ADVANCES IN CARDIAC ARRHYTMIAS
and
GREAT INNOVATIONS IN CARDIOLOGY

Turin
September 27-28, 2013

Every wall is a door

R.W.Emerson

Late Consequences of Acute Coronary Syndromes: a critical appraisal

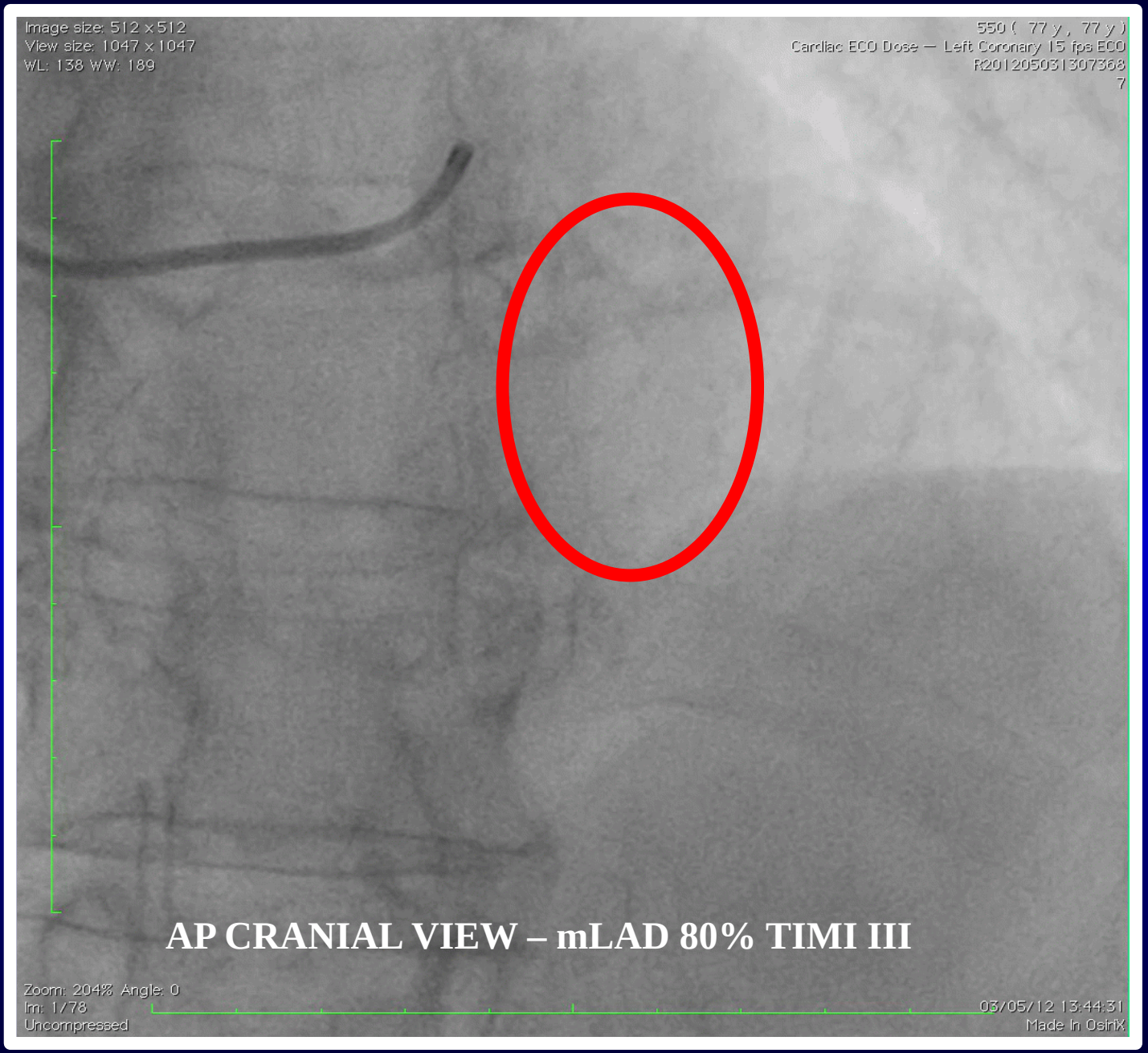
Claudio Moretti

Division on Cardiology
University of Turin

May 5th , 2012

76-YEAR-OLD FEMALE, CURRENT SMOKER.

CHEST PAIN	1.50 a.m.
118 (ST elev V1-V6)	2.10 a.m.
CATH LAB	2.55 a.m.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550 (77 y , 77 y)
Cardiac ECO Dose — Left Coronary 15 fps ECO
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7
AP CRANIAL VIEW – mLAD 80% TIMI III
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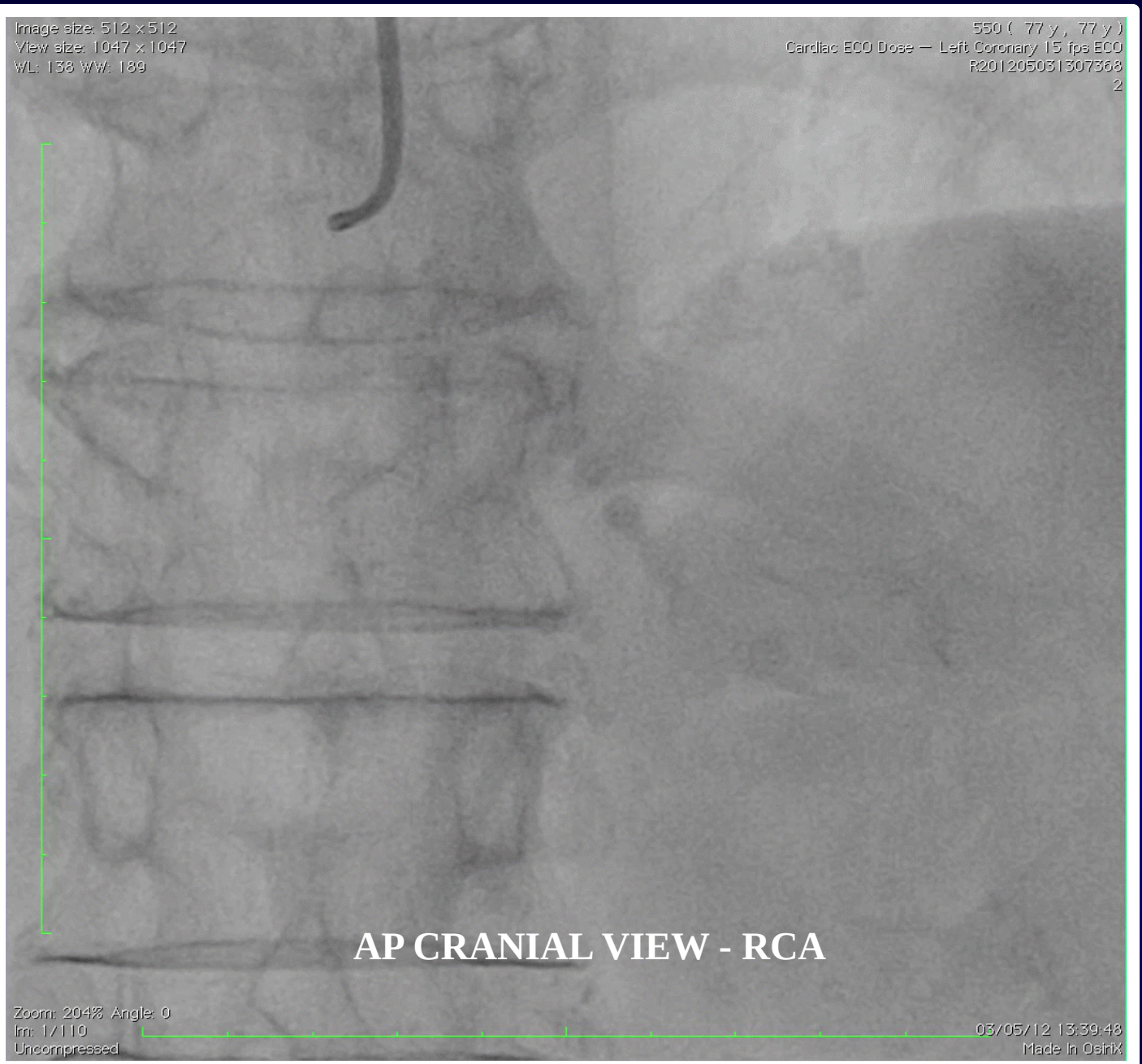
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550 (77 y , 77 y)
Cardiac ECO Dose — Left Coronary 15 fps ECO
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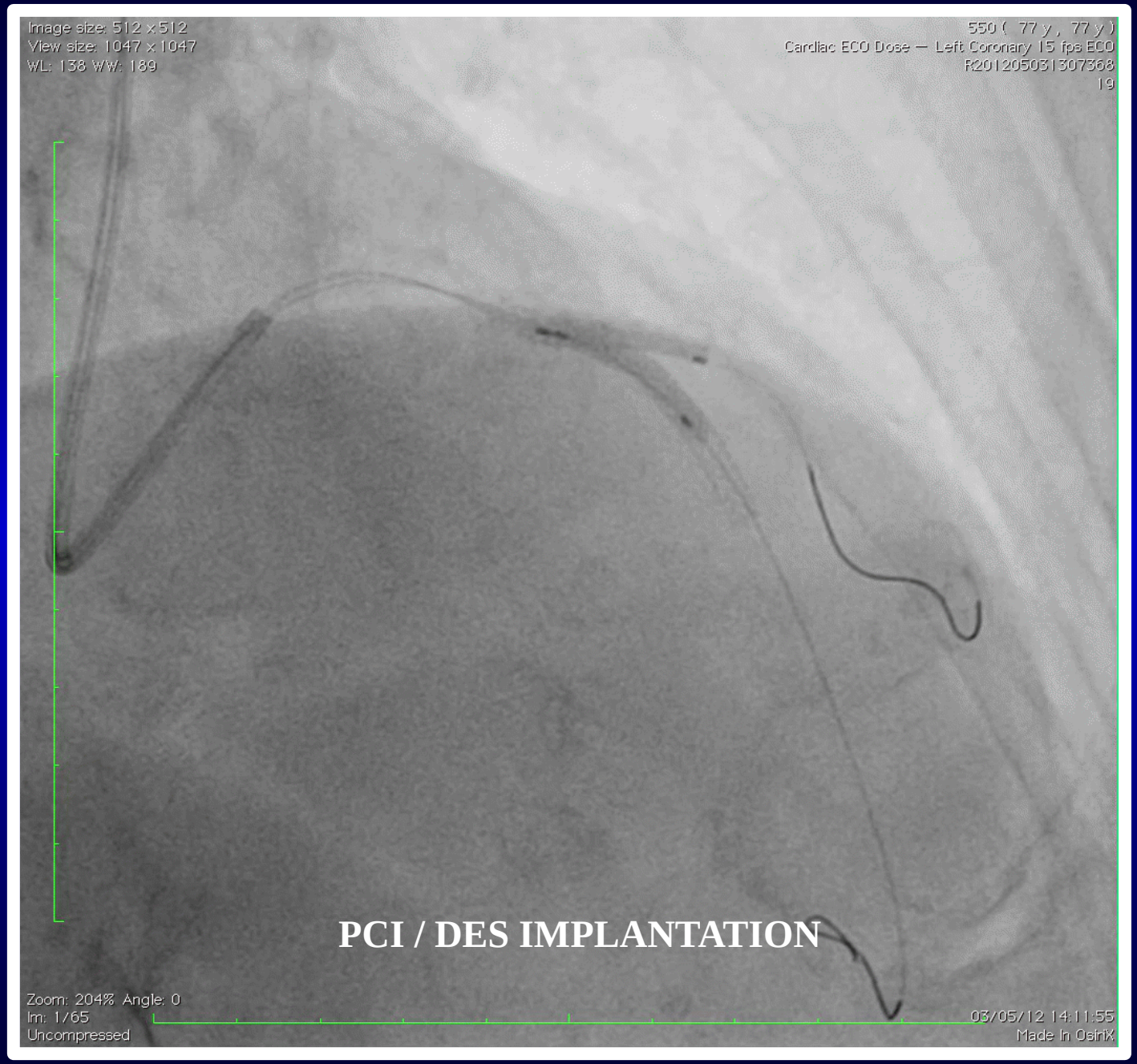
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Cardiac ECO Dose — Left Coronary 15 fps ECO
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PCI / DES IMPLANTATION
Zoom: 204% Angle: 0
Im: 1/65
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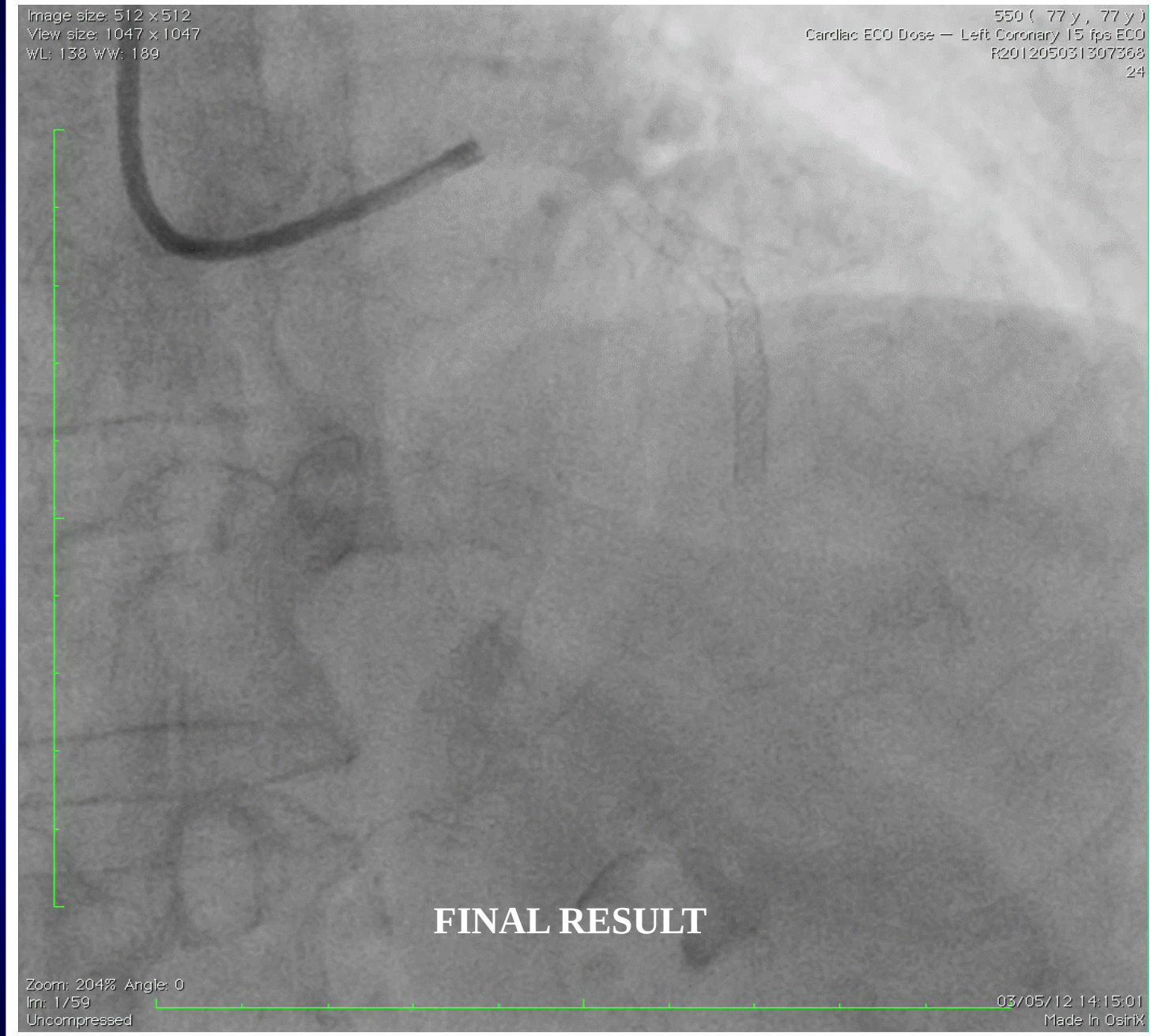
Made In OsiriX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WL: 138 WW: 189
550 (77 y , 77 y)
Cardiac ECO Dose — Left Coronary 15 fps ECO
R20120503130736824
FINAL RESULT
Zoom: 204% Angle: 0
Im: 1/59
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Made In OsiriX

