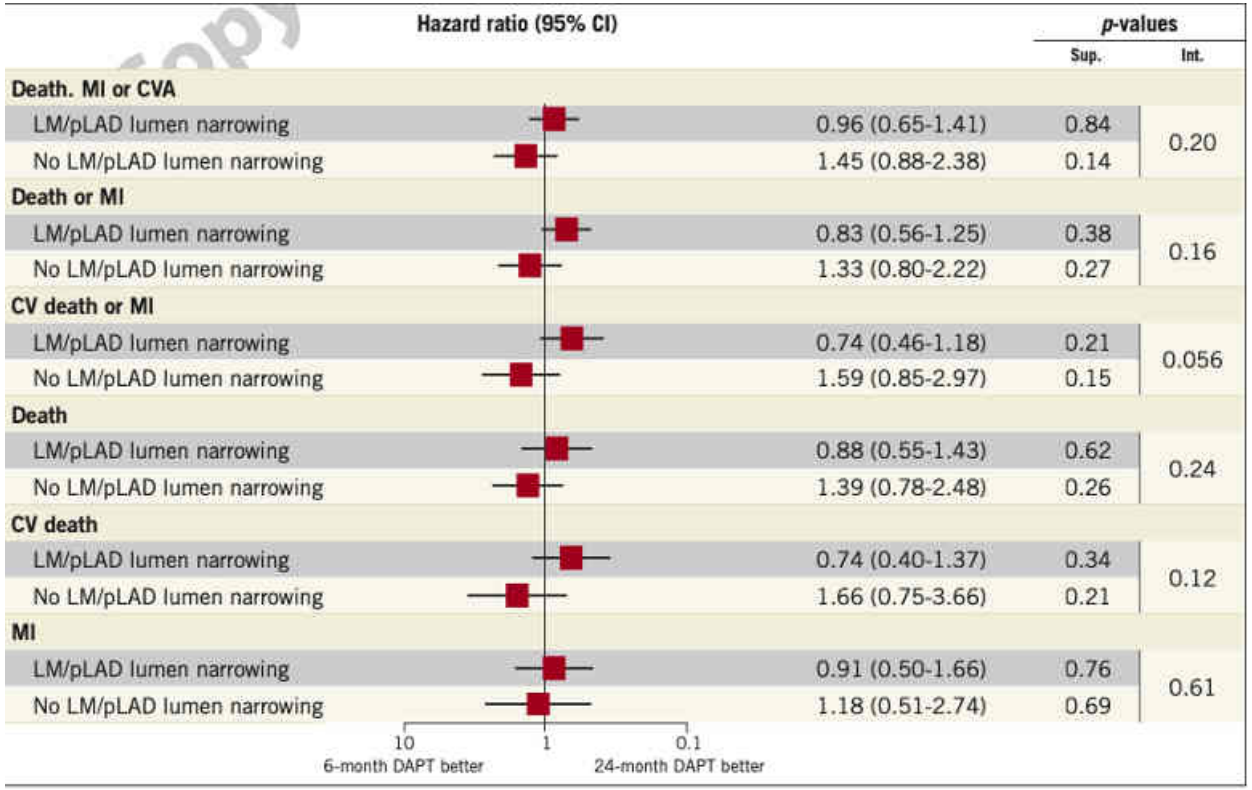


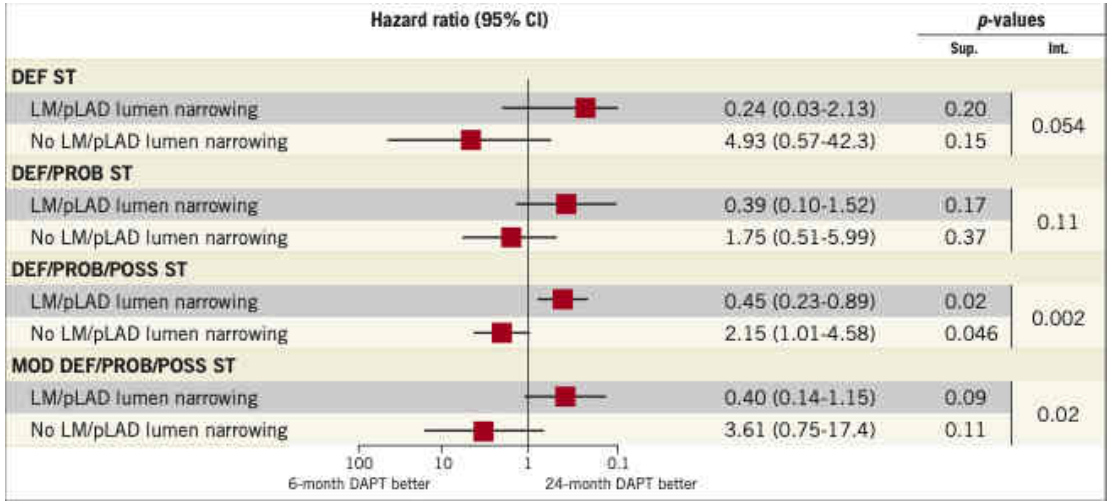


Development and Validation of a Prediction Rule for Benefit and Harm of Dual Antiplatelet Therapy Beyond 1 Year After Percutaneous Coronary Intervention
Robert W. Yeh et all.

LEFT MAIN OR PROXIMAL LEFT ANTERIOR DESCENDING CORONARY ARTERY DISEASE LOCATION IDENTIFIES HIGH-RISK PATIENTS DERIVING POTENTIALLY GREATER BENEFIT FROM PROLONGED DUAL ANTIPLATELET THERAPY DURATION

The composite of death, myocardial infarction or CVA at 24 months occurred in 105 (11%) patients with, as compared to 65 (8.1%) without LM/pLAD lumen narrowing