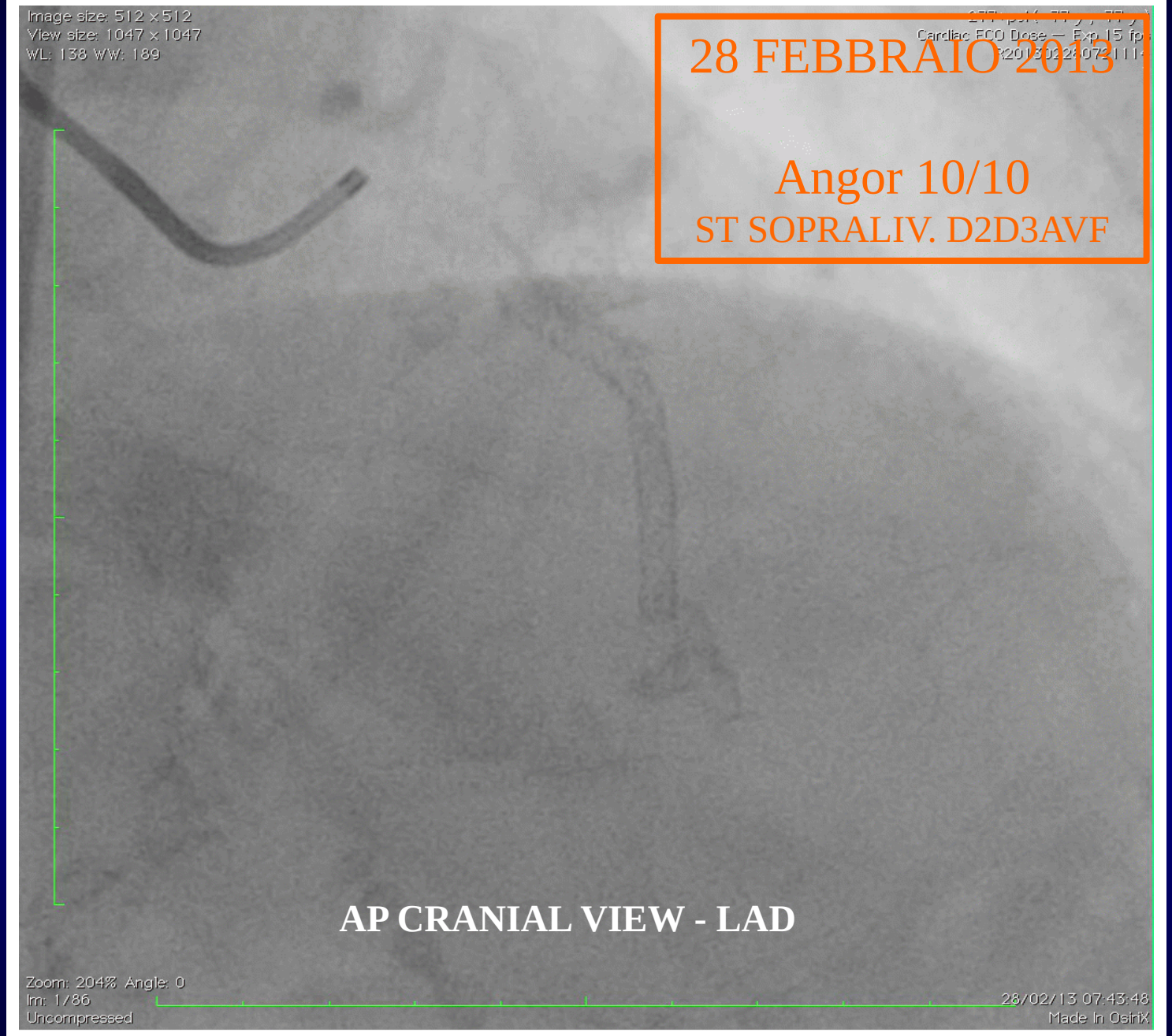
2010 EDITION

GUIDELINES

FOR

DUMMIES

ASA&CLOPIDOGREL X 12 m
ACE-I, BBL,STATINS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WL: 138 WW: 189
Cardiac ECG Dose — Exp 15 fp
28 FEBBRAIO 2013
Angor 10/10
ST SOPRALIV. D2D3AVF
AP CRANIAL VIEW - LAD
Zoom: 204% Angle: 0
Im: 1/86
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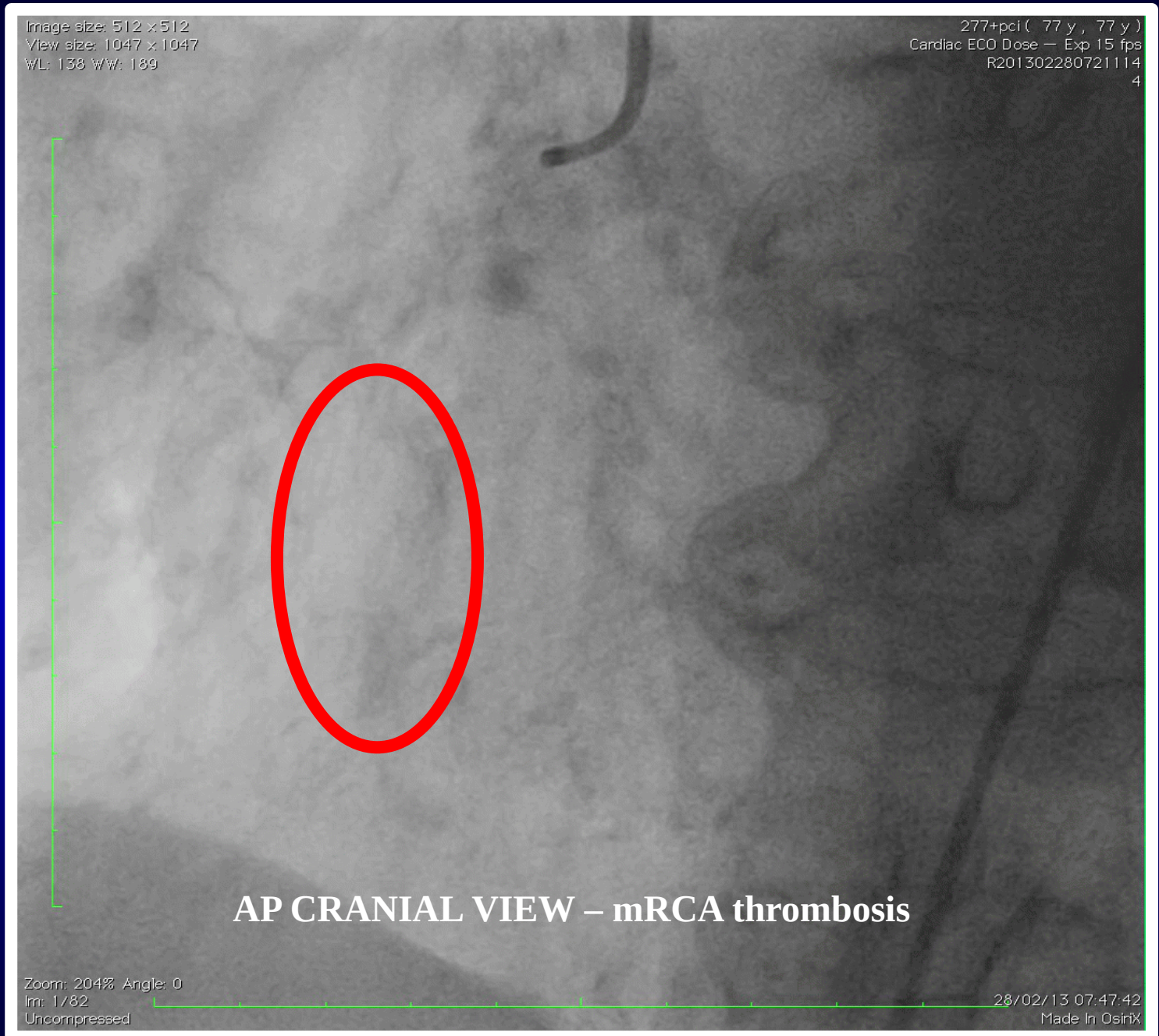
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277+pci (77 y , 77 y)
Cardiac ECO Dose — Exp 15 fps
R20130228072114
4
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Im: 1/82
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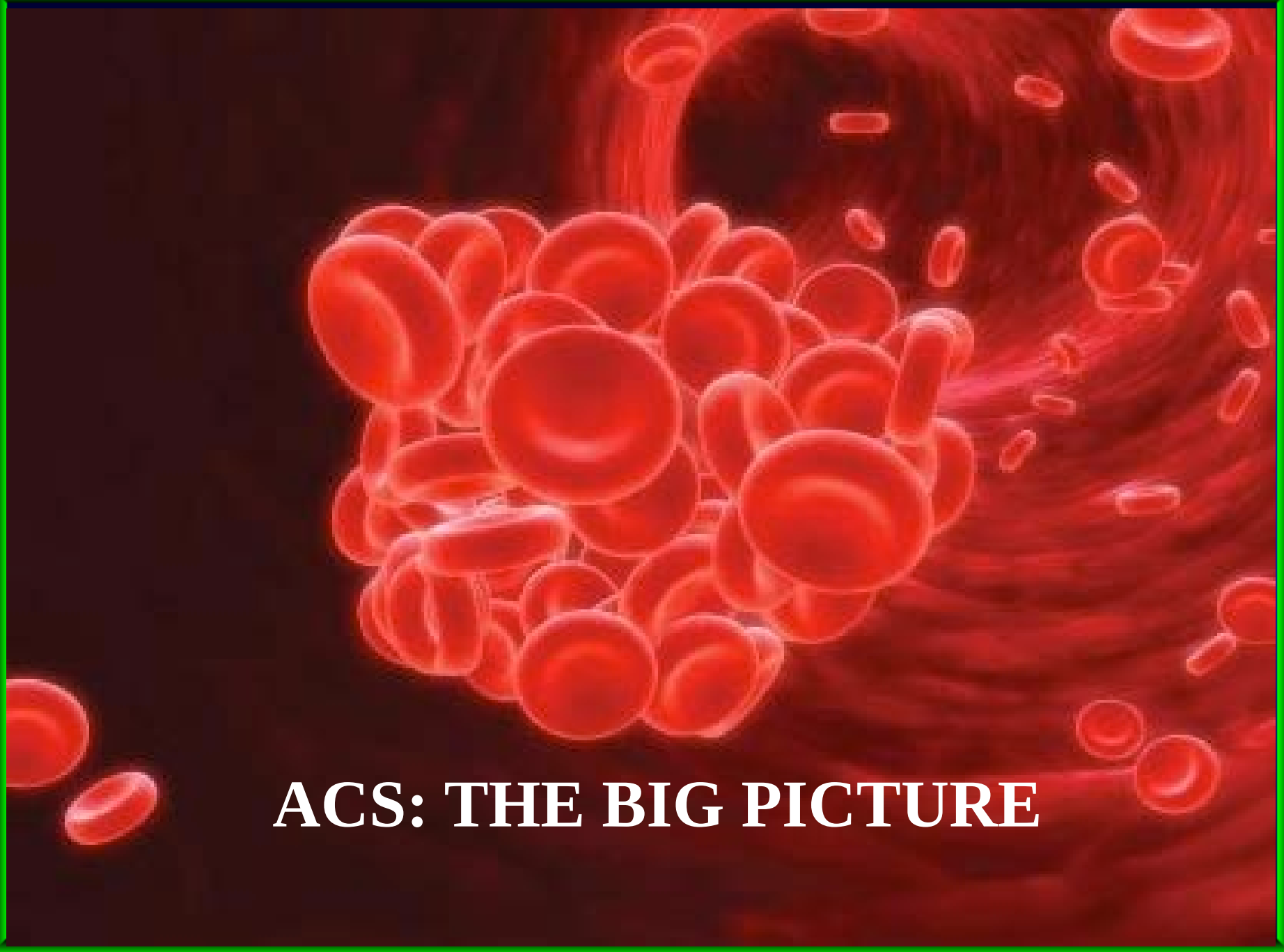


ACS: THE BIG PICTURE

INCIDENCE OF AMI - POPULATION TRENDS

KAISER PERMANENTE NORTH CALIFORNIA - 46,086 MI

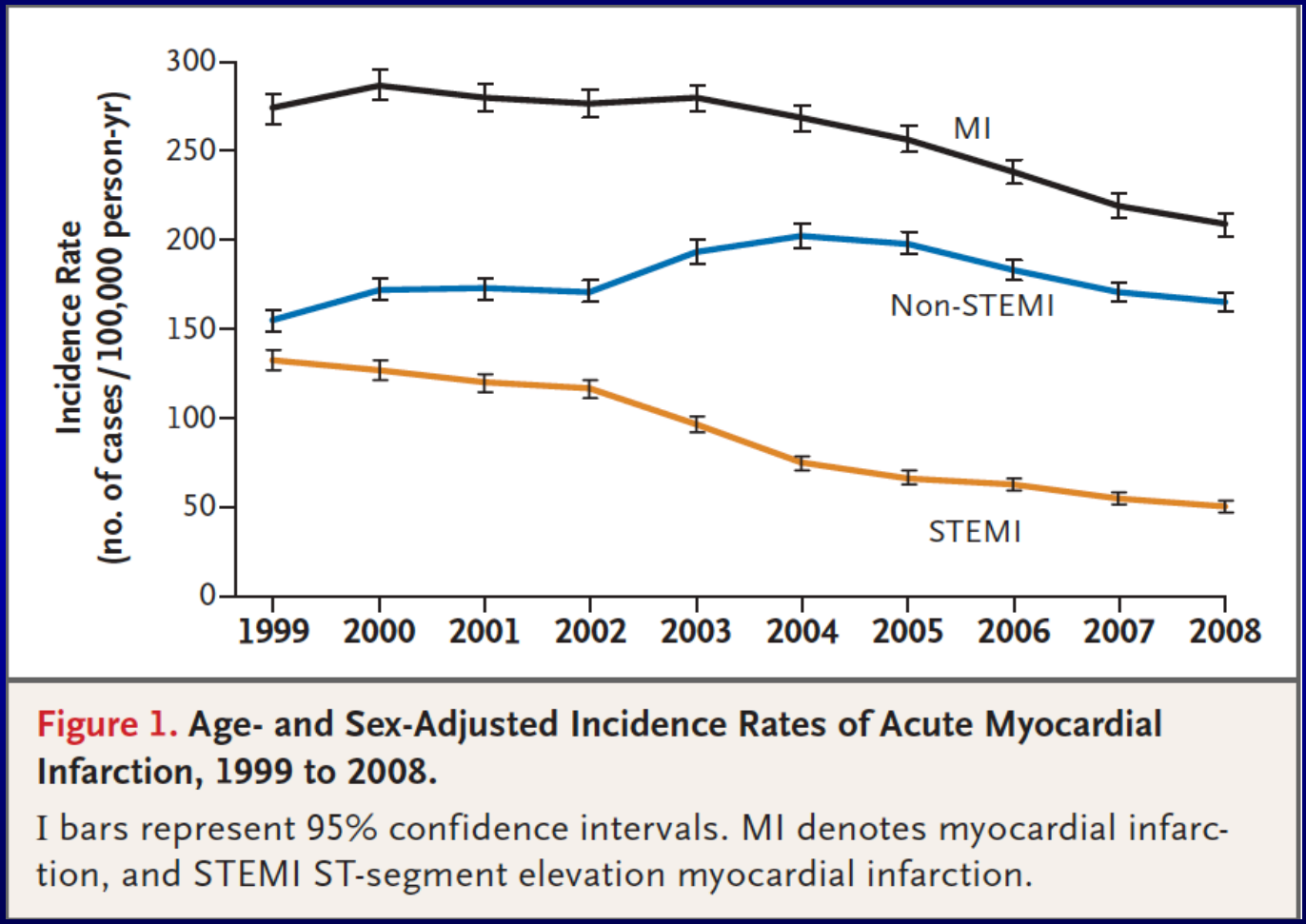


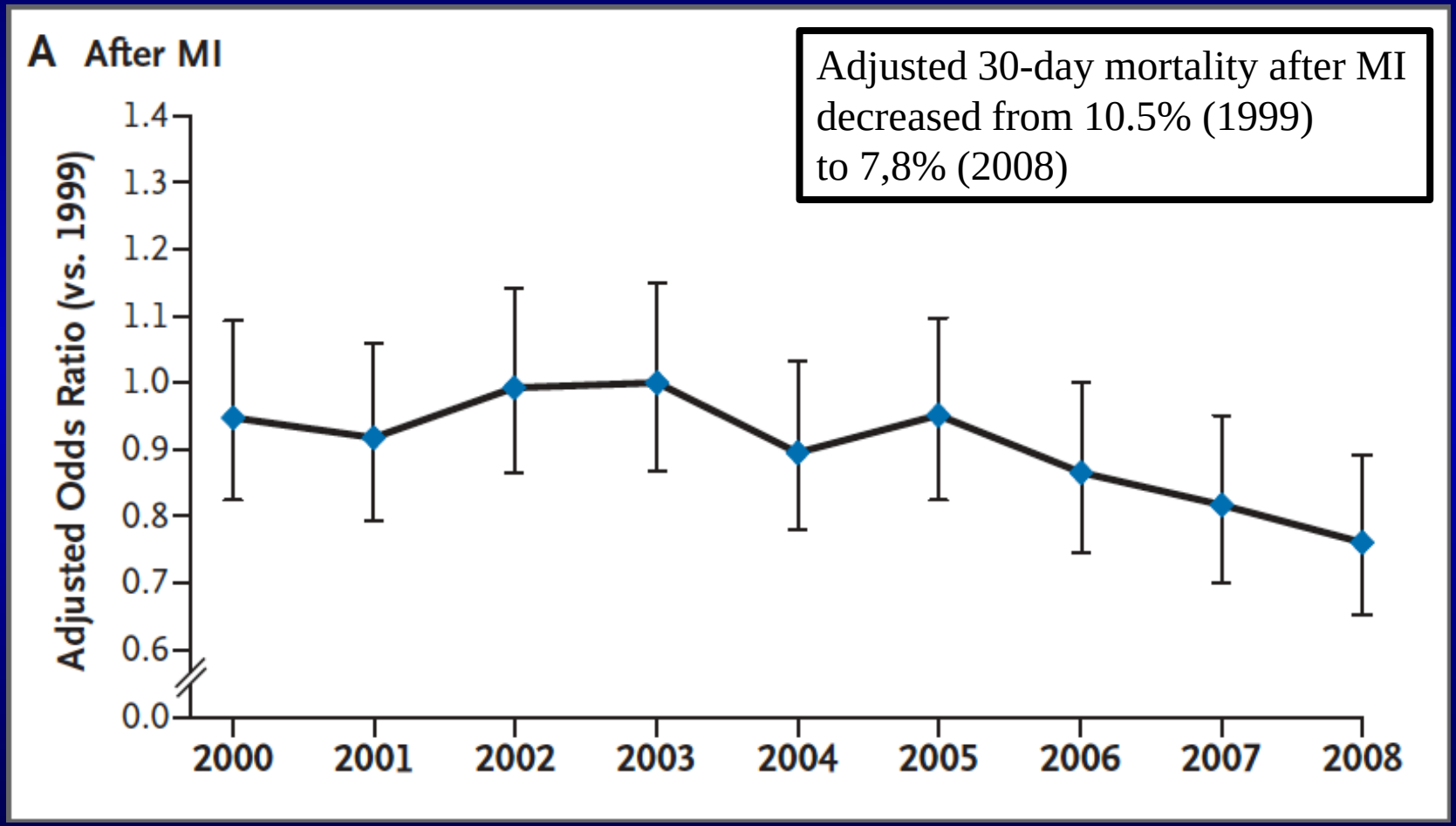
Figure 1. Age- and Sex-Adjusted Incidence Rates of Acute Myocardial Infarction, 1999 to 2008.

I bars represent 95% confidence intervals. MI denotes myocardial infarction, and STEMI ST-segment elevation myocardial infarction.

Yeh RW et al. N Engl J Med 2010; 362:2155-65

MI – MORTALITY

KAISER PERMANENTE NORTH CALIFORNIA - 46,086 MI

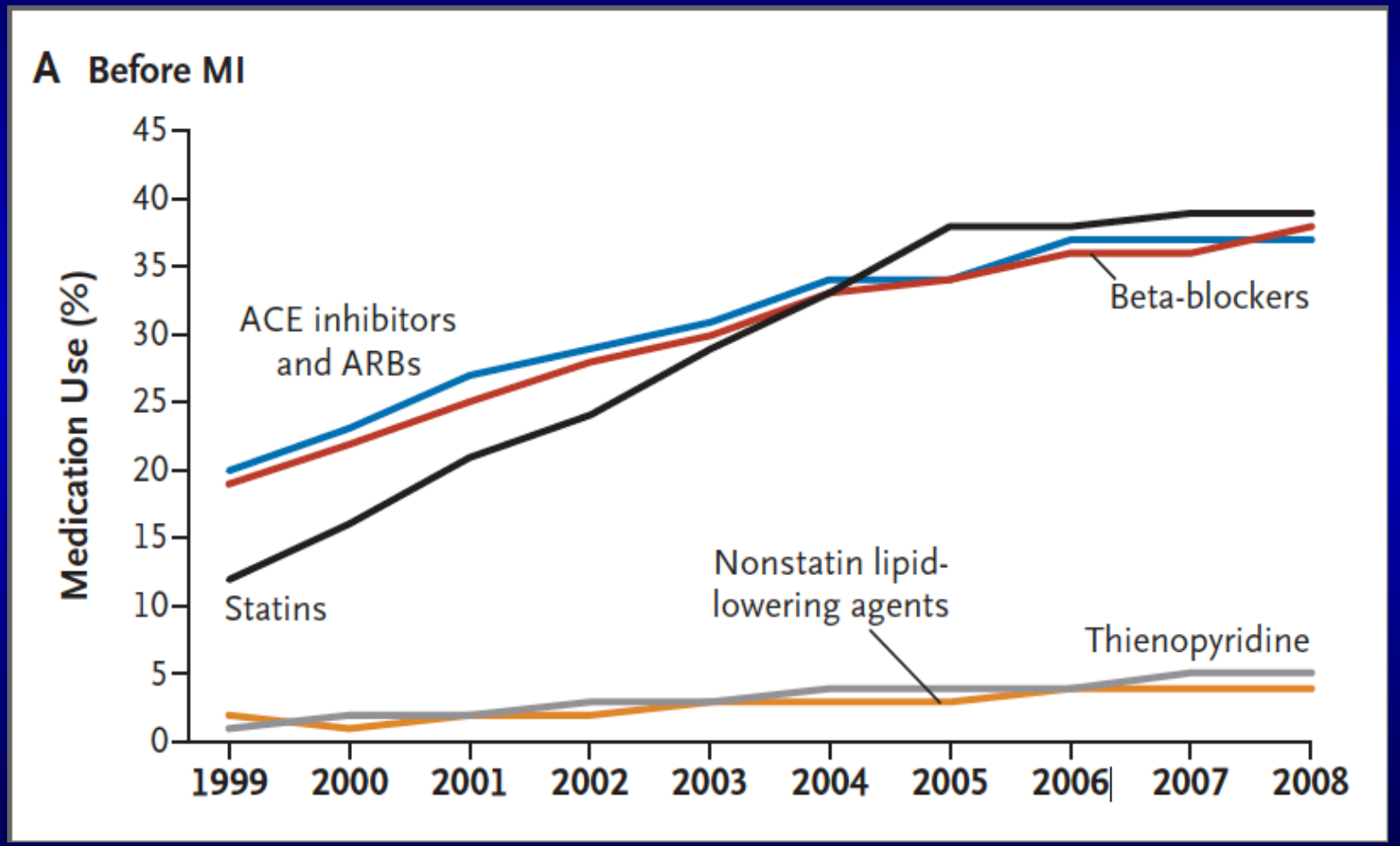


Adjusted 30-day mortality after MI decreased from 10.5% (1999) to 7,8% (2008)

Yeh RW et al. N Engl J Med 2010; 362:2155-65

MEDICATION USE (%) BEFORE MI

KAISER PERMANENTE NORTH CALIFORNIA - 46,086 MI

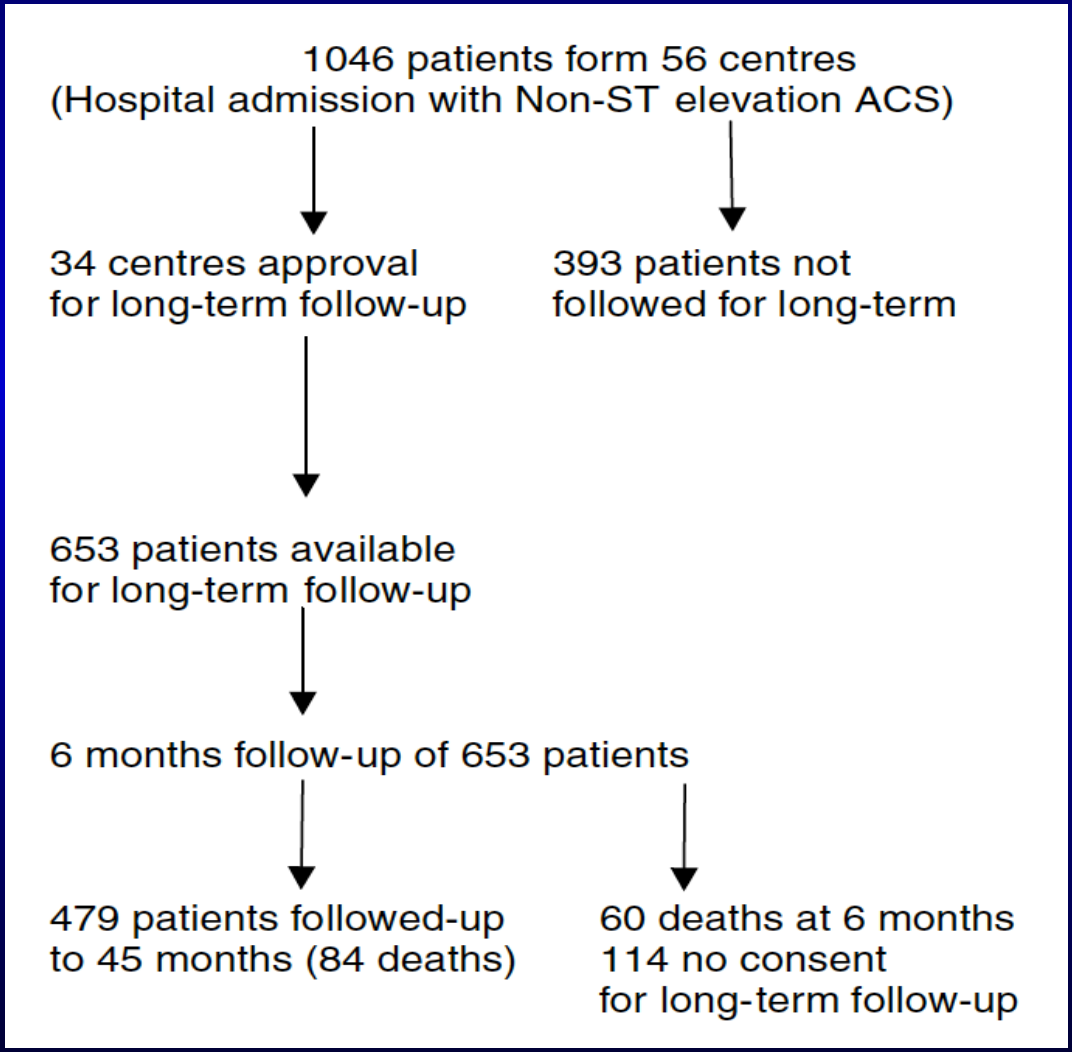


Yeh RW et al. N Engl J Med 2010; 362:2155-65

WHAT ABOUT LONG TERM EVENT FREE SURVIVAL ?

PRAIS-UK (2004)

PROSPECTIVE REGISTRY OF ACUTE ISCHAEMIC SYNDROME IN THE U.K.



A.K. Taneja et al.
Eur H J 2004

PRAIS-UK

BASELINE CHARACTHERISTICS OF PATIENTS

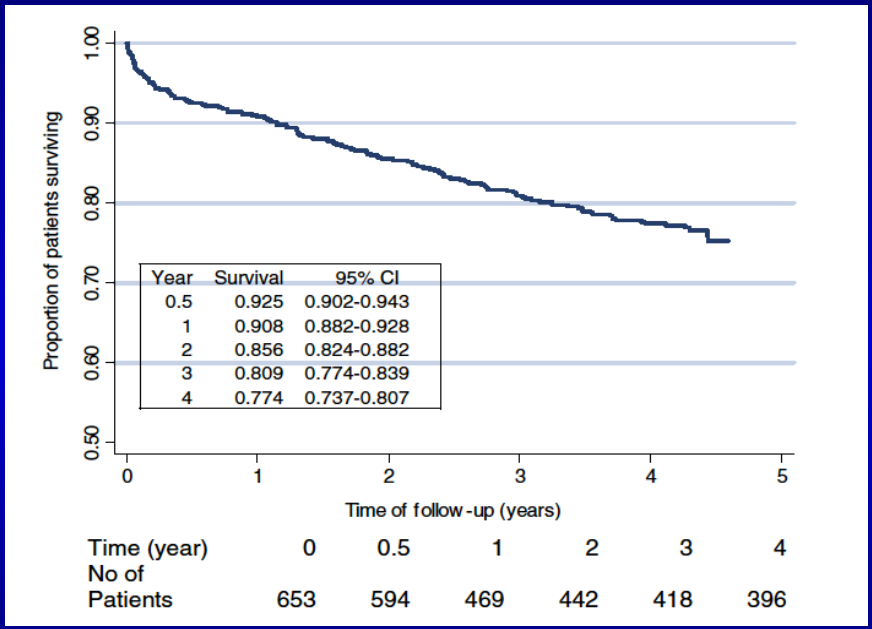
Variables	Mean (SD) or No (%)	
	Overall PRAIS (*N* = 1046)	Long-term PRAIS (*N* = 653)
Age(years)	65.8 (11.9)	66 (12)
Age <60	343 (32.8%)	206 (31.6%)
Age 60-70	283 (27.1%)	183 (28.0%)
Age >70	420 (40.1%)	264 (40.4%)
ECG		
1. Normal	166 (15.9%)	109 (16.7%)
2. ST dep/BBB	304 (29.1%)	182 (27.9%)
3. Other changes*	576 (55.06%)	362 (55.4%)
Systolic BP (mm Hg)	146.5 (28.7)	147.4 (29.2
Diastolic BP (mm of Hg)	81.5 (16.2)	82.1 (16.1)
Heart rate (beats/min)	77.5 (19.11)	77.2 (18.8)
Gender (%male)	635 (60.7%)	395 (60.5%)
Diabetes	170 (16.3%)	101 (15.5%)
Treated hypertension at baseline	388 (37.1%)	247 (37.8%)
Prior stroke	81 (7.7%)	47 (7.2%)
Heart failure at baseline	139 (13.3%)	85 (13.0%)
Smokers at baseline	239 (22.9%)	147 (22.5%)
Prior angina	778 (74.4%)	505 (77.3%)
Prior MI	504 (48.2%)	316 (48.4%)
Prior PTCA/stent	140 (13.4%)	96 (14.7%)
Prior CABG	142 (13.6%)	79 (12.1%)

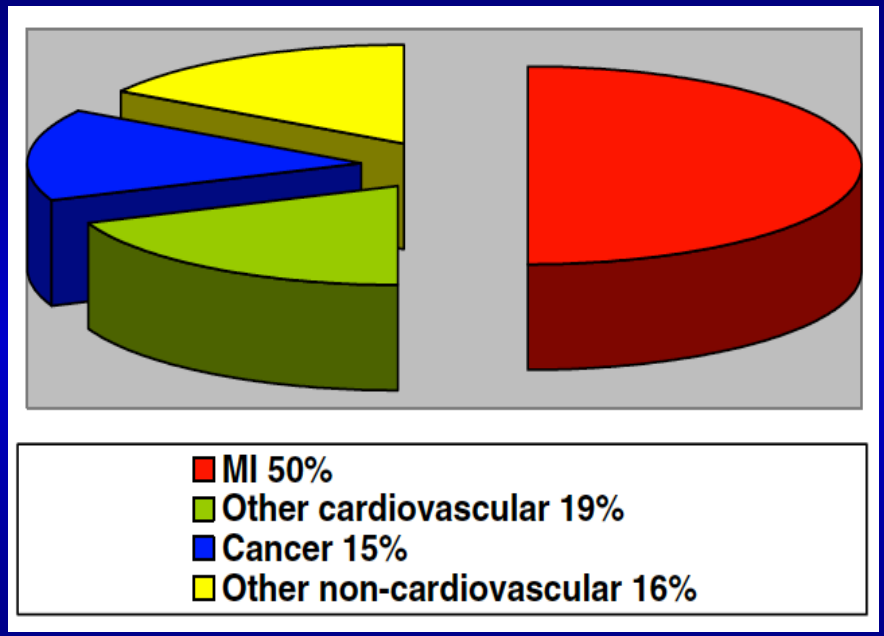
ECG = Electrocardiogam, ST dep = ST depression, BBB = Bundle branch block, MI = Myocardial infarction, PTCA = percutaneous transluminal coronary angioplasty, CABG = coronary artery bypass grafting.

* Other changes includes T-wave inversion, Q-waves, and other ST- and T-wave changes.

PRAIS-UK

PROSPECTIVE REGISTRY OF ACUTE ISCHAEMIC SYNDROME IN THE U.K.

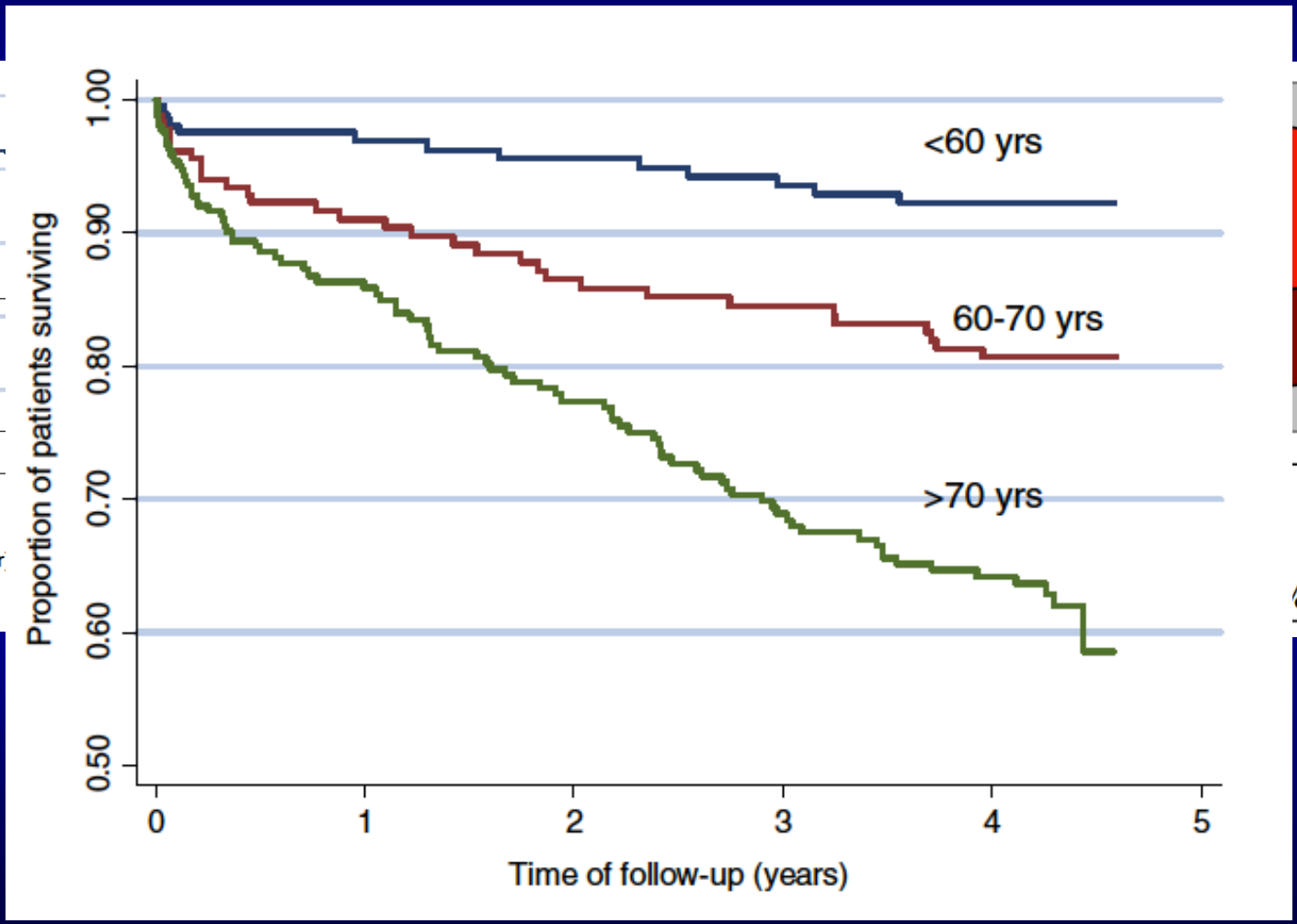




In the first 6 months there were 48 deaths (7,3%).
There were further 84 deaths at final follow_up.
The survival rate at 1 yr was 90.8% and 77.8% at 45 months.

PRAIS-UK

PROSPECTIVE REGISTRY OF ACUTE ISCHAEMIC SYNDROME IN THE U.K.



PRAIS-UK

EFFECT OF BASELINE CHARACTERISTICS ON MORTALITY – COX REGR. ANALYSIS

Table 2 Hazard ratios and 95% confidence interval for the effects of baseline characteristics on mortality in long-term PRAIS follow-up study (653 patients): Cox regression analysis

Variables	Hazard ratio	95% CI		*P*
Age				
<60 years	1.00			
60–70 years	2.29	1.18	4.44	0.014
>70 years	4.88	2.62	9.06	<0.001
ECG changes				
Normal	1.00			
ST dep or BBB	3.44	1.62	7.29	<0.001
Other changes*	1.94	0.92	4.07	0.081
Male	1.78	1.22	2.59	0.003
Smoker	1.18	0.74	1.87	0.480
Diabetes	1.43	0.77	2.62	0.26
SBP (10 mmHg)	0.94	0.88	1.00	0.048
Hear Rate (5bpm)	1.06	1.01	1.10	0.008
Prior heart failure	2.41	1.60	3.63	<0.001
Prior MI	1.41	0.95	2.08	0.088
Prior angina	0.83	0.52	1.33	0.444
Prior PCI/Stent or CABG	0.69	0.43	1.11	0.123
Prior stroke	2.39	1.44	3.97	<0.001

The CRUSADE LONG TERM MORTALITY AFTER NSTEMI (2011)

Roe MT et al, Am Heart J 2011

- 43,239 pts (> 65 yrs) from CRUSADE Registry LINKED to Madicare/Medicaid
- Median F_up 619 days
- 2003 – 2006
- COVARIATES: demographics, history, risk factor, clinical presentation, laboratory values (creatinine, troponine, hematocrit)
- Missing data < 2%

The CRUSADE LONG TERM

IN-HOSPITAL TRATMENTS AND PROCEDURES

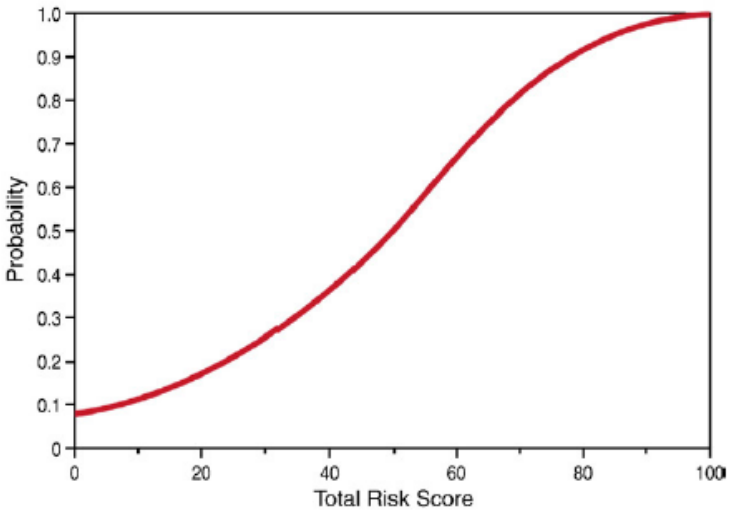
	Overall CRUSADE NSTEMI cohort (n = 67423)	Derivation cohort (n = 34640)	Validation cohort (n = 8599)
Acute medications (≤24 h) (%)			
Aspirin	95.0	95.1	95.1
Clopidogrel	51.6	52.0	51.7
Heparin (LMWH or UFH)	86.2	87.6	88.1
GP IIb/IIIa inhibitor	37.8	40.0	40.5
β-Blocker	89.3	89.6	90.0
Invasive procedures (%)			
Cardiac catheterization	58.2	60.3	59.9
PCI	33.5	35.0	34.0
CABG	9.5	9.6	9.7
Discharge medications (%)†			
Aspirin	93.5	94.0	94.0
Clopidogrel	68.1	68.8	69.3
β-Blocker	91.5	92.1	92.0
ACE inhibitor or ARB‡	67.6	67.8	68.4
Lipid-lowering agent§	86.3	86.3	86.4

CRUSADE LONG TERM MORTALITY

RISK SCORE AND NOMOGRAM

Variable	Class	Score
Age (y)	≤70	0
	71-75	5
	76-80	10
	81-85	14
	≥86	19
Initial serum creatinine (mg/dL)*	≤1.0	0
	1.0-1.99	5
	2.0-2.99	11
	≥3	16
Initial systolic blood pressure (mm Hg)	≤90	2
	91-100	1
	>100	0
Signs of heart failure on presentation	No	0
	Yes	10
Initial heart rate (beats/min)	<90	0
	90-99	2
	100-109	3
	≥110	5
Weight (kg)	≤60	10
	61-80	5
	≥81	0
Prior heart failure	No	0
	Yes	8
Initial hematocrit (%)	<30	5
	30-39.9	3
	≥40	0
Initial troponin ratio (× ULN)	≤1	0
	1.1-3	1
	3.1-5	3
	≥5.1	5
Prior stroke	No	0
	Yes	6
Diabetes mellitus	No	0
	Yes	4
Sex	Female	0
	Male	4
Prior PAD	No	0
	Yes	3

Add up points for all 13 variables
Determine risk of mortality

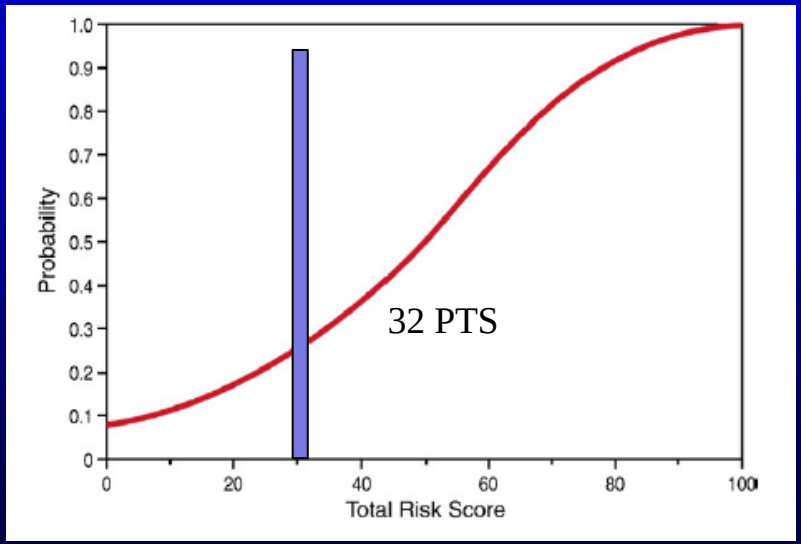


CRUSADE LONG TERM MORTALITY

RISK SCORE AND NOMOGRAM

Variable	Class	Score
Age (y)	≤70	0
	71-75	5
	76-80	10
	81-85	14
	≥86	19
Initial serum creatinine (mg/dL)*	≤1.0	0
	1.0-1.99	5
	2.0-2.99	11
	≥3	16
Initial systolic blood pressure (mm Hg)	≤90	2
	91-100	1
	>100	0
Signs of heart failure on presentation	No	0
	Yes	10
Initial heart rate (beats/min)	<90	0
	90-99	2
	100-109	3
	≥110	5
Weight (kg)	≤60	10
	61-80	5
	≥81	0
Prior heart failure	No	0
	Yes	8
Initial hematocrit (%)	<30	5
	30-39.9	3
	≥40	0
Initial troponin ratio (× ULN)	≤1	0
	1.1-3	1
	3.1-5	3
	≥5.1	5
Prior stroke	No	0
	Yes	6
Diabetes mellitus	No	0
	Yes	4
Sex	Female	0
	Male	4
Prior PAD	No	0
	Yes	3

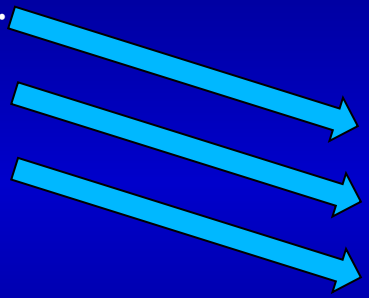
Add up points for all 13 variables
Determine risk of mortality



The CRUSADE LONG TERM MORTALITY

CONCLUSIONS

- THE RISK OF LONG TERM MORTALITY AMONG OLDER PTS WITH NSTEMI IS **SUBSTANTIAL** .



1 YR: 24.4%
2 YR: 33.2%
3 YR: 40.3%

- IT CAN BE PREDICTED FROM INITIAL CHARACTERISTICS AVAILABLE AT THE TIME OF HOSPITAL PRESENTATION.

GRACE UK-Belgian Study (2010)

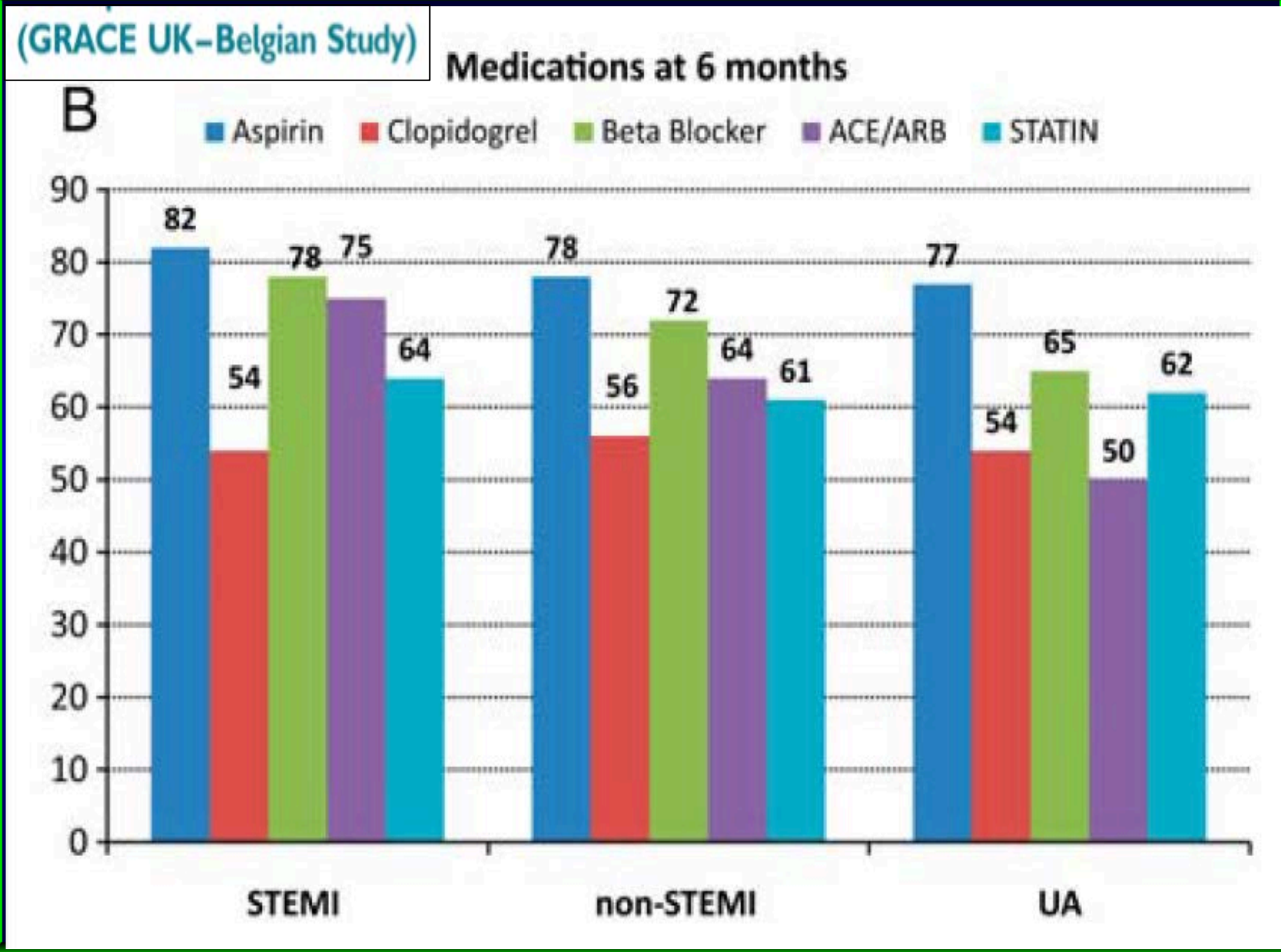
Fox KAA, et al. Eur H J 2010

- 5-YR F_UP OF THE U-K. AND BELGIAN COHORTS OF THE GRACE STUDY
- STEMI, NSTEMI, AND U.A.
- RECORD LINKAGE WITH ADM. DATA-BASE

Table I Demographic data and prior history (combined UK and Belgian cohorts)

	Mean age, 66 years	Gender % male	History of angina, %	History of MI, %	Prior PCI, %	Prior CABG, %	History of hypertension, %	History of diabetes, %	History of TIA/ stroke, %	Current smoker, %
STEMI (1403)	65	72	26	16	9	5	38	14	5	37
Non-STEMI (1170)	67	74	47	28	16	12	52	19	8	28
UA (850)	66	65	77	43	31	21	49	19	11	22
Other cardiac (135)	66	59	53	29	16	10	45	16	10	21
Non-cardiac (163)	62	60	67	37	27	12	49	11	11	26
Total = 3721		70	47	28	17	11	46	16	8	30

(GRACE UK–Belgian Study)



GRACE UK-Belgian Study

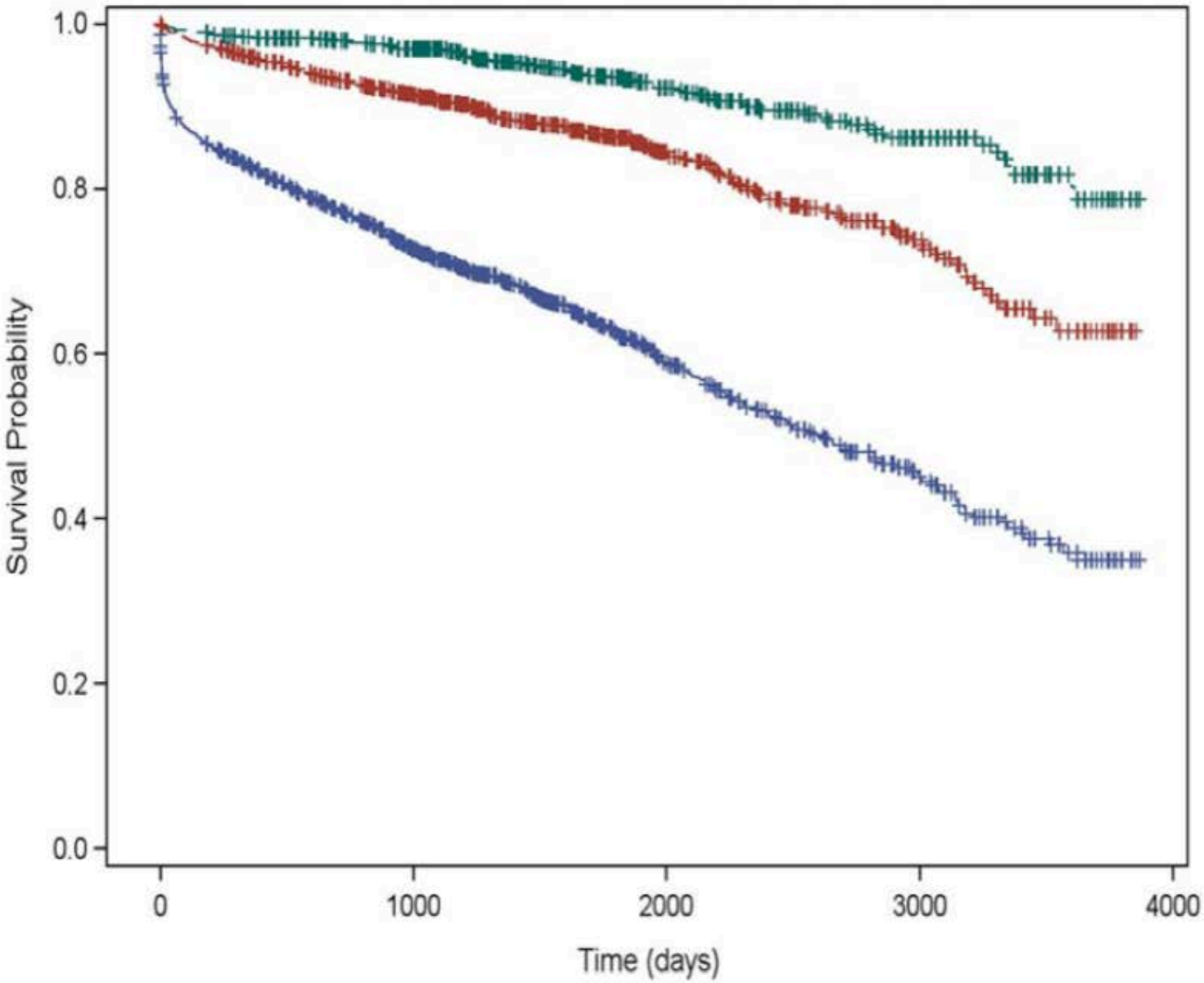
Total cohort (*n* = 3721) distribution of death from index and up to 5 years post-index hospitalization by index ACS diagnosis

Total *n* = 3721	5 Year total no. deaths, *n* = 736 (20%)	Index death, *n* = 129 (3%)	Index cardiovascular death, *n* = 114 (3%)	Post-discharge death, *n* = 607 (16%)	Post-discharge cardiovascular death, *n* = 368 (10%)
STEMI (1403)	269 (19%)	88 (6%)	78 (6%)	184 (13%)	103 (7%)
Non-STEMI (1170)	262 (22%)	36 (3%)	28 (2%)	226(19%)	137 (13%)
UA (850)	149 (18%)	4 (1%)	6 (1%)	145 (17%)	84 (10%)
Other cardiac (135)	30 (22%)	3 (2%)	3 (2%)	27 (20%)	19 (14%)
Non-cardiac (163)	27 (17%)	3 (2%)	2 (1%)	25 (15%)	15 (9%)

By 5 years of f_up, there were 736 deaths from any cause.
Two-thirds of alla deaths were classified as CV (65%, 482/736).