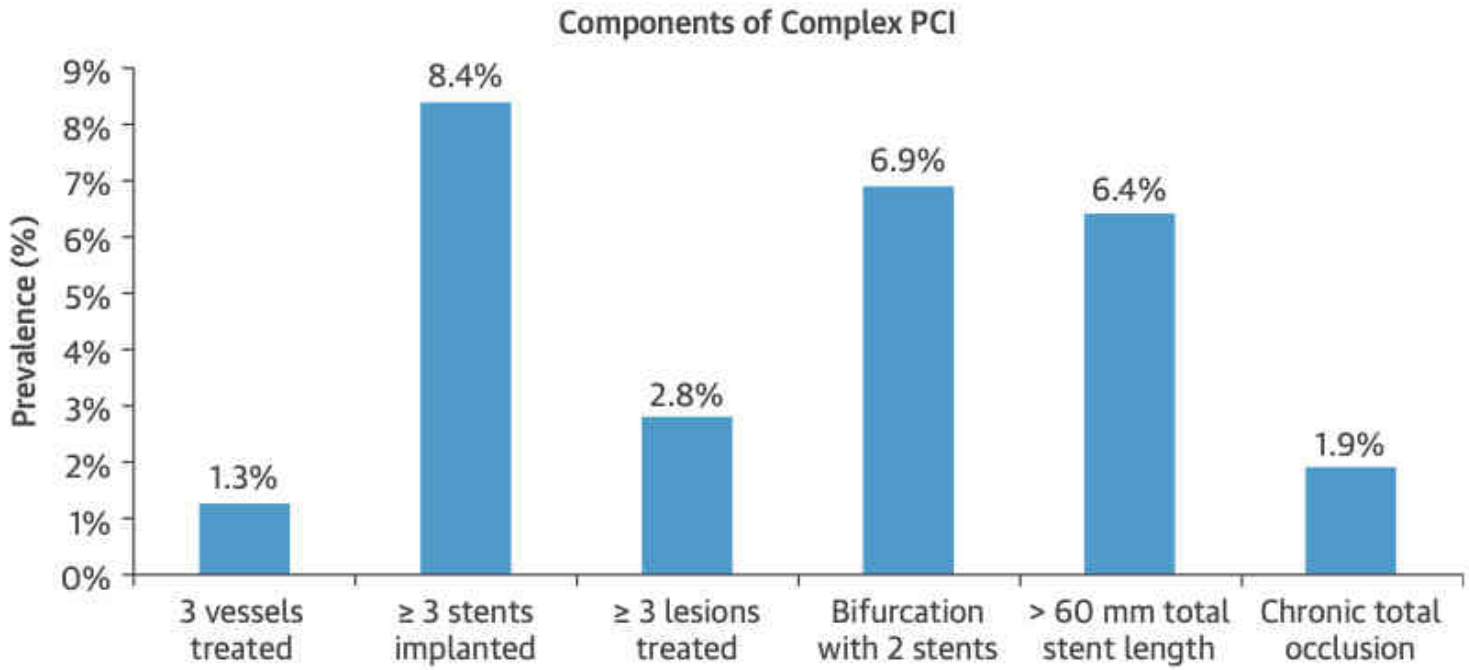




Eurointervention 2016,11

EFFICACY AND SAFETY OF DUAL ANTIPLATELET THERAPY