LESS THAN A FIFTH OF ALL DEATHS OCCURRED IN_H

SURVIVAL ACCORDING TO GRACE SCORE (Death in-H)



GRACE UK-Belgian Study

CONCLUSIONS

- The late consequences of ACS demontrates a substantially higher frequency of subsequent CVD and MI than seen in the index hospitalization.
- The greates risk is among pts with NSTEMI.
- This outcomes are seen despite high compliance with g_lines.
- The GRACE risk score demonstrate similar predictive accuracy for in-H and long-term f_up.

ACS IN ITALY

Registry	Pts	Centres		NSTEMI%	Follow-up Months
AICARE-2, 2000	1074	24	UTIC Card	54% NSTEMI	6
BLITZ-1, 2001	1959	296	UTIC	30% NSTEMI	1
ROSAI-2, 2002	1581	76	UTIC	100% NSTEMI	1
BLITZ-2, 2003	1888	275	UTIC Card	100% NSTEMI	1

Casella G, et al. G Ital Cardiol 2006; 7: 176-185

Blitz 2
NON ST-ELEVATION ACS
INDAGINE EPIDEMIOLOGICA SULLE SINDROMI CORONARICHE ACUTE

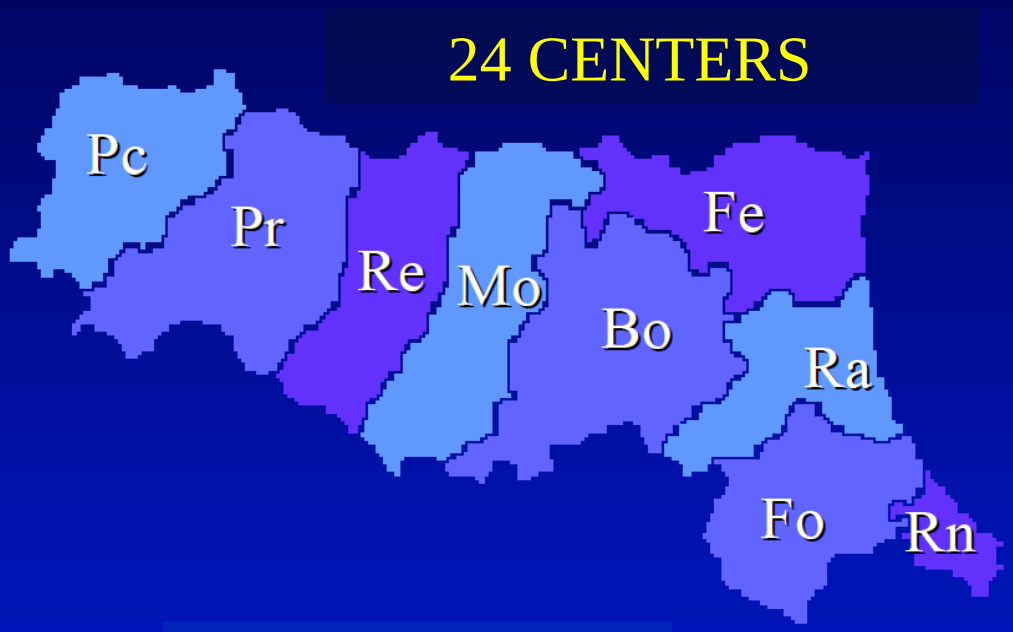
A.N.M.C.O. - ASSOCIAZIONE NAZIONALE MEDICI CARDIOLOGI OSPEDALIERI

30-DAY EVENTS	
Death	45 (2.4%)
MI&U.A.	172 (9.2%)
CHF	91 (4.9%)
STROKE	17 (0.9%)

Di Chiara A, et al. Eur Heart J 2006; 27: 393-405

AICare-2 ANMCO Emilia Romagna

AICARE 2



Bentivoglio	Ferrara
Bologna - Bellaria	Forli'
Bologna – Maggiore	Guastalla
Bologna – Malpighi	Lugo
Bologna - S.Orsola	Mirandola
Carpi	Modena
Castelnuovo Monti	Parma
Castel S.Giovanni	Piacenza
Cento	Ravenna
Cesena	Reggio Emilia
Comacchio	Rimini
Faenza	Sassuolo

1074 PTS

(599 UA/NSTEMI, 475 STEMI

01/10/2000 – 03/12/2000

Studio AI-CARE2 - **Studi osservazionali: epidemiologia delle sindromi coronariche acute nelle cardiologie dell'Emilia Romagna**

	ST sopraslivellato	No ST sopraslivellato	BBS/PMD
In-H events			
-Pts_Nr	434	**589**	51
-Death	44 (10%)	**18** (3%)	4 (8%)
-AMI	10 (2%)	**14** (2%)	1 (2%)
-Angina	52 (12%)	**151** (26%)	13 (25%)
-Death, AMI	52 (12%)	**32** (5%)	5 (10%)
Death, AMI, angina	98 (23%)	**169** (29%)	17 (33%)
VF/VT	39 (9%)	7 (1%)	6 (12%)
-Shock	38 (9%)	13 (2%)	4 (8%)
.Pulmonary Edema	34 (8%)	39 (7%)	10 (20%)
-Stroke	5 (1%)	1 (0,2%)	0
6-months events			
-Pts_Nr	415	**563**	49
-Death	65 (16%)	**46** (8%)	9 (18%)
-AMI	25 (6%)	**26** (5%)	1 (2%)
-Angina	34 (8%)	**55** (10%)	7 (14%)
-Death, AMI	84 (20%)	**67** (12%)	10 (20%)
Death, AMI, angina	145 (35%)	**222** (39%)	21 (43%)

Ital Heart J Suppl. 2003; 4(9):733-744

Original article

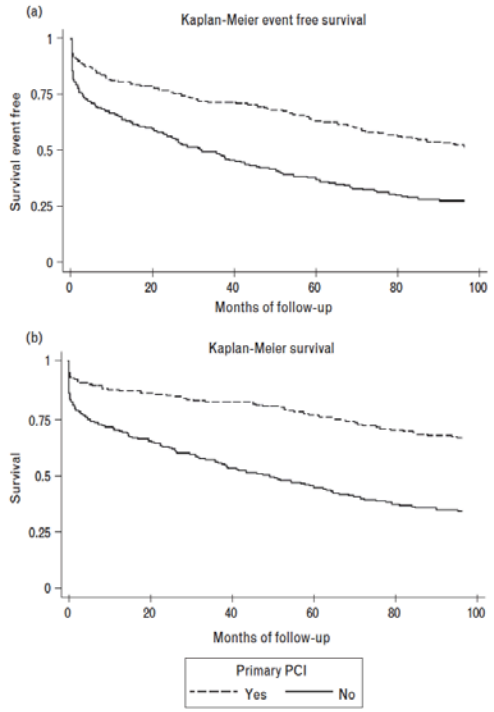
AMI-Florence Registry

Federazione Italiana di Cardiologia
Italian Federation of Cardiology

Long-term prognosis after primary PCI in unselected patients with ST-elevation myocardial infarction

Alessandro Barchielli[a,h], Giovanni M. Santoro[b], Daniela Balzi[a,h], Nazario Carrabba[c], Mauro Di Bari[d], Gian Franco Gensini[e], Maurizio Filice[b], Cristina M. Landini[f], Serafina Valente[e], Alfredo Zuppiroli[g] and Niccolò Marchionni[d]

J Cardiovasc Med 2012, 13:819–827

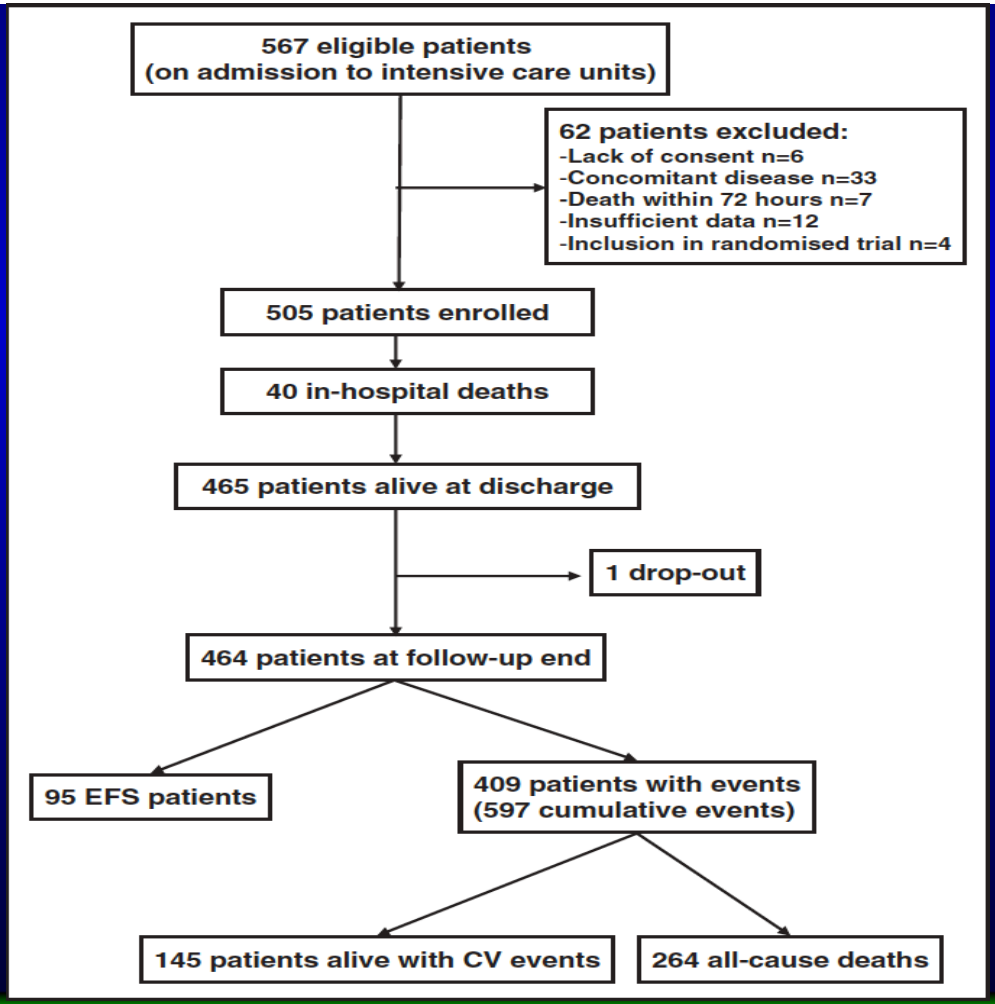


Event-free survival (a) and survival (b) at 8 years, by treatment with primary PCI: Kaplan–Meier curves. PCI, percutaneous coronary intervention.

Results After 8 years, 59% of patients had experienced the composite end-point and 49% had died. The multivariable analysis showed a significantly better prognosis in patients receiving pPCI (hazard ratio 0.72, $P = 0.001$), evident also in the 645 patients who were event-free after the first year of follow-up (hazard ratio 0.72, $P = 0.010$). Other independent prognostic factors were advanced age, Killip class greater than 1, some cardiovascular or noncardiovascular comorbidities, in-hospital cardiogenic shock, ejection fraction less than 30%, and treatment with aspirin and statin during hospitalization. The beneficial effect of pPCI

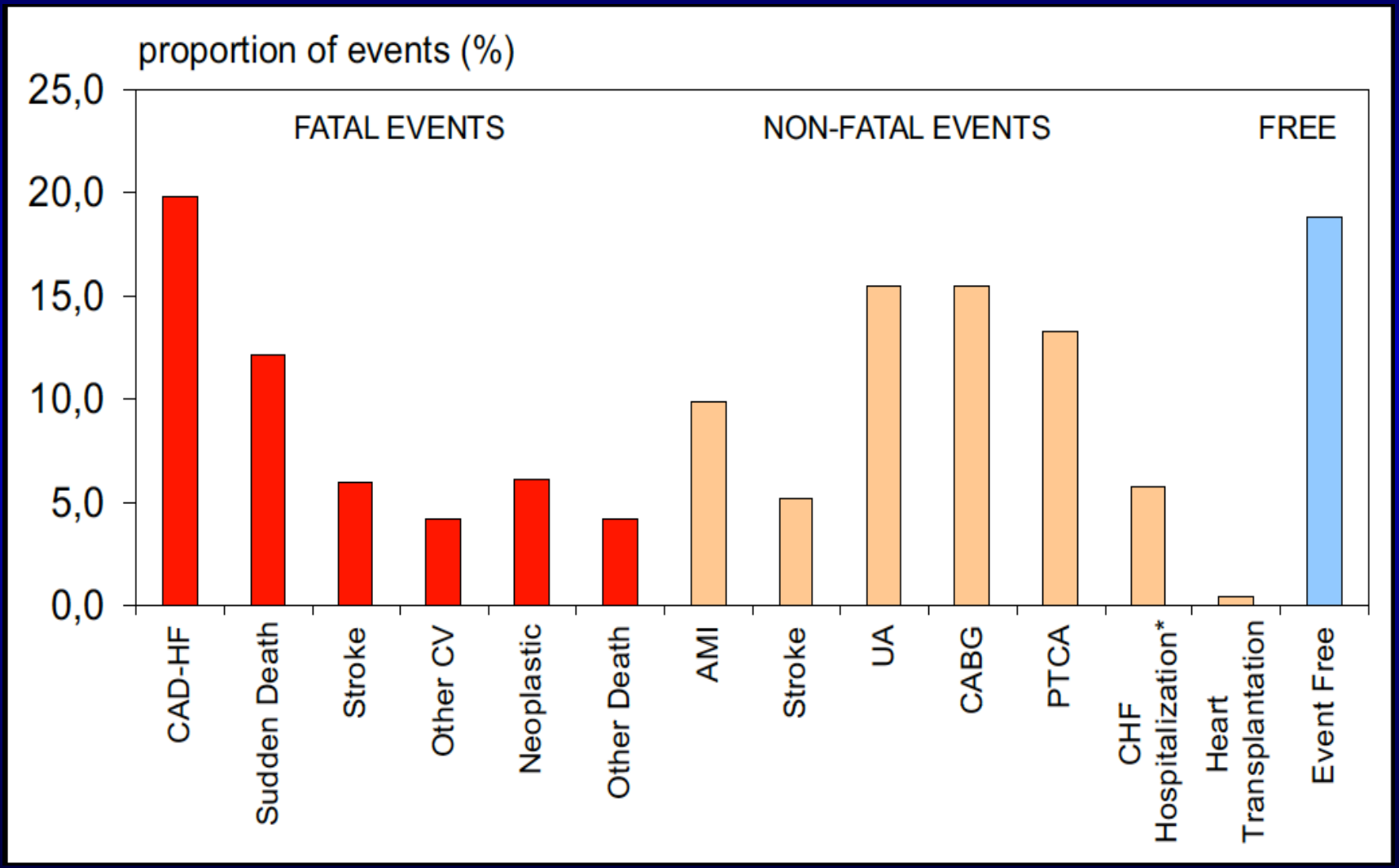
Predictors of Ten-Year Event-Free Survival in Patients With Acute Myocardial Infarction (from the Adria, Bassano, Conegliano, and Padova Hospitals [ABC] Study on Myocardial Infarction)

Giuseppe Berton, MD[a,*], Rocco Cordiano, MD[b], Fiorella Cavuto, MD[c], Giulia Giacomini, PhD[a], Renzo De Toni, PhD[d], and Paolo Palatini, M
Am J Cardiol 2012;109:966–975



ABC STUDY

EVENTS



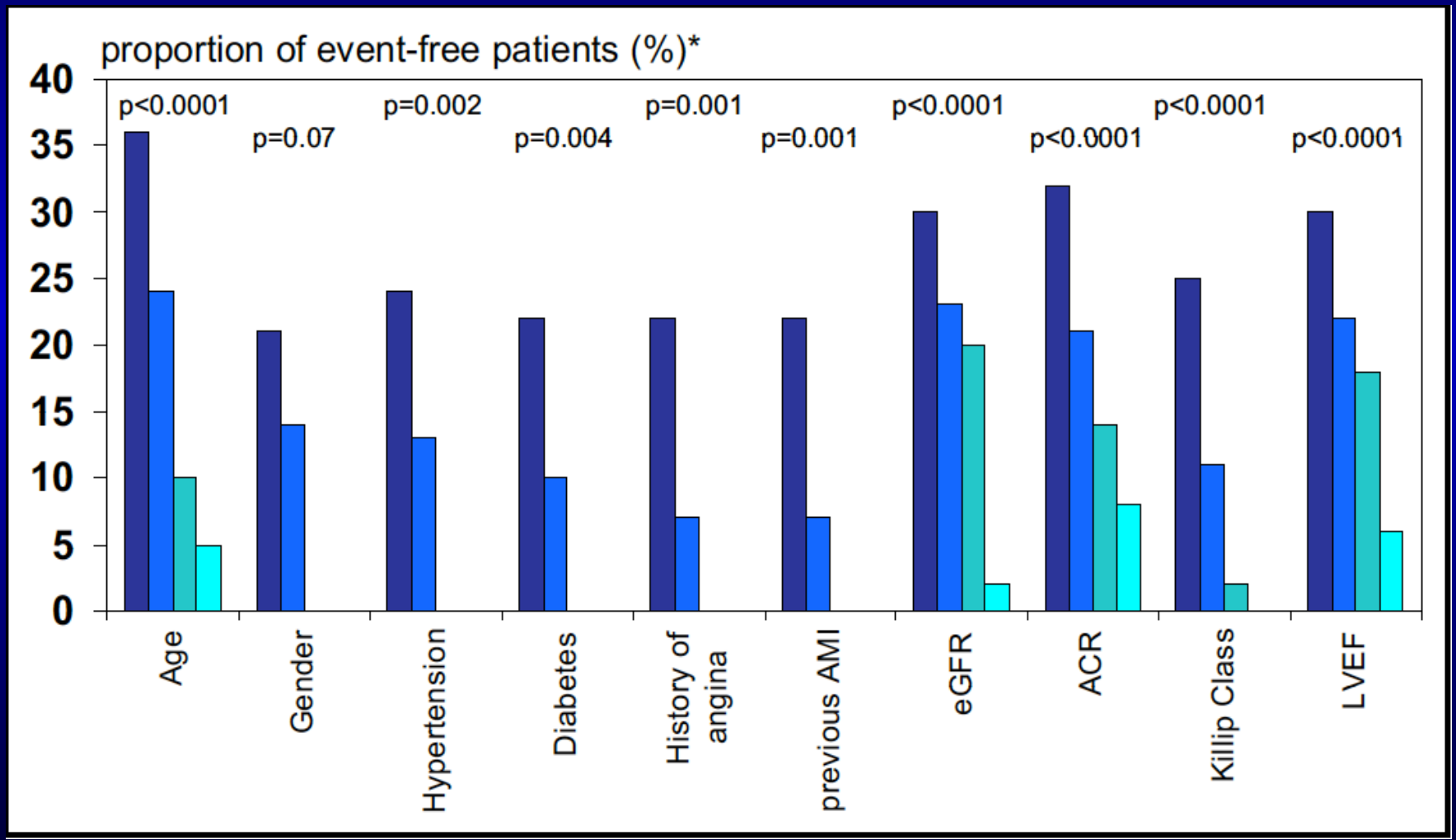
ABC STUDY

RESULTS

- 504 PTS HAD A 10-YR FOLLOW UP
- 409 PTS HAD 1 TO 5 EVENTS (tot 597)
- EVENT ATE 18.25/YR/100 PTS
- 95 ACHIEVED EVENT FREE SURVIVAL
- THE MEDIAN INTERVAL TO THE FIRST EVENT WAS 22.5 MONTHS

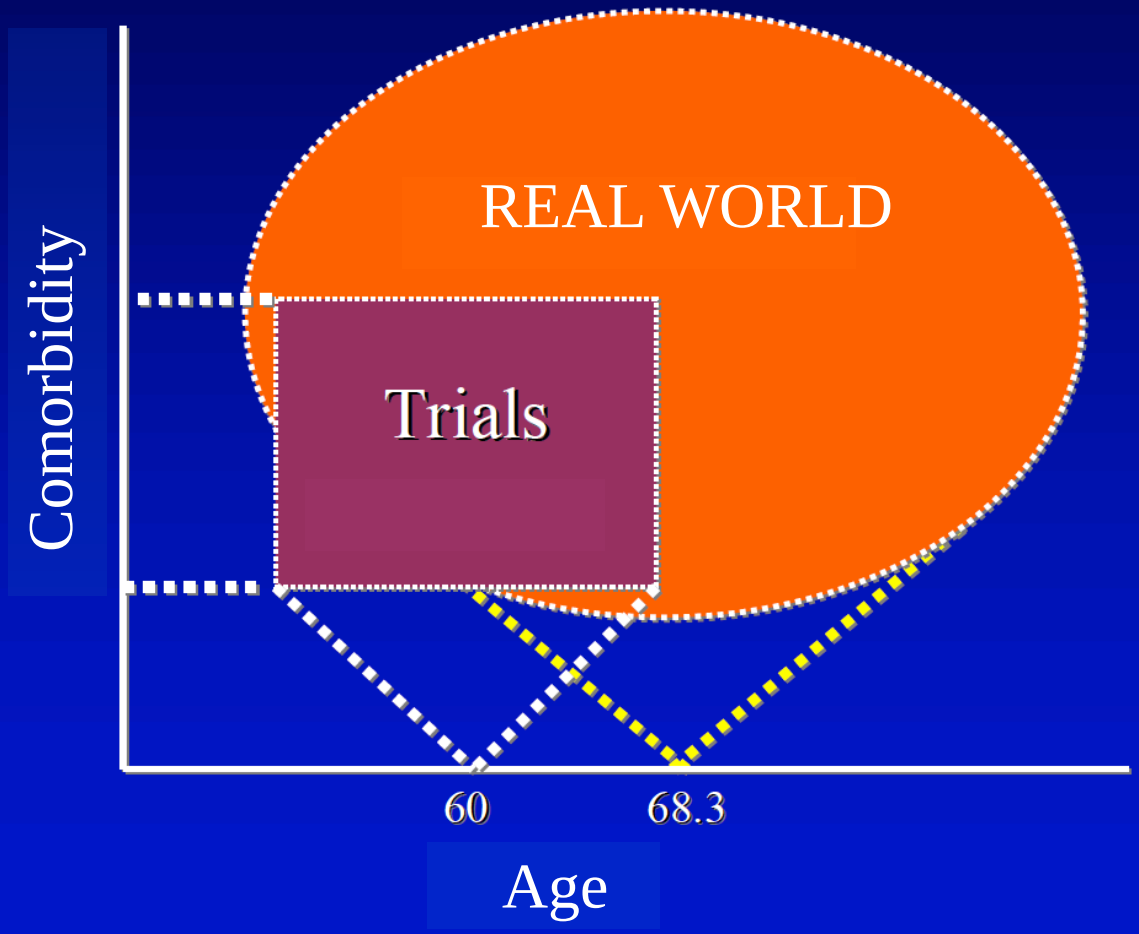
ABC STUDY

PROPORTION OF PTS WITH EFS ACCORDING TO CLINICAL VARIABLES



SOLUTIONS ?