AFTER COMPLEX PCI

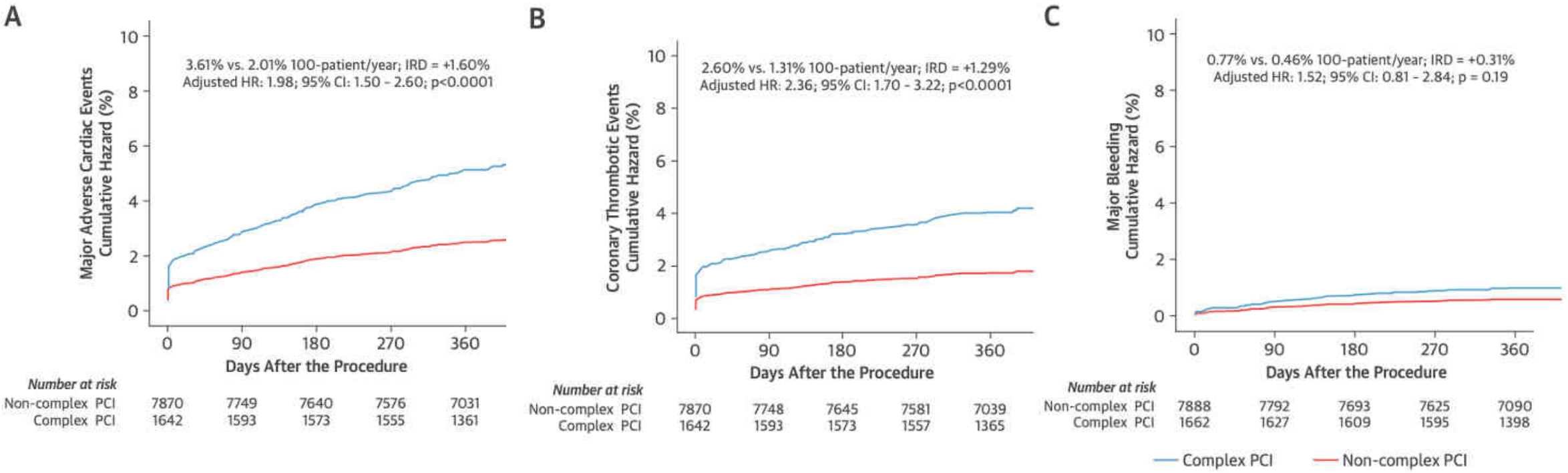
FIGURE 1 Prevalence and Overlap of Complex PCI Components