REGISTRIES VS RCT



AUDIT.

30 day readmission rates after PCI in a metropolitan center in Italy: incidence and impact on prognosis.

Claudio Moretti MD Phd, Fabrizio D'Ascenzo MD, Pierlugi Omedè MD, Filippo Sciuto MD, Davide Giacomo Presutti MD, Marco di Cuia MD, Chiara Colaci MD, Federico Giusto MD, Flavia Ballocca MD, Enrico Cerrato MD, Francesco Colombo MD, Anna Gonella MD, Francesca Giordana MD, Giada Longo MD, Anna Orlando, Rita Andrini, Alberto Ferrando Giuseppe Biondi Zoccai MD, Imad Sheiban Prof, Fiorenzo Gaita Prof.

Department of Internal Medicine, Division of Cardiology, Città della Salute e della Scienza (CM; FDA; PO; FS; DGP; MDC; CC; FB; EC; FC; AG; FG; L; AG; GB; IS; FG); SC Programmazione e Controllo di Gestione (AF); CSI-Piemonte - Direzione Salute - Area Trattamento Dati (AO; RA).

30 DAYS ARE NOT ENOUGH

Prevenzione cardiovascolare secondaria dopo sindrome coronarica acuta nella pratica clinica

Documento di Consenso delle Società Scientifiche di Medicina Cardiovascolare e Medicina Interna della Regione Lazio

Tabella 2. Aderenza agli standard di qualità CCORT/CCS al momento della dimissione delle sindromi coronariche acute.

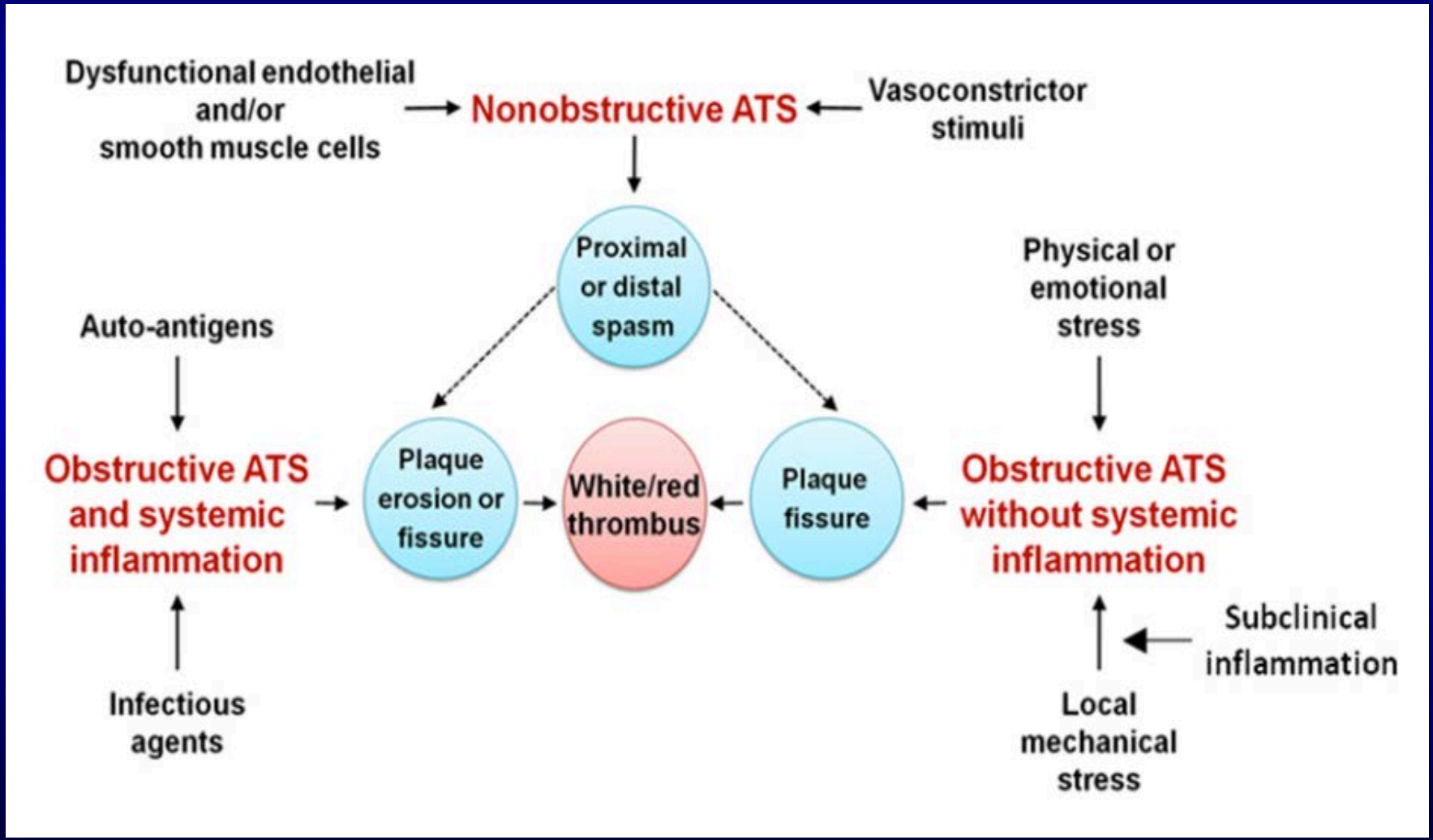
	INCA (Lazio)	BLITZ-1 (Italia)	Obiettivo minimo nel candidato ideale (standard di qualità CCORT/CCS)
ASA	89%	84%	90%
Betabloccanti	85%	61%	85%
Statine	83%	49%	70%
ACE-inibitori	81%	68%	85%

ACE = enzima di conversione dell'angiotensina; ASA = acido acetilsalicilico.

Pathogenetic classification of ACS

based on simple clinical descriptor

F. Crea et al. JACC 2013



Pathogenetic classification of ACS

based on simple clinical descriptor

F. Crea et al. JACC 2013

Auto-antigens

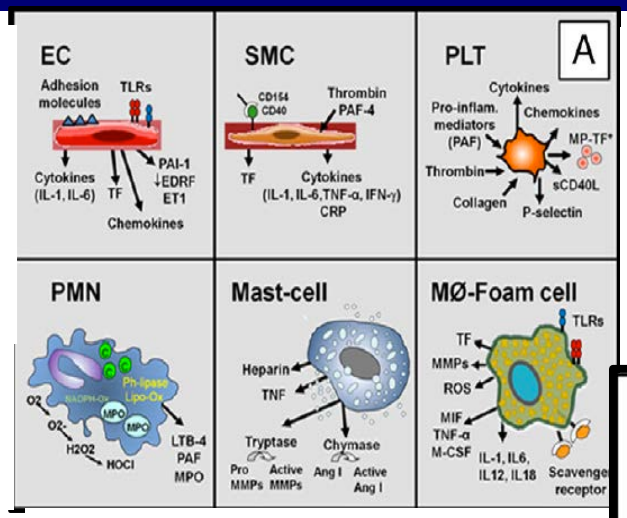
↓

Obstructive ATS and systemic inflammation

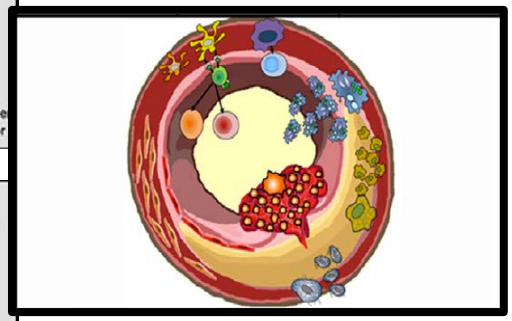
→ Plaque erosion or fissure

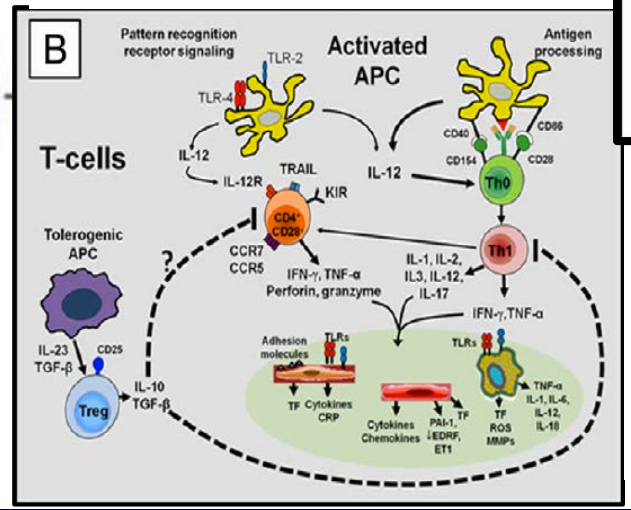
↑

Infectious agents



INNATE IMMUNITY





ADAPTIVE IMMUNITY

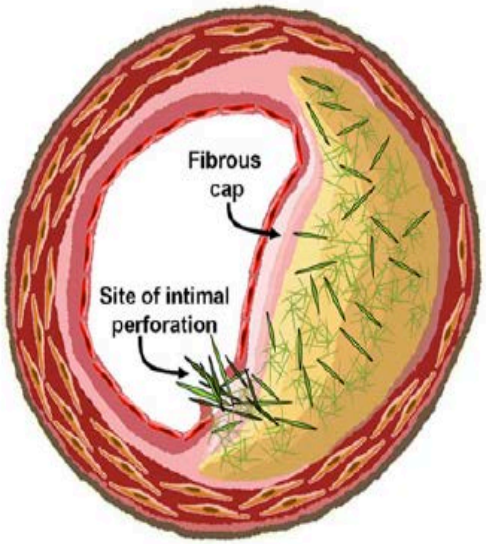
Pathogenetic classification of ACS

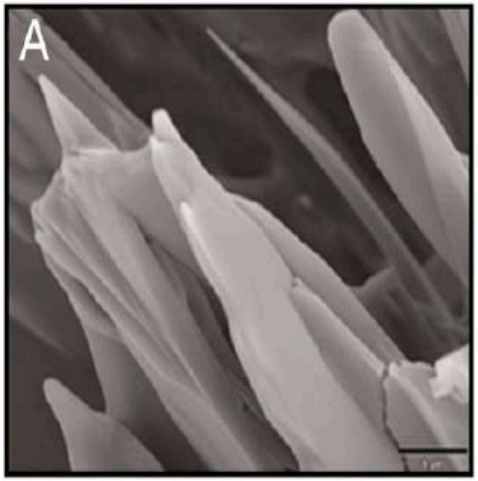
based on simple clinical descriptor

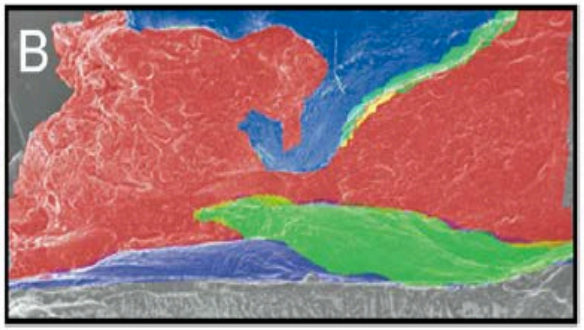
F. Crea et al. JACC 2013

Factors affecting cholesterol crystallization

- Cholesterol saturation
- Hydration
- Temperature
- pH
- Plaque hemorrhage







← **Obstructive ATS without systemic inflammation**

↑ ← **Subclinical inflammation**

Local mechanical stress

Pathogenetic classification of ACS

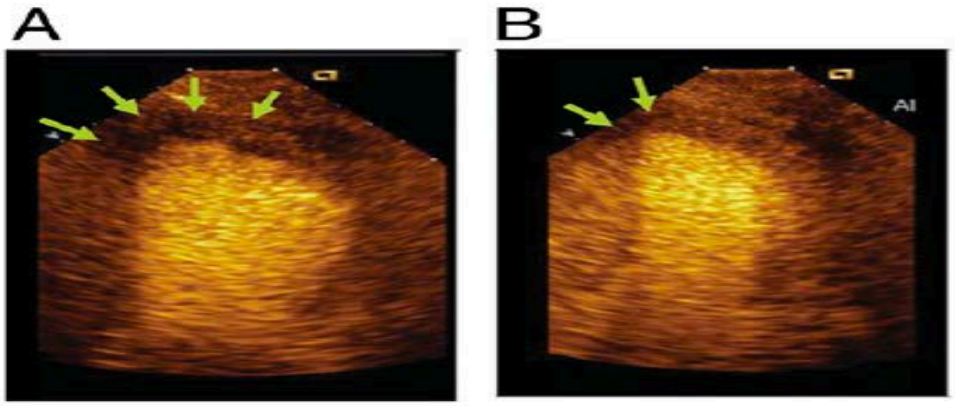
based on simple clinical descriptor

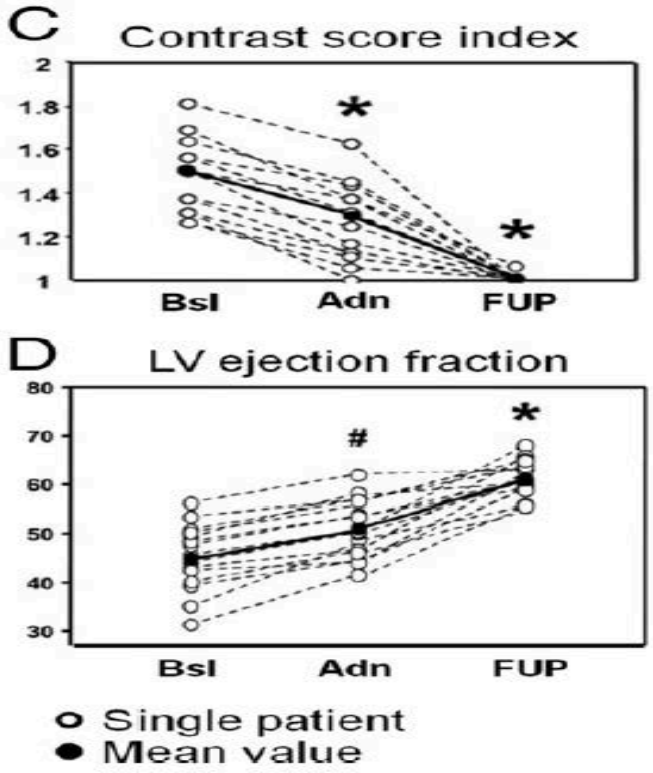
F. Crea et al. JACC 2013

Dysfunctional endothelial and/or smooth muscle cells → Nonobstructive ATS ← Vasoconstrictor stimuli

↓

Apical ballooning syndrome -adenosine infusion -





Pathogenetic classification of ACS

Clinical perspective

More potent antithrombotic regimens ?

European Heart Journal (2008) 29, 2473–2479
doi:10.1093/eurheartj/ehn362

CLINICAL RESEARCH
Coronary heart disease

Reduction in recurrent cardiovascular events with prasugrel compared with clopidogrel in patients with acute coronary syndromes from the TRITON-TIMI 38 trial

Sabina A. Murphy[1], Elliott M. Antman[1]*, Stephen D. Wiviott[1], Govinda Weerakkody[2], Giorgio Morocutti[3], Kurt Huber[4], Jose Lopez-Sendon[5], Carolyn H. McCabe[1], and Eugene Braunwald[1], for the TRITON-TIMI 38 Investigators

Table 1 Baseline characteristics in patients with no events, single event, or multiple events

	No events (n = 12 184)	Single event (n = 1284)	Multiple events (n = 140)	P-value
Age ≥75 years	1511 (12.4%)	256 (19.9%)	42 (30.0%)	<0.001
Age (years)	60 (52, 69)	63 (55, 72)	69 (60, 78)	<0.001
Gender (male)	9054 (74.3%)	939 (73.1%)	92 (65.7%)	0.05
White race	11236 (92.6%)	1174 (91.6%)	127 (90.7%)	0.29
History of hypertension	7735			
History of hypercholesterolaemia	6778			
History of diabetes	2718			
Current tobacco use	4706			
Prior MI	2072			
Prior CABG	862			
Creatinine clearance (mL/min)	100.2			
CrCl <60 mL/min	1260			
Stent used for index PCI	11517 (94.5%)	1195 (93.1%)	132 (94.3%)	0.10
BMS used for index PCI	5772 (47.4%)	619 (48.2%)	70 (50.0%)	0.71
DES used for index PCI	5745 (47.2%)	576 (44.9%)	62 (44.3%)	0.24
Multivessel PCI	1670 (14.0%)	195 (15.6%)	31 (22.8%)	0.006
NSTEMI/UA	9040 (74.2%)	934 (72.7%)	100 (71.4%)	0.41
Randomization				<0.001
Prasugrel	6170 (50.6%)	595 (46.3%)	48 (34.3%)	
Clopidogrel	6014 (49.4%)	689 (53.7%)	92 (65.7%)	

Patients with multiple events were older, had more comorbidities at study entry including hypertension and diabetes, and tended more frequently to be females (*Table 1*). Baseline characteristics

Pathogenetic classification of ACS

Clinical perspective

Anti-inflammatory treatment ?

NSAID
STEROID

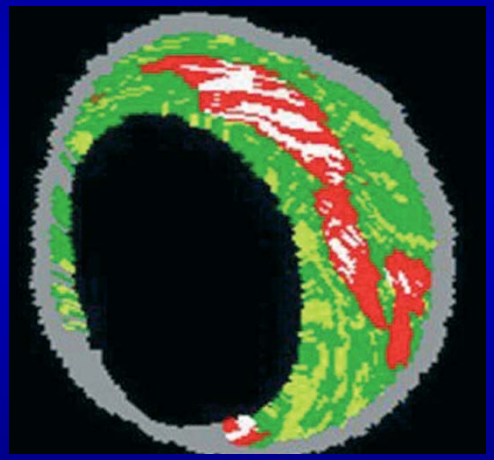
ANAKIRNA
RILONACEPT
CANAKINUMAB
(IL1-BLOCKERS)

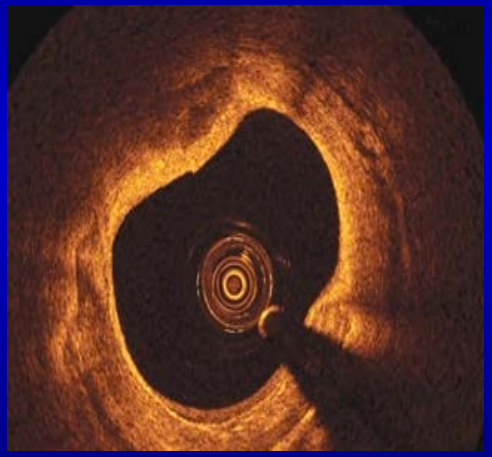
CASPASE-1 INHIB.

Pathogenetic classification of ACS

Clinical perspective

Vulnerable plaque studies /therapies ?





STATINS

VARESPLADIB
(phospholipA2_inh)

Pathogenetic classification of ACS

Clinical perspective

Epicardial / microvascular vasoconstriction ?

NITRATES
CA-ANTAG.

RHO KINASE INHIBITOR

European Heart Journal (2013) **34**, 993–1001
doi:10.1093/eurheartj/ehs389

CLINICAL RESEARCH
Prevention and epidemiology

Influence of 23 coronary artery disease variants on recurrent myocardial infarction or cardiac death: the GRACE Genetics Study

Els Wauters[1,2], Kathryn F. Carruthers[3], Ian Buysschaert[4], Donald R. Dunbar[3], Gilian Peuteman[1,2], Ann Belmans[4,5], Andrzej Budaj[6], Frans Van de Werf[4], Diether Lambrechts[1,2*†], and Keith A. A. Fox[3†]

Rs579459 in the ABO locus is a novel risk factor for adverse cardiac outcome after an index ACS.

Homozygous carriers of the at risk C allele exhibited an increased risk of developing a recurrent MI o death within 5 yrs.

The association was independent of CAD RF

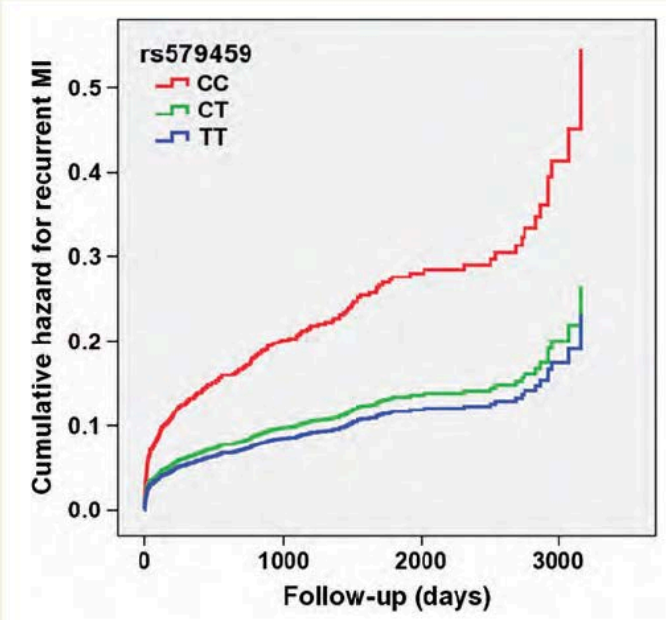


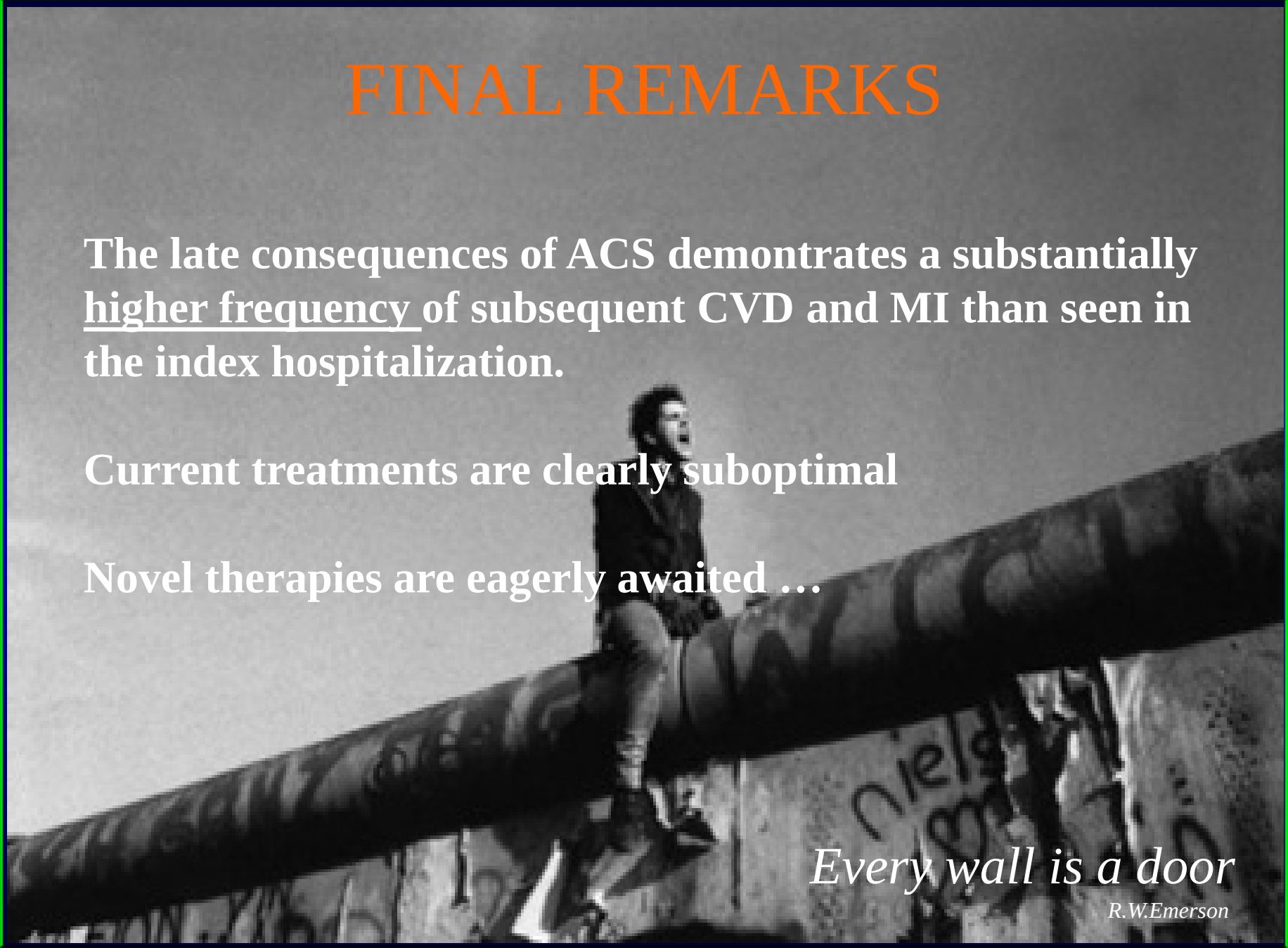
Figure 1 Cumulative hazard curves for recurrent MI by rs579459 genotype. Cumulative hazard curves, with multivariable adjustment and by rs579459 genotype, for recurrent MI in the GRACE UK–Belgian discovery cohort. MI, myocardial infarction.

FINAL REMARKS

The late consequences of ACS demontrates a substantially higher frequency of subsequent CVD and MI than seen in the index hospitalization.

Current treatments are clearly suboptimal

Novel therapies are eagerly awaited …



Every wall is a door

R.W.Emerson

FINE

ATLAS ACS 2

ORIGINAL ARTICLE

Rivaroxaban in Patients with a Recent Acute Coronary Syndrome

Jessica L. Mega, M.D., M.P.H., Eugene Braunwald, M.D., Stephen D. Wiviott, M.D., Jean-Pierre Bassand, M.D., Deepak L. Bhatt, M.D., M.P.H., Christoph Bode, M.D., Paul Burton, M.D., Ph.D., Marc Cohen, M.D., Nancy Cook-Bruns, M.D., Keith A.A. Fox, M.B., Ch.B., Shinya Goto, M.D., Sabina A. Murphy, M.P.H., Alexei N. Plotnikov, M.D., David Schneider, M.D., Xiang Sun, Ph.D., Freek W.A. Verheugt, M.D., and C. Michael Gibson, M.D. for the ATLAS ACS 2–TIMI 51 Investigators

N Engl J Med 2012; 366:9-19 | January 5, 2012 | DOI: 10.1056/NEJMoa1112277

CONCLUSIONS

In patients with a recent acute coronary syndrome, rivaroxaban reduced the risk of the composite end point of death from cardiovascular causes, myocardial infarction, or stroke. Rivaroxaban increased the risk of major bleeding and intracranial hemorrhage but not the risk of fatal bleeding. (Funded by Johnson & Johnson and Bayer Healthcare; ATLAS ACS 2–TIMI 51 ClinicalTrials.gov number,

RESULTS

Rivaroxaban significantly reduced the primary efficacy end point, as compared with placebo, with respective rates of 8.9% and 10.7% (hazard ratio in the rivaroxaban group, 0.84; 95% confidence interval [CI], 0.74 to 0.96; P=0.008), with significant improvement for both the twice-daily 2.5-mg dose (9.1% vs. 10.7%, P=0.02) and the twice-daily 5-mg dose (8.8% vs. 10.7%, P=0.03). The twice-daily 2.5-mg dose of rivaroxaban reduced the rates of death from cardiovascular causes (2.7% vs. 4.1%, P=0.002) and from any cause (2.9% vs. 4.5%, P=0.002), a survival benefit that was not seen with the twice-daily 5-mg dose. As compared with placebo, rivaroxaban increased the rates of major bleeding not related to coronary-artery bypass grafting (2.1% vs. 0.6%, P<0.001) and intracranial hemorrhage (0.6% vs. 0.2%, P=0.009), without a significant increase in fatal bleeding (0.3% vs. 0.2%, P=0.66) or other adverse events. The twice-daily 2.5-mg dose resulted in fewer fatal bleeding events than the twice-daily 5-mg dose (0.1% vs. 0.4%, P=0.04).

APPRAISE 2

HOME | ARTICLES & MULTIMEDIA | ISSUES | SPECIALTIES & TOPICS | FOR AUTHORS | CME

ORIGINAL ARTICLE

Apixaban with Antiplatelet Therapy after Acute Coronary Syndrome

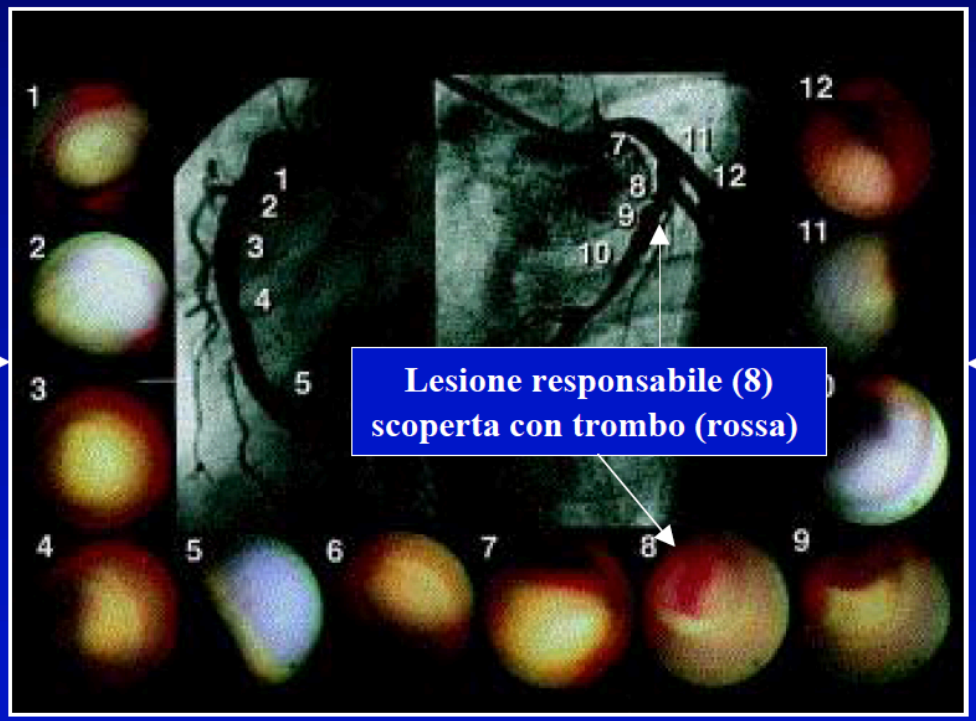
CONCLUSIONS

The addition of apixaban, at a dose of 5 mg twice daily, to antiplatelet therapy in high-risk patients after an acute coronary syndrome increased the number of major bleeding events without a significant reduction in recurrent ischemic events. (Funded by Bristol-Myers Squibb and Pfizer; APPRAISE-2 ClinicalTrials.gov number,

La SCA non è una patologia solo acuta
Evidenza di placche "vulnerabili" multiple

Immagini angiografiche e angioscopiche in uomo di 58 anni con IMA anteriore

placche "vulnerabili" multiple ritrovate in segmenti non responsabili(1-7)



placche "vulnerabili" multiple ritrovate in segmenti non responsabili (10-12)

Asakura M, et al. J Am Coll Cardiol. 2001;37:1284-1288

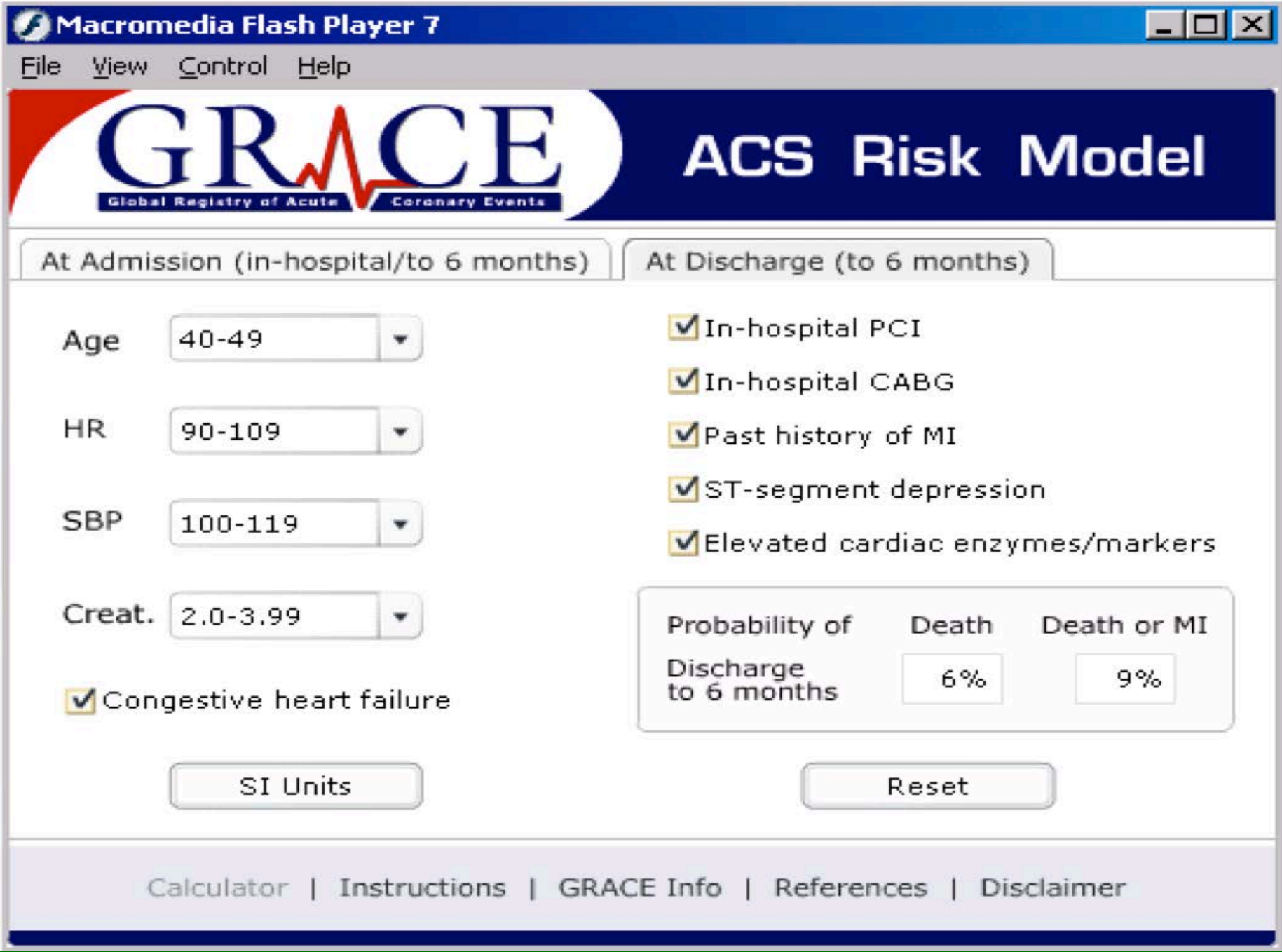
Le domande chiave

- La SCA è una malattia solo acuta ?
- Vi sono evidenze cliniche di un rischio ischemico post-dimissione?
- Quali soluzioni sono prospettabili ?

Six-Month Outcomes in a Multinational Registry of Patients Hospitalized With an Acute Coronary Syndrome (The Global Registry of Acute Coronary Events [GRACE])

Goldberg RJ, Currie K, White K,et al. for the GRACE Investigators

Am J Cardiol 2004;93:288-293


Macromedia Flash Player 7
File View Control Help
GRACE
Global Registry of Acute Coronary Events
ACS Risk Model
At Admission (in-hospital/to 6 months)
At Discharge (to 6 months)
Age 40-49
HR 90-109
SBP 100-119
Creat. 2.0-3.99
Congestive heart failure
In-hospital PCI
In-hospital CABG
Past history of MI
ST-segment depression
Elevated cardiac enzymes/markers
Probability of Discharge to 6 months
Death 6%
Death or MI 9%
SI Units
Reset
Calculator | Instructions | GRACE Info | References | Disclaimer

Registro GRACE

*Eventi a 6 mesi**

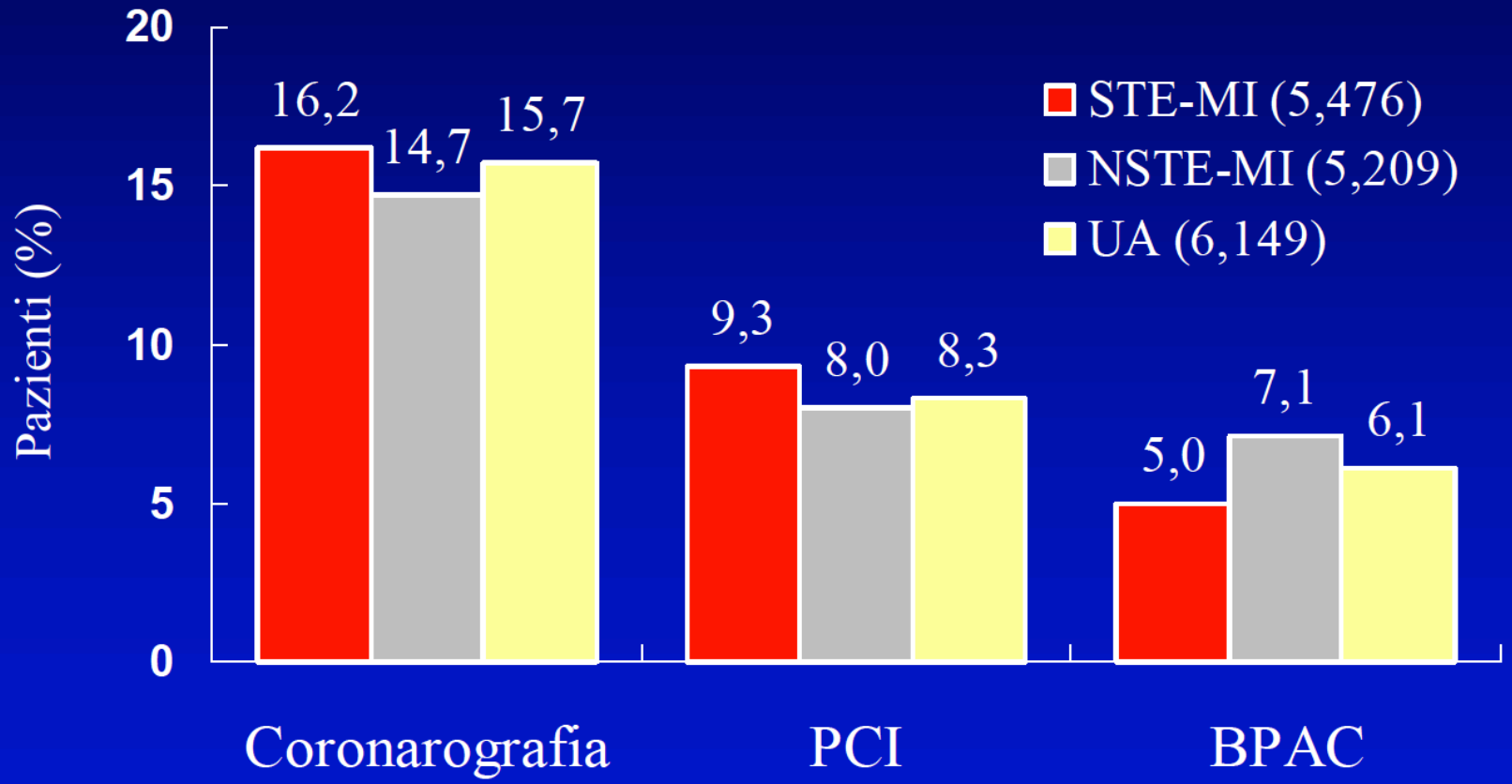
	STE-MI	NSTE-MI	UA
Morte	5%	6%	4%
Stroke	1%	1%	1%
Nuovo ricovero	18%	19%	19%

**esclusi gli eventi occorsi in ospedale*

Goldberg RJ et al. Am J Cardiol 2004; 93: 288-293

Registro GRACE
Procedure a 6 mesi

Procedure elettive ed urgenti effettuate dopo la dimissione



Goldberg RJ, et al. Am J Cardiol 2004; 93: 288-293

Recidive dopo sospensione anti-trombotico
Insorgenza SCA e sospensione Aspirina

1236 pazienti ricoverati per SCA

↓

51 SCA entro 1 mese dalla sospensione ASA
(4.1% di tutte le SCA, ma 13.3% delle recidive)
10 casi trombosi tardive di stent (media 15.5 ± 6.5 mesi)

- *Distanza media tra sospensione ASA e SCA*
  10 ± 1.9 giorni

- *Ragioni per sospensione ASA:*

chirurgia minore	7 casi	sanguinamento	3 casi
fibroscopia	8 casi	non compliance	20 casi
cure dentali	13 casi		

Ferrari E, et al. J Am Coll Cardiol 2005; 45: 456-459

Recidive dopo sospensione anti-trombotico
Insorgenza SCA e sospensione Aspirina

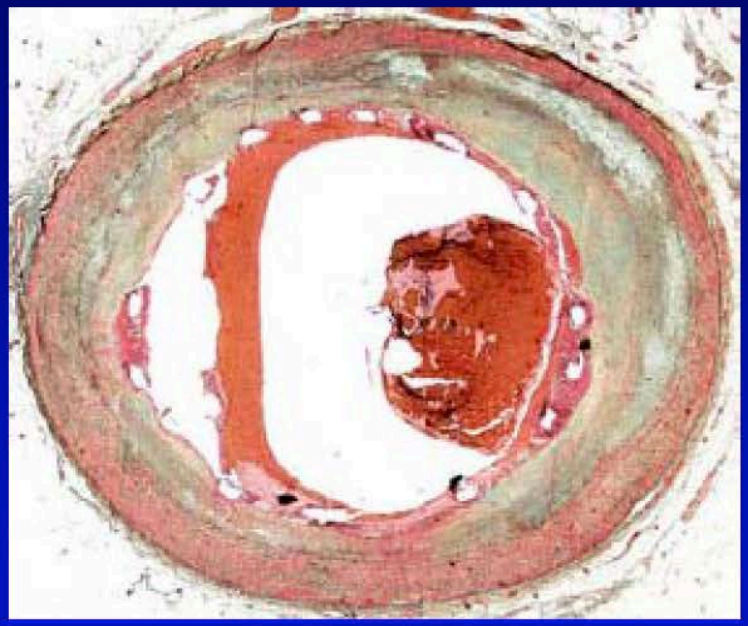
Assunzione ASA e tipo di SCA in 383 pazienti con recidiva

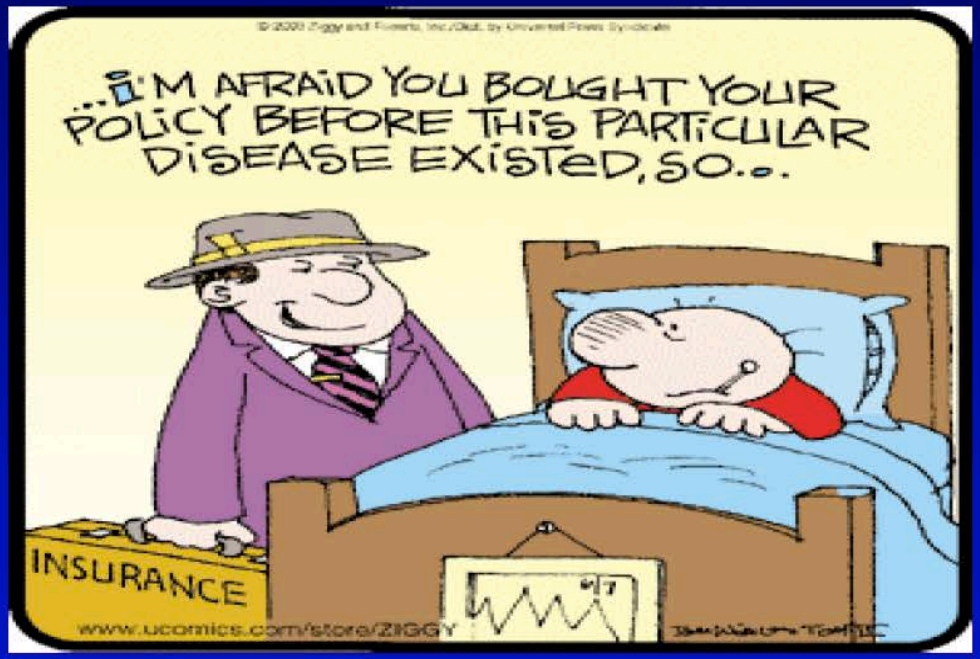
Tipo di SCA	Aspirina Sospesa N= 51	Aspirina Non Sospesa N= 332	p value
NSTE – SCA	31 (61%)	271 (82%)	
STE – SCA	20 (39%)	61 (18%)	< 0.001

Ferrari E, et al. J Am Coll Cardiol 2005; 45: 456-459

La recidiva ischemica dopo SCA

Una nuova forma "iatrogena"





...la trombosi sub-acuta o tardiva di stent!