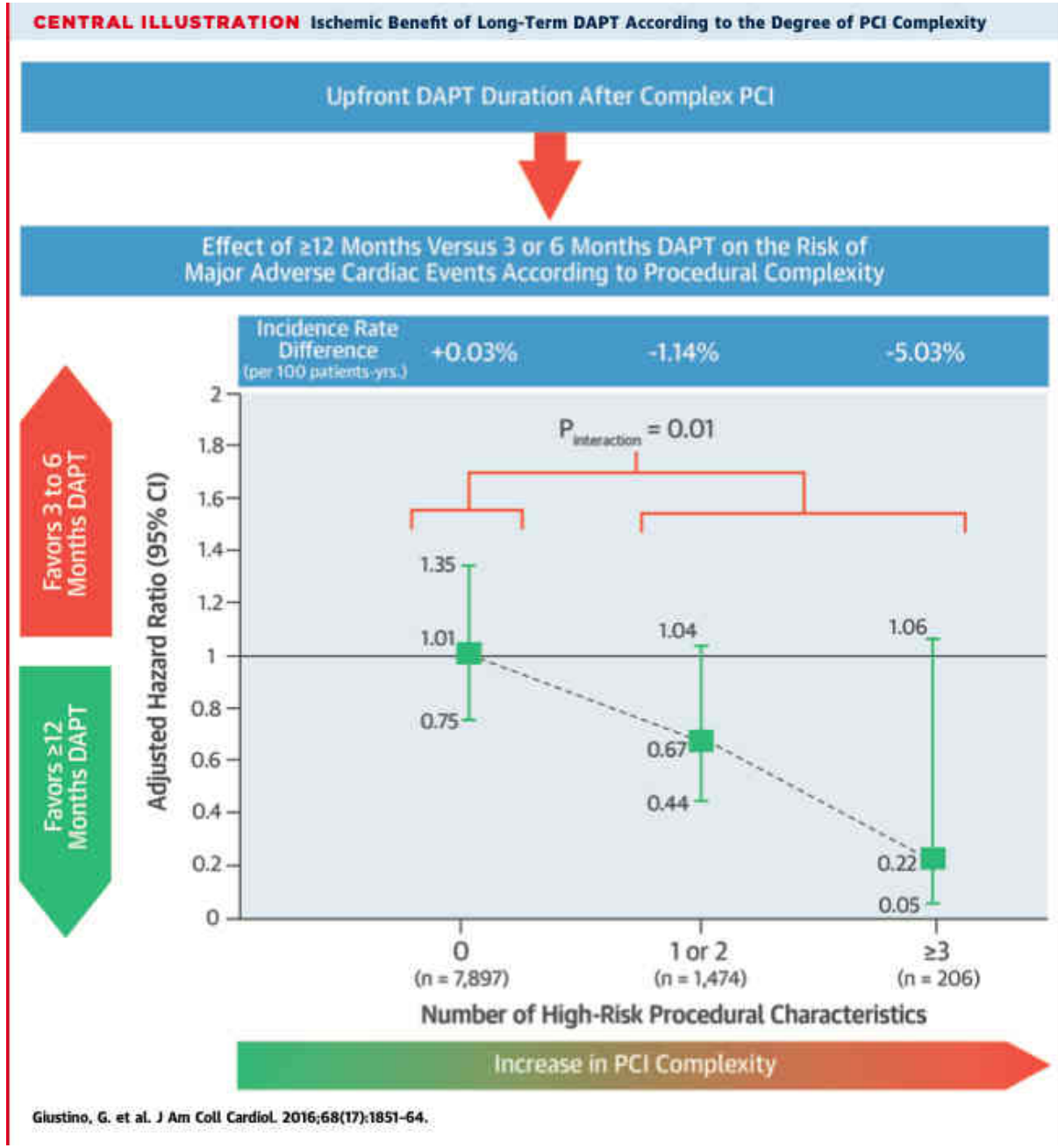
Prevalence of complex PCI components in the overall population. PCI = percutaneous coronary intervention.

Giustino et al. JACC VOL. 68, NO. 17, 2016

Effect of Procedural Complexity on Ischemic and Bleeding Outcomes



Giustino et al. JACC VOL. 68, NO. 17, 2016



Giustino et al. JACC VOL. 68, NO. 17, 2016

High thrombotic risk (Class IIa)	Moderate thrombotic risk (Class IIb)
Complex CAD and at least 1 criterion	**Non-complex CAD and at least 1 criterion**
Risk enhancers	
Diabetes mellitus requiring medication	Diabetes mellitus requiring medication
History of recurrent MI	History of recurrent MI
Any multivessel CAD	Polyvascular disease (CAD plus PAD)
Polyvascular disease (CAD plus PAD)	CKD with eGFR 15–59 mL/min/1.73 m^2
Premature (<45 years) or accelerated (new lesion within a 2-year time frame) CAD	
Concomitant systemic inflammatory disease (e.g. human immunodeficiency virus, systemic lupus erythematosus, chronic arthritis)	
CKD with eGFR 15–59 mL/min/1.73 m^2	
Technical aspects	
At least 3 stents implanted	
At least 3 lesions treated	
Total stent length >60 mm	
History of complex revascularization (left main, bifurcation stenting with ≥2 stents implanted, chronic total occlusion, stenting of last patent vessel)	
History of stent thrombosis on antiplatelet treatment	