La recidiva ischemica dopo SCA
Conclusioni

- La recidiva ischemica è relativamente frequente
  - Registri >RCTs'
  - Pazienti alto rischio (anziani, diabetici, IRC, etc.)
- Emergono nuove entità "iatrogene"
  - Sospensione ASA
  - SAT, LAST
- Efficacia delle terapie preventive prolungate
- Costi crescenti, ma costo-efficaci

European Heart Journal (2008) **29**, 2473–2479
doi:10.1093/eurheartj/ehn362

CLINICAL RESEARCH
Coronary heart disease

Reduction in recurrent cardiovascular events with prasugrel compared with clopidogrel in patients with acute coronary syndromes from the TRITON-TIMI 38 trial

Sabina A. Murphy[1], Elliott M. Antman[1]*, Stephen D. Wiviott[1], Govinda Weerakkody[2], Giorgio Morocutti[3], Kurt Huber[4], Jose Lopez-Sendon[5], Carolyn H. McCabe[1], and Eugene Braunwald[1], for the TRITON-TIMI 38 Investigators

Table 1 Baseline characteristics in patients with no events, single event, or multiple events

	No events (n = 12 184)	Single event (n = 1284)	Multiple events (n = 140)	P-value
Age ≥75 years	1511 (12.4%)	256 (19.9%)	42 (30.0%)	<0.001
Age (years)	60 (52, 69)	63 (55, 72)	69 (60, 78)	<0.001
Gender (male)	9054 (74.3%)	939 (73.1%)	92 (65.7%)	0.05
White race	11236 (92.6%)	1174 (91.6%)	127 (90.7%)	0.29
History of hypertension	7735 (63.5%)	893 (69.5%)	113 (80.7%)	<0.001
History of hypercholesterolaemia	6778 (55.6%)	721 (56.2%)	81 (57.9%)	0.82
History of diabetes				
Current tobacco use				
Prior MI				
Prior CABG				
Creatinine clearance (mL/min)				
CrCl <60 mL/min				
Stent used for index PCI				
BMS used for index PCI	5772 (47.4%)	619 (48.2%)	70 (50.0%)	0.71
DES used for index PCI	5745 (47.2%)	576 (44.9%)	62 (44.3%)	0.24
Multivessel PCI	1670 (14.0%)	195 (15.6%)	31 (22.8%)	0.006
NSTEMI/UA	9040 (74.2%)	934 (72.7%)	100 (71.4%)	0.41
Randomization				<0.001
Prasugrel	6170 (50.6%)	595 (46.3%)	48 (34.3%)	
Clopidogrel	6014 (49.4%)	689 (53.7%)	92 (65.7%)	

Patients with multiple events were older, had more comorbidities at study entry including hypertension and diabetes, and tended more frequently to be females (*Table 1*). Baseline characteristics

European Heart Journal (2008) 29, 2473–2479
doi:10.1093/eurheartj/ehn362

Reduction in recurrent cardiovascular events with prasugrel compared with clopidogrel in patients with acute coronary syndromes from the TRITON-TIMI 38 trial

Sabina A. Murphy[1], Elliott M. Antman[1]*, Stephen D. Wiviott[1], Govinda Weerakkody[2], Giorgio Morocutti[3], Kurt Huber[4], Jose Lopez-Sendon[5], Carolyn H. McCabe[1], and Eugene Braunwald[1], for the TRITON-TIMI 38 Investigators

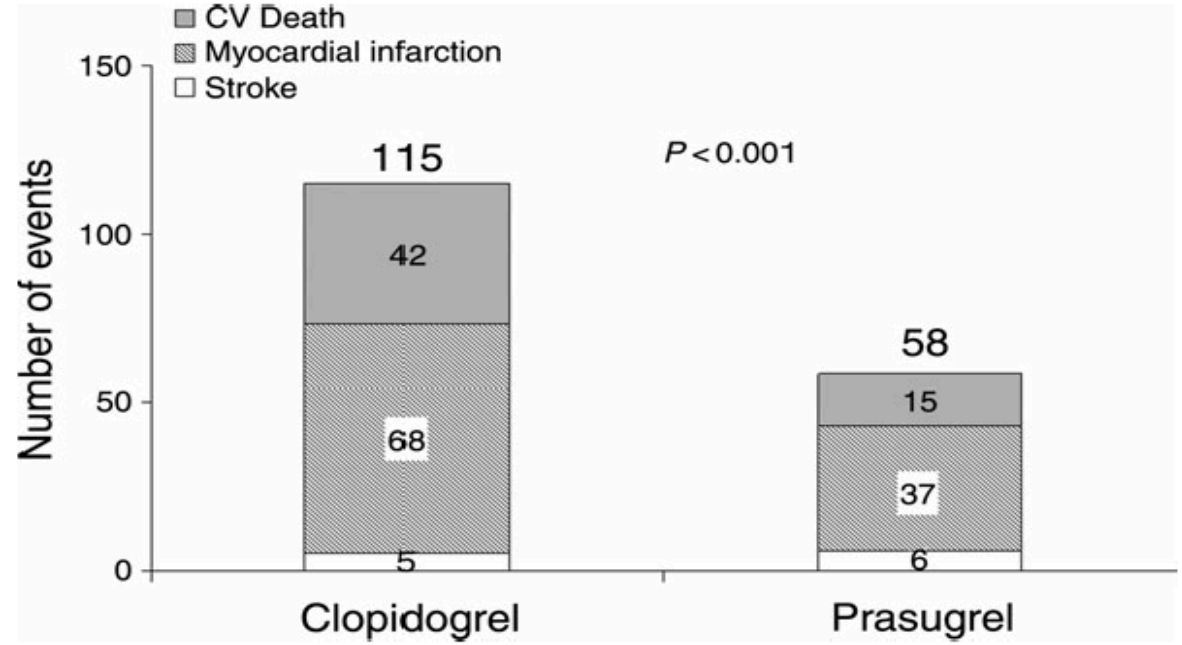


Figure 1 Additional primary endpoint events by randomized therapy. The prasugrel group had a lower number of both first events ($P < 0.001$), additional events ($P < 0.001$), and total events ($P < 0.001$).

TRITON-TIMI 38 /Recurrent Events Conclusioni

- La riduzione degli eventi secondari col prasugrel è stata evidenziata in diabetici, anziani, donne, nefropatici.
- Il prasugrel, dotato di maggiore potenza, è stato in grado di ridurre non solo i primi eventi ma anche quelli ripetuti.
- Prolungare la terapia con un potente farmaco anti-piastrinico può dimostrarsi utile.

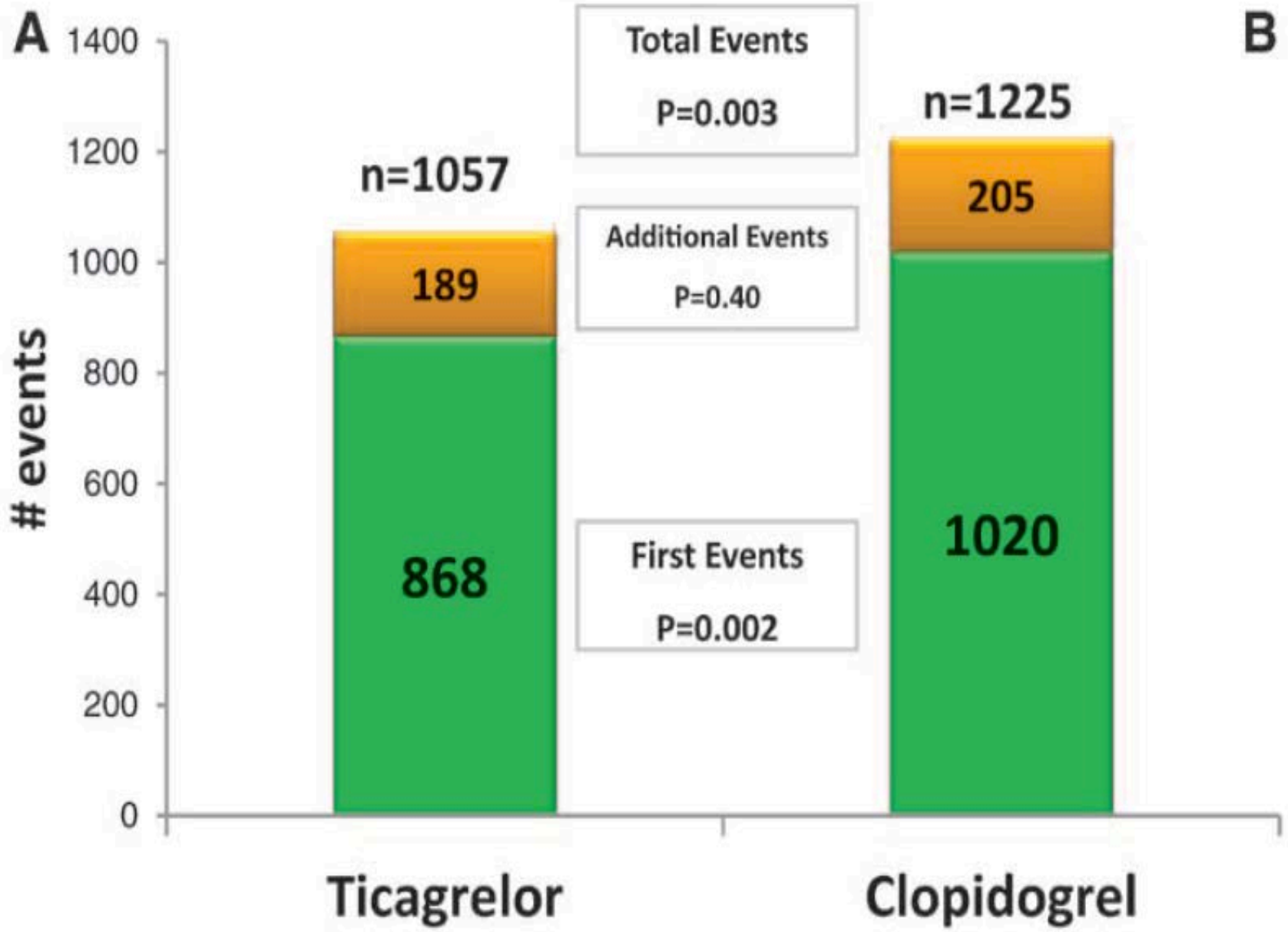
Coronary Heart Disease

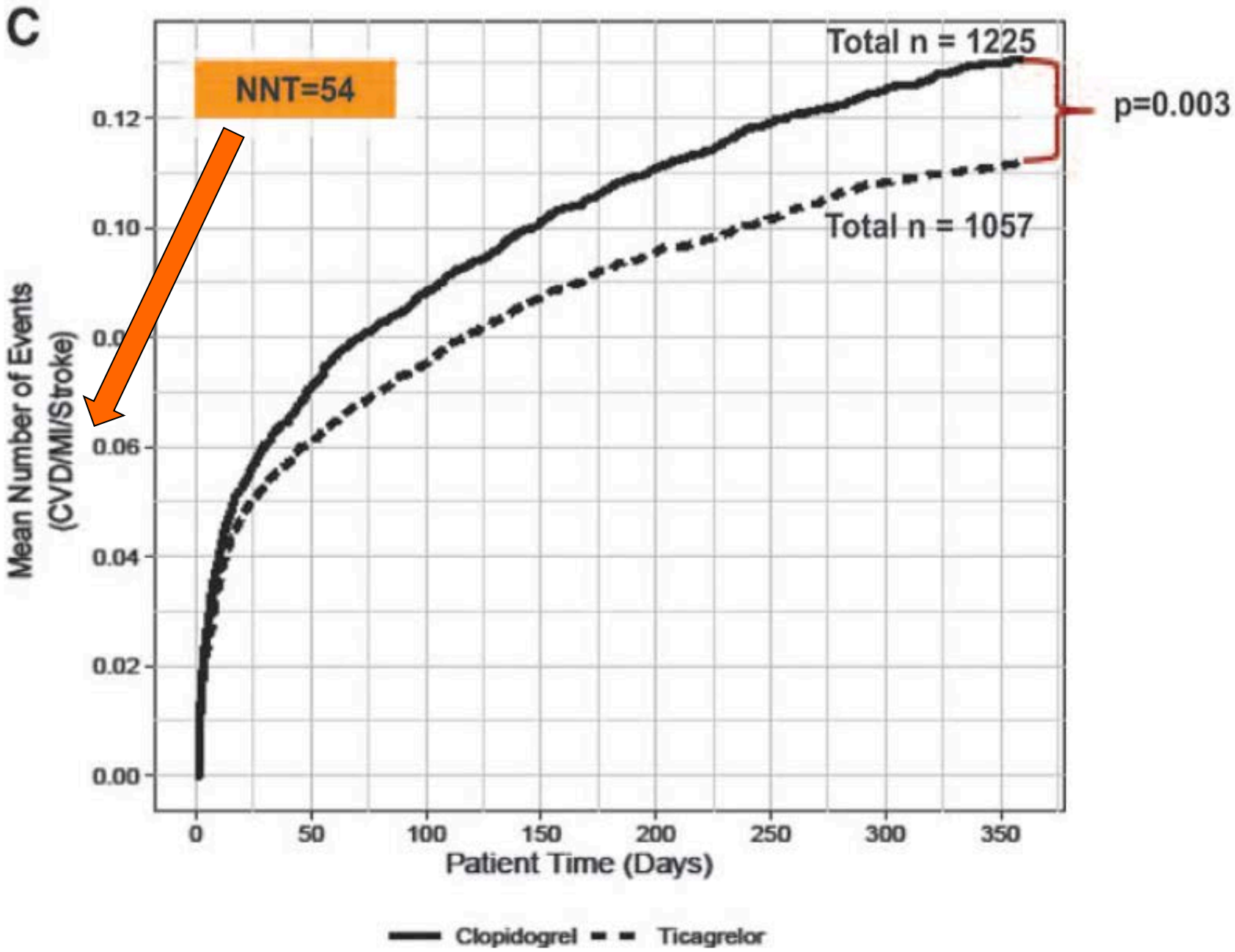
Circulation February 12, 2013

Reduction in First and Recurrent Cardiovascular Events With Ticagrelor Compared With Clopidogrel in the PLATO Study

Payal Kohli, MD; Lars Wallentin, MD, PhD; Eric Reyes, PhD; Jay Horrow, MD; Steen Husted, MD, DSc; Dominick J. Angiolillo, MD, PhD; Diego Ardissino, MD; Gerald Maurer, MD; Joao Morais, MD; José C. Nicolau, MD, PhD; Ali Oto, MD; Robert F. Storey, MD; Stefan K. James, MD, PhD; Christopher P. Cannon, MD

- Dei 1888 pz che hanno presentato un endpoint primario nel f.up a 6-12 mesi, 318 hanno presentato uno o più eventi ricorrenti.
- I pz con eventi ricorrenti erano diabetici, nefropatici e prevalentemente donne.
- I pz con STEMI sono risultati più protetti dagli eventi ricorrenti.


A
B
1400
1200
1000
800
600
400
200
0
# events
n=1057
189
868
n=1225
205
1020
Total Events
P=0.003
Additional Events
P=0.40
First Events
P=0.002
Ticagrelor
Clopidogrel


C
NNT=54
Total n = 1225
p=0.003
Total n = 1057
Mean Number of Events
(CVD/MI/Stroke)
0.12
0.10
0.06
0.04
0.02
0.00
0
50
100
150
200
250
300
350
Patient Time (Days)
Clopidogrel
Ticagrelor

PLATO Study/Recurrent Events
SANGUINAMENTI

- Dopo un sanguinamento maggiore l'8,1% dei pz hanno sospeso il ticagrelor.
- Dopo un sanguinamento maggiore non CABG relato il 31,4% ha sospeso il ticagrelor.
- Nei 2/3 dei pz che hanno proseguito il farmaco, il ticagrelor non è risultato associato ad ulteriori sanguinamenti.

Le domande chiave

- La SCA è una malattia solo acuta ?
- Vi sono evidenze cliniche di un rischio ischemico post-dimissione?
- Quali soluzioni sono prospettabili ?

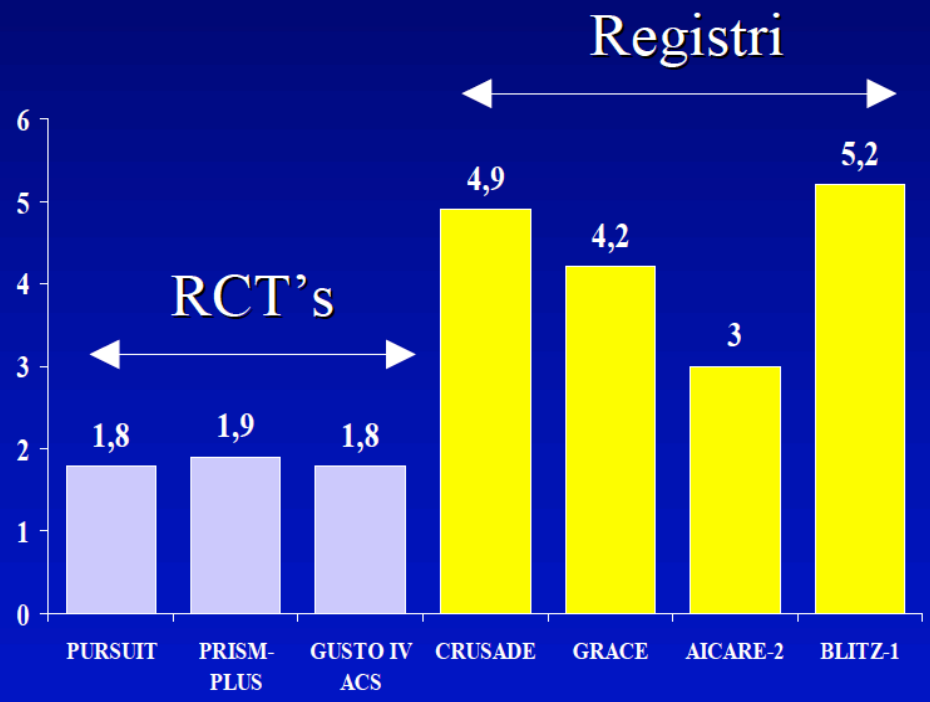
RCT‘s e Registri nelle SCA

“Realtà virtuale“ vs. “ Mondo Reale“

RCT‘s

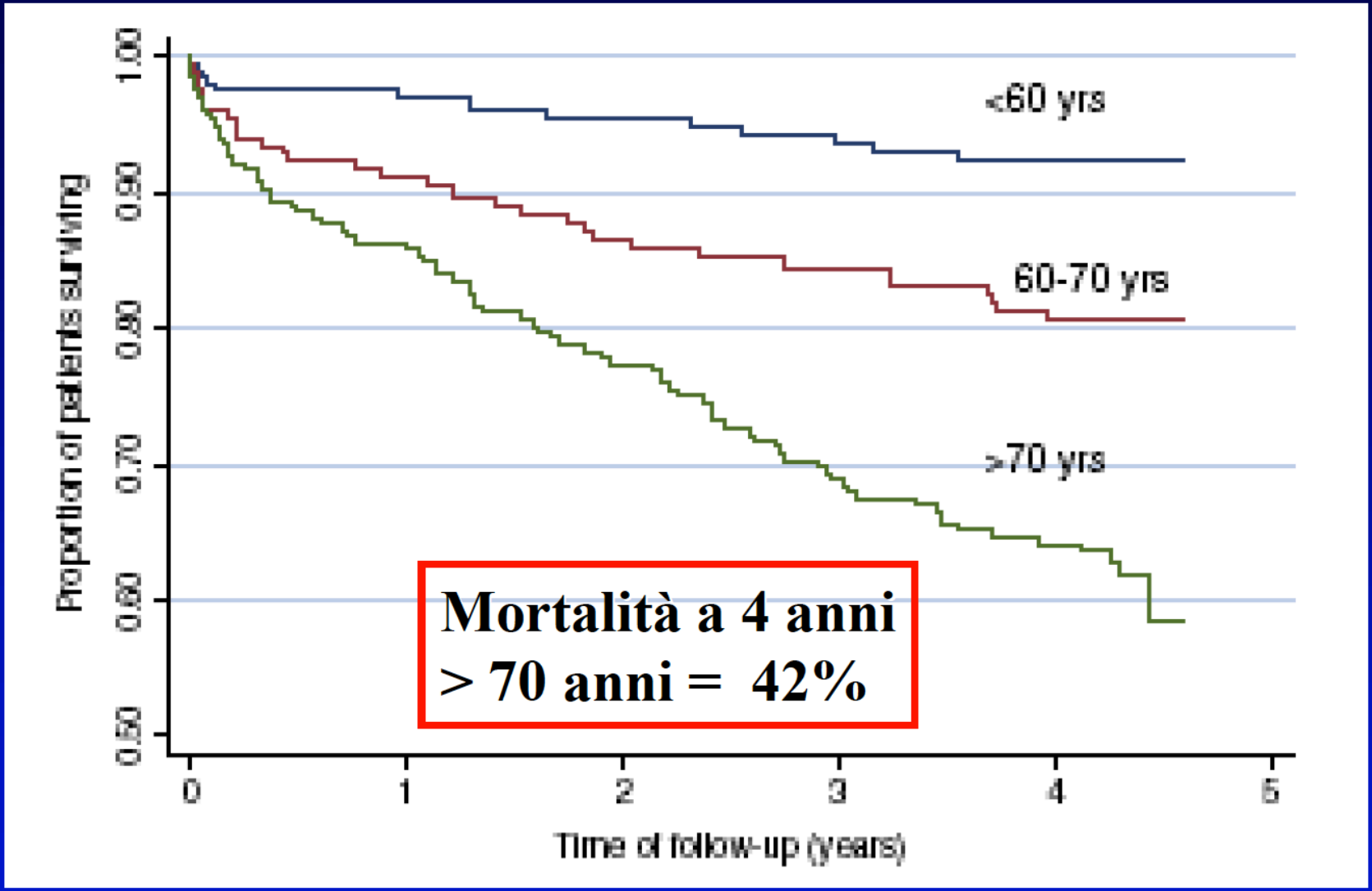
- *Pazienti selezionati*
  (no “pazienti a rischio“)
- *< 50 % della popolazione generale*
- *Centri selezionati*
  → “High Tech“
- *Medici specializzati*
  → “Entusiasti“

Mortalità Ospedaliera



Discrepanza tra RCT e Mondo Reale!

Forte effetto dell'età sull'incidenza di eventi!