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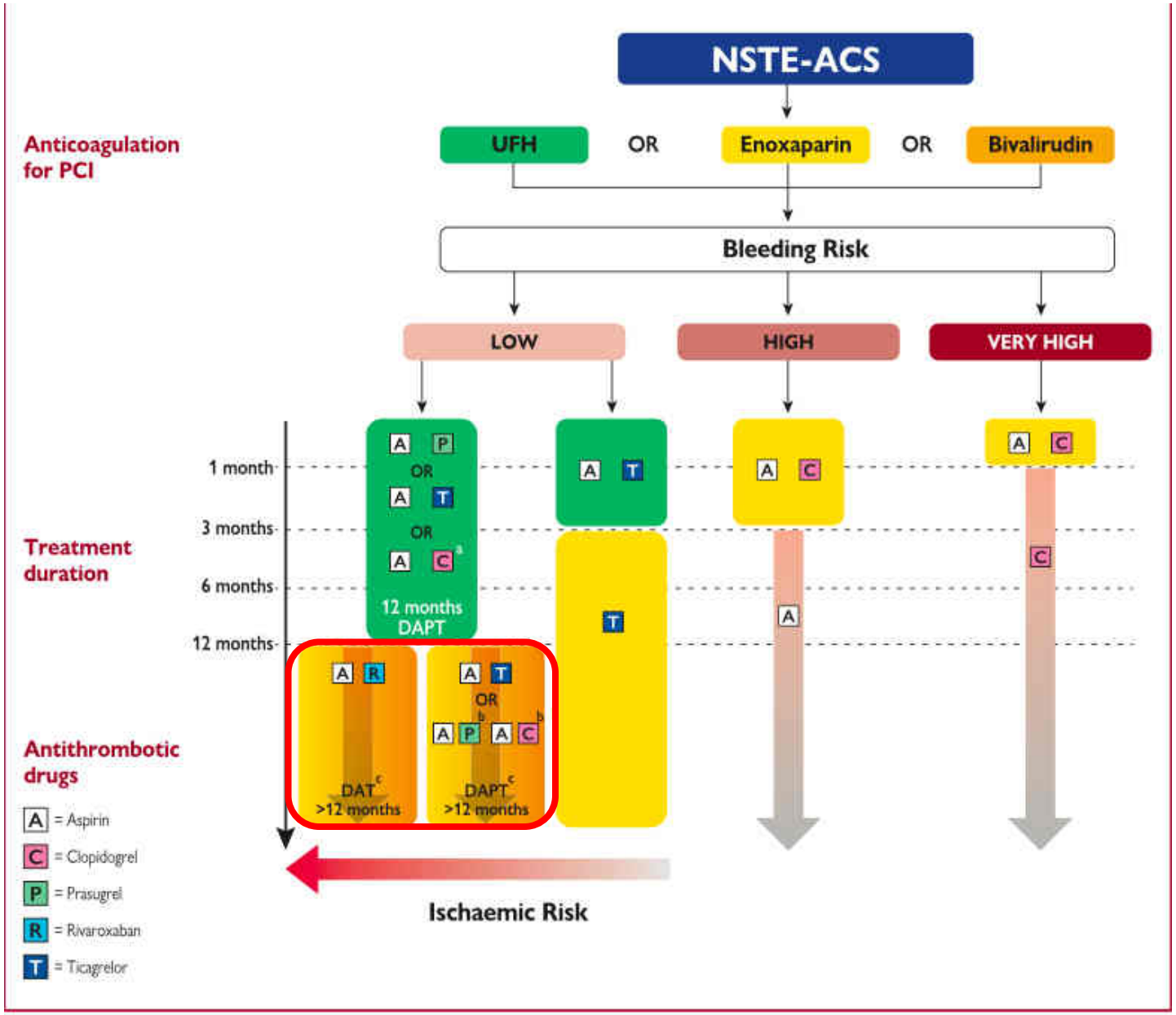

European Heart Journal (2020) 00, 1-79