Taneja S, et al. PRAIS-UK Registry Eur Heart J 2004; 25: 2013-2018

DAPT durante post-rivascolarizzazione

STEMI

Antiplatelet therapy with low dose aspirin (75–100 mg) is indicated indefinitely after STEMI.	I	A
In patients who are intolerant to aspirin, clopidogrel is indicated as an alternative to aspirin.	I	B
DAPT with a combination of aspirin and prasugrel or aspirin and ticagrelor is recommended (over aspirin and clopidogrel) in patients treated with PCI.	I	A
DAPT with aspirin and an oral ADP receptor antagonist must be continued for up to 12 months after STEMI, with a strict minimum of:	I	C
• 1 month for patients receiving BMS	I	C
• 6 months for patients receiving DES	IIb	B
In patients with left ventricular thrombus, anticoagulation should be instituted for a minimum of 3 months.	IIa	B
In patients with a clear indication for oral anticoagulation (e.g. atrial fibrillation with CHA_2DS_2-VASc Score ≥2 or mechanical valve prosthesis), oral anticoagulation must be implemented in addition to antiplatelet therapy.	I	C
If patients require triple antithrombotic therapy, combining DAPT and OAC, e.g. because of stent placement and an obligatory indication for OAC, the duration of dual antiplatelet therapy should be minimized to reduce bleeding risk.	I	C
In selected patients who receive aspirin and clopidogrel, low-dose rivaroxaban (2.5 mg twice daily) may be considered if the patient is at low bleeding risk.	IIb	B
DAPT should be used up to 1 year in patients with STEMI who did not receive a stent.	IIa	C

EUROPEAN SOCIETY OF CARDIOLOGY®
European Heart Journal
doi:10.1093/eurheartj/ehs215

NSTEMI

Recommendations	Class	Level
Aspirin should be given to all patients without contraindications at an initial loading dose of 150-300 mg, and at a maintenance dose of 75-100 mg daily long-term regardless of treatment strategy.	I	A
A $P2Y_{12}$ inhibitor should be added to aspirin as soon as possible and maintained over 12 months, unless there are contraindications such as excessive risk of bleeding.	I	A
A proton pump inhibitor (preferably not omeprazole) in combination with DAPT is recommended in patients with a history of gastrointestinal haemorrhage or peptic ulcer, and appropriate for patients with multiple other risk factors (*H. elicobacter pylori* infection, age ≥ 65 years, concurrent use of anticoagulants or steroids).	I	A
Prolonged or permanent withdrawal of $P2Y_{12}$ inhibitors within 12 months after the index event is discouraged unless clinically indicated.	I	C
Ticagrelor (180 mg loading dose, 90 mg twice daily) is recommended for all patients at moderate-to-high risk of ischaemic events (e.g. elevated troponins), regardless of initial treatment strategy and including those pre-treated with clopidogrel (which should be discontinued when ticagrelor is commenced).	I	B
Prasugrel (60 mg loading dose, 10 mg daily dose) is recommended for $P2Y_{12}$-inhibitor-naïve patients (especially diabetics) in whom coronary anatomy is known and who are proceeding to PCI unless there is a high risk of life-threatening bleeding or other contraindications.	I	B
Clopidogrel (300 mg loading dose, 75 mg daily dose) is recommended for patients who cannot receive ticagrelor or prasugrel.	I	A
A 600 mg loading dose of clopidogrel (or a supplementary 300 mg dose at PCI following an initial 300 mg loading dose) is recommended for patients scheduled for an invasive strategy when ticagrelor or prasugrel is not an option.	I	B

EUROPEAN SOCIETY OF CARDIOLOGY®
European Heart Journal (2011) **32**, 2999–3054
doi:10.1093/eurheartj/ehr236

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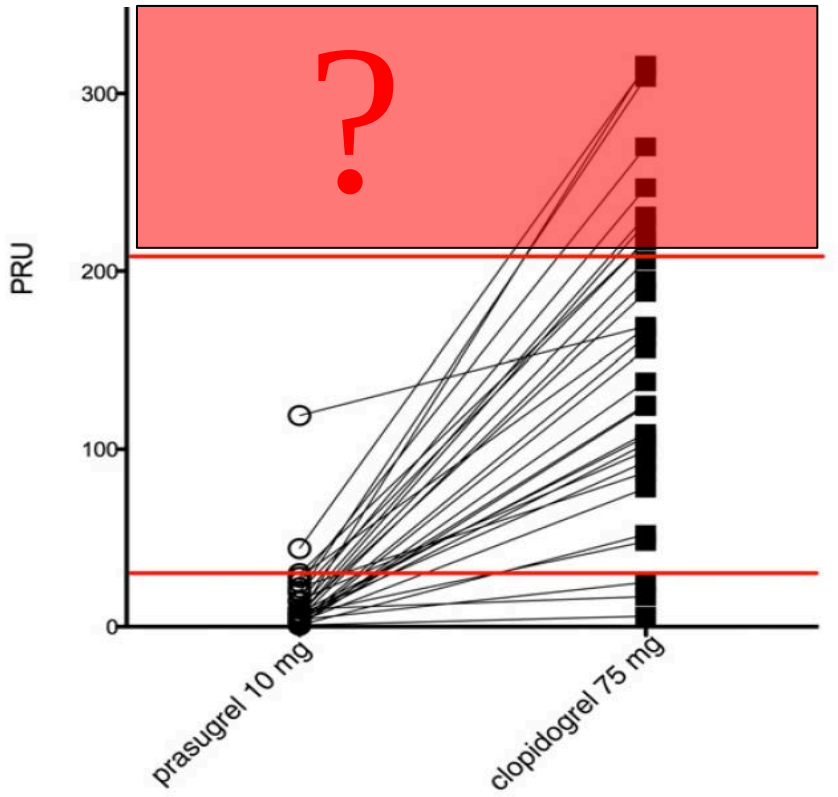
Switching Acute Coronary Syndrome Patients From Prasugrel to Clopidogrel

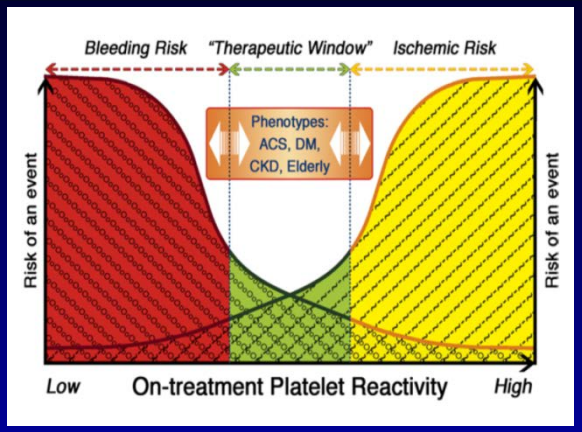
Mathieu Kerneis, MD,* Johanne Silvain, MD, PhD,* Jérémie Abtan, MD,*
Guillaume Cayla, MD, PhD,*† Stephen A. O'Connor, MBBCh,* Olivier Barthélémy, MD,*
Jean-Baptiste Vignalou, MD,* Farzin Beygui, MD, PhD,* Delphine Brugier, PhD,*
Réjane Martin, BCh,* Jean-Philippe Collet, MD, PhD,* Gilles Montalescot, MD, PhD*

To switch or not to switch…

- Incremento X10 di PRU
- 1/3 dei pz risultano con HPR



SWITCH-TX



- Passare da un potente antipiastrinico con alto rischio di sanguinamento ad uno più debole può essere giustificato
- Studi farmacologici supportano l'esistenza di uno sweet spot per la inibizione recettoriale P2Y12
- Tale approccio non ha però ancora una dimostrazione clinica e potrebbe risultare rischioso se non guidato da test che risposta individuale.

ULTERIORI RACCOMANDAZIONI

- ADERENZA ALLA TERAPIA
- TRATTAMENTO DEI FATTORI DI RISCHIO
- DIETA
- ATTIVITA’ FISICA
- RIDUZIONE DELLO STRESS

ADERENZA ALLA TERAPIA

- Il rischio di mortalità cardiovascolare nei sopravvissuti da SCA non-aderenti è paragonabile a quello dei pazienti non trattati, che rischiano un tasso di mortalità del 5% per ogni anno dopo un primo infarto miocardico.

Tabella 1. Potenziali benefici cumulativi delle fondamentali misure farmacologiche di prevenzione secondaria.

	Riduzione attesa del rischio relativo	Incidenza di eventi cardiovascolari maggiori[a] a 24 mesi
Nessuna terapia farmacologica	–	8%
Aspirina	25%	6%
Betabloccanti	25%	4.5%
Statine[b]	30%	3.0%
ACE-inibitori	25%	2.3%

In caso di impiego di tutte le quattro categorie di farmaci la riduzione stimata del rischio relativo è pari al 70-80%, con un numero di pazienti necessario da trattare di 7 per prevenire un evento cardiovascolare maggiore a 5 anni.

ACE = enzima di conversione dell'angiotensina.

[a]eventi cardiovascolari: morte cardiovascolare, infarto miocardico acuto, ictus; [b]beneficio atteso per una riduzione del colesterolo LDL di 60 mg/dl.

Da Yusuf[10], modificata.

AUDIT.

30 day readmission rates after PCI in a metropolitan center in Italy: incidence and impact on prognosis.

Claudio Moretti MD Phd, Fabrizio D'Ascenzo MD, Pierlugi Omedè MD, Filippo Sciuto MD, Davide Giacomo Presutti MD, Marco di Cuia MD, Chiara Colaci MD, Federico Giusto MD, Flavia Ballocca MD, Enrico Cerrato MD, Francesco Colombo MD, Anna Gonella MD, Francesca Giordana MD, Giada Longo MD, Anna Orlando, Rita Andrini, Alberto Ferrando Giuseppe Biondi Zoccai MD, Imad Sheiban Prof, Fiorenzo Gaita Prof.

Department of Internal Medicine, Division of Cardiology, Città della Salute e della Scienza (CM; FDA; PO; FS; DGP; MDC; CC; FG; FB; EC; FC; AG; FG; L; AG; GB; IS; FG); SC Programmazione e Controllo di Gestione (AF); CSI-Piemonte - Direzione Salute - Area Trattamento Dati (AO; RA).

Table 6. Events at follow up (787 days:434-1027).

	30 days cardiac readmission; N=25 (2.1%)	Non 30 days cardiac readmission; N=1167 (97.8%)	p
MACE (major adverse cardiac event)	16 (64)	234 (21)	<0.001
All cause death	7 (28)	68 (6)	0.017
Death: - myocardial infarction - heart failure - non cardiovascular	 2 (8) 1 (4) 4 (16)	 31 (2.7) 12 (1) 22 (1.9)	0.017
Myocardial infarction	5 (20)	31 (2.7)	<0.001
Percutaneous revascularization	13 (54)	161 (49)	0.38

CONCLUSIONI

- Dopo un primo episodio di SCA la mortalità resta elevata
- I trattamenti disponibili sono efficaci ma esistono difficoltà nell'ottimizzare l'effetto terapeutico senza aumentare i sanguinamenti.
- Un attento f.up. è indispensabile: mai abbassare la guardia!

Conclusions

After discharge for ACS:

1. Mortality remains high: up to 40% in 10 years
2. Thrombin generation remains unaltered in the first year
3. Thrombin activity stays unchanged as well, but can be diminished with oral anticoagulants

Conclusions (cont)

Oral anticoagulation with vitamin K antagonists in CAD:

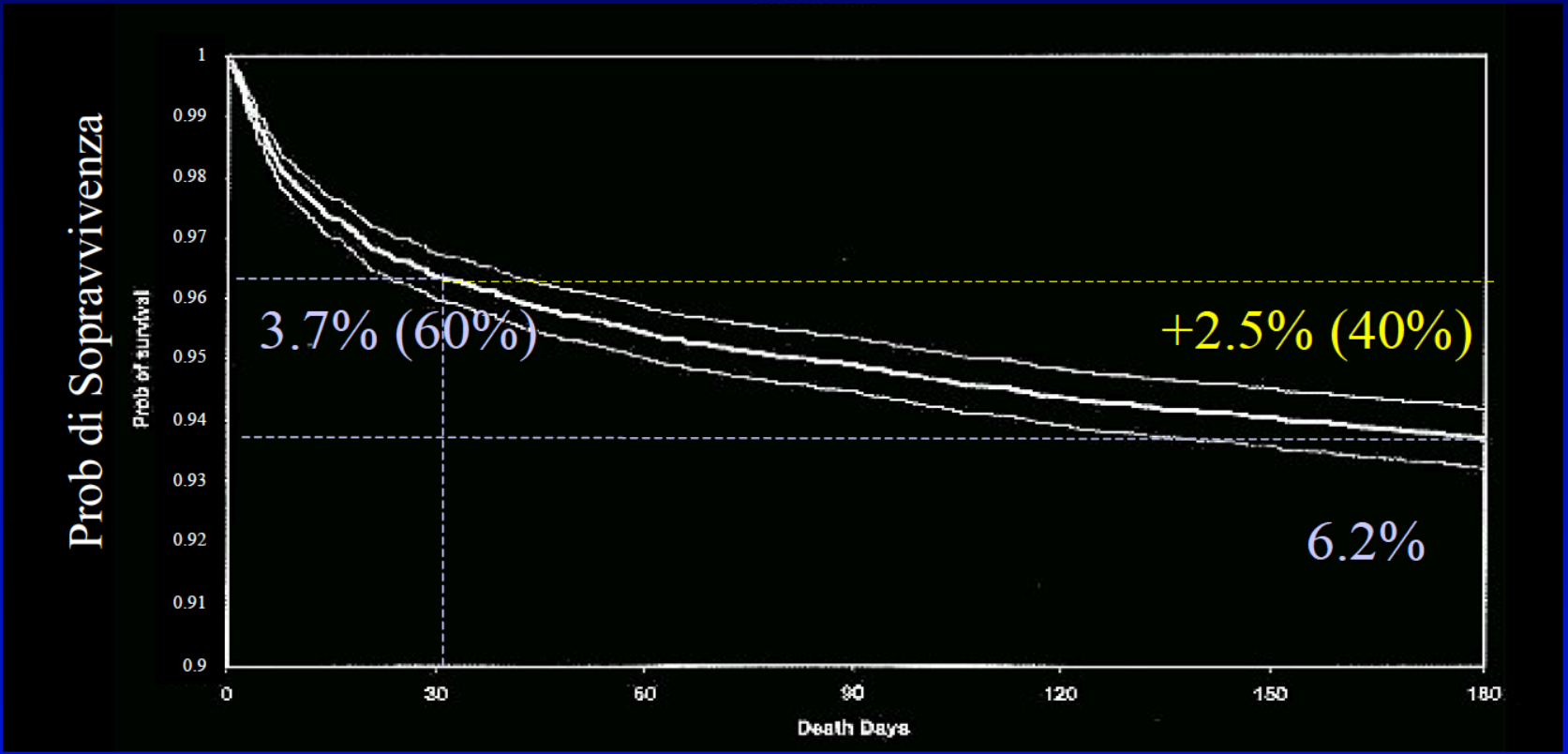
1. Reduces reinfarcation and stroke signficantly when compared to aspirin or placebo/control
2. Increases bleeding 2-3 times when compared to aspirin after myocardial infarction
3. Is a laborious treatment

Therefore, we need simpler and safer oral anticoagulants

Storia Naturale delle SCA

Prognosi a Breve e Medio Termine

Le SCA non rappresentano affatto una patologia solo acuta !



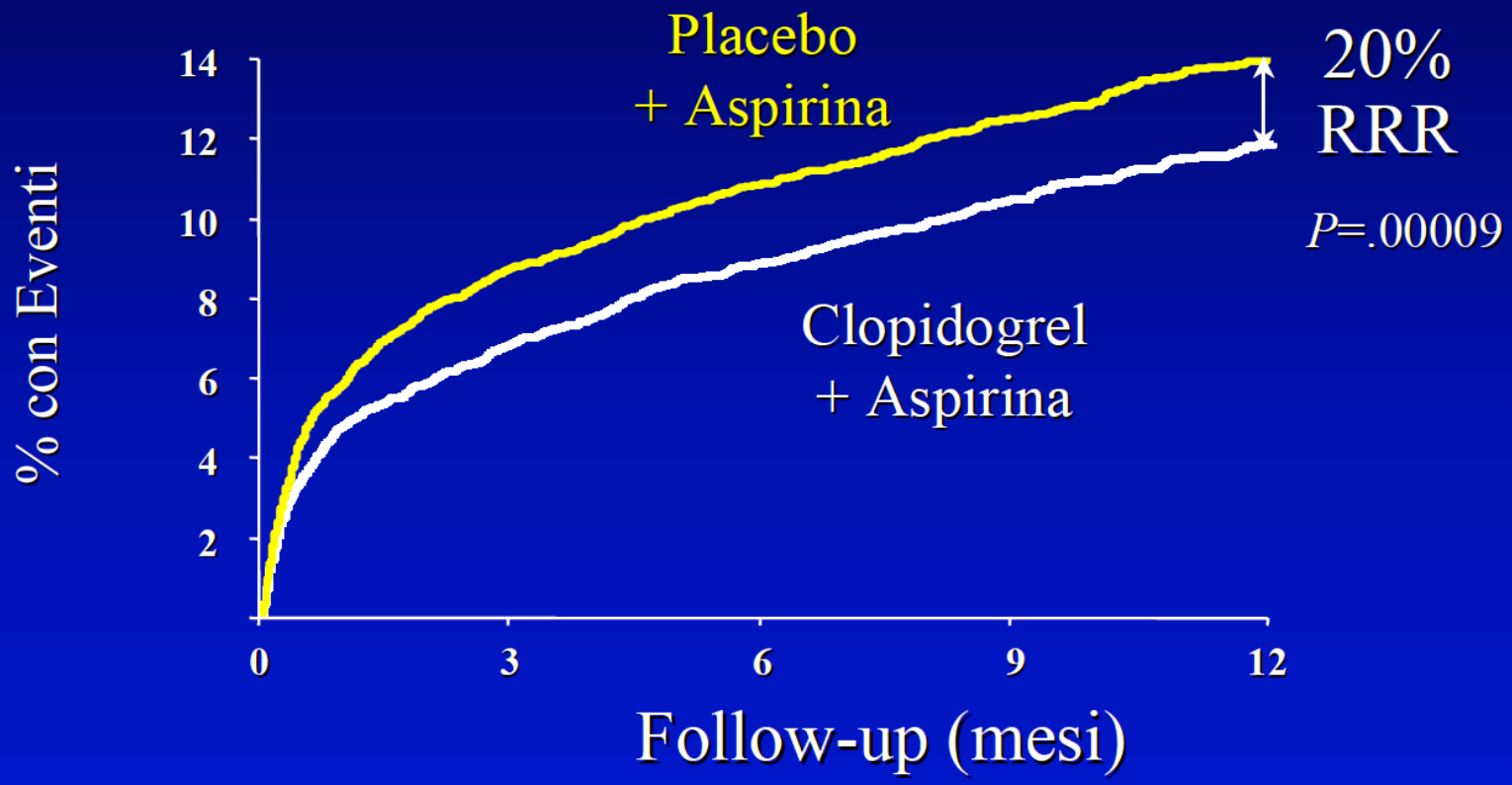
PURSUIT Trial Investigators. N Engl J Med 1998; 339: 436-443

La recidiva ischemica nelle SCA

Gli eventi dopo la dimissione

CURE

Obiettivo primario: morte CV, IMA e stroke

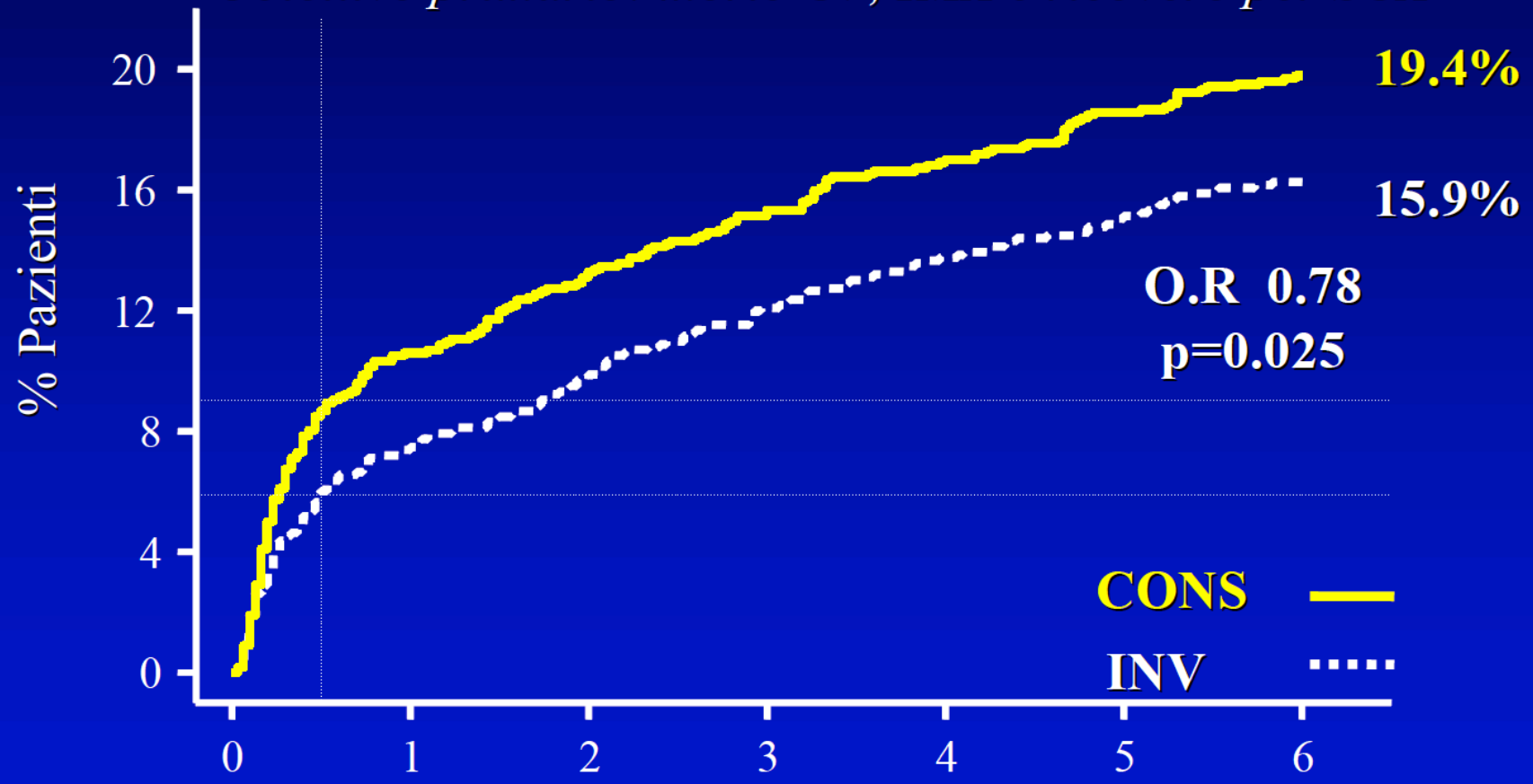


Yusuf S, et al. N Engl J Med 2001; 345: 494-502

La recidiva ischemica nelle SCA

Gli eventi dopo la dimissione

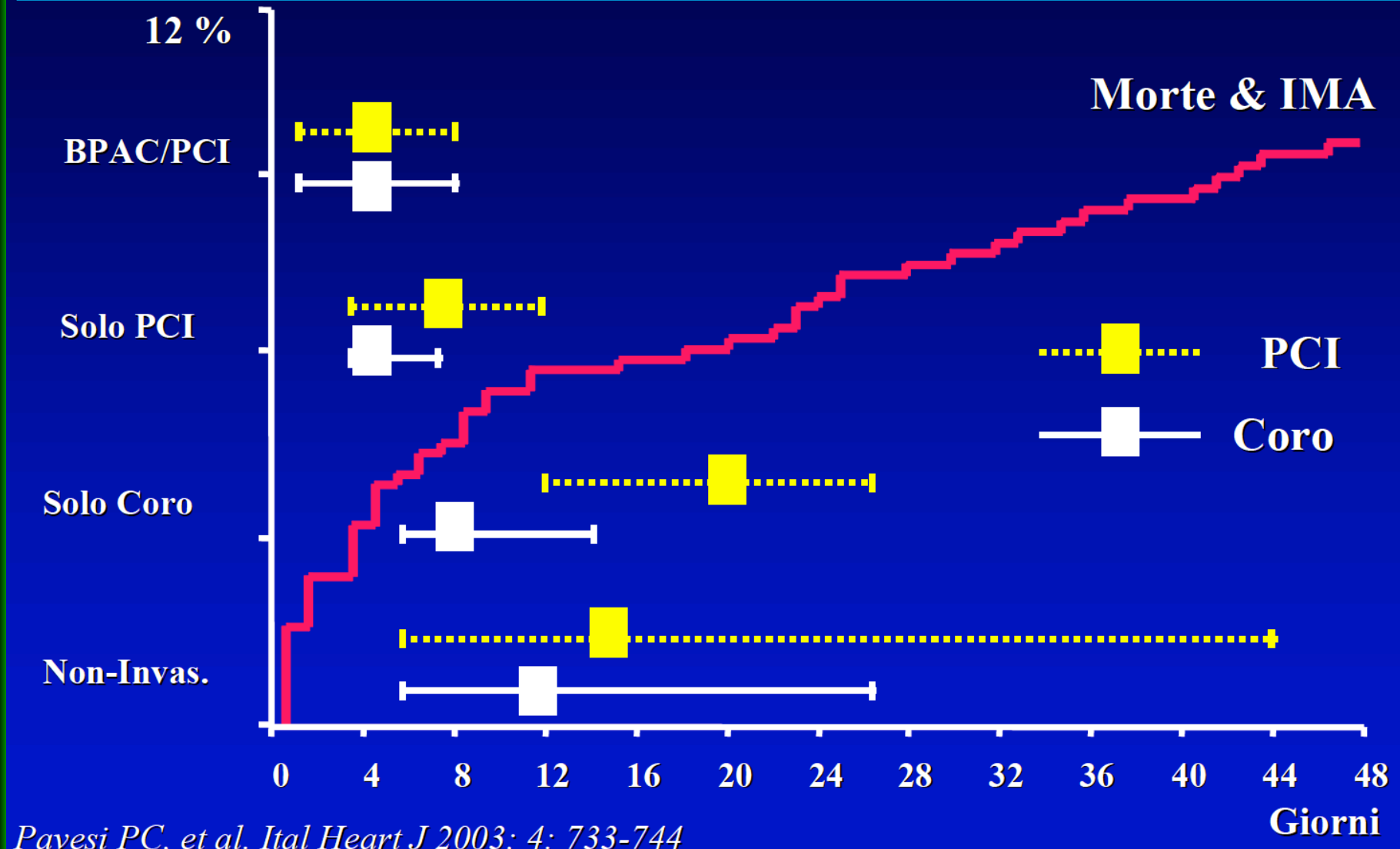
Obiettivo primario: morte CV, IMA e ricovero per SCA



Cannon CP, et al. N Engl J Med 2001; 344: 1879-1887

SCA-NSTE
Rapporto Procedure ed Eventi

AICare-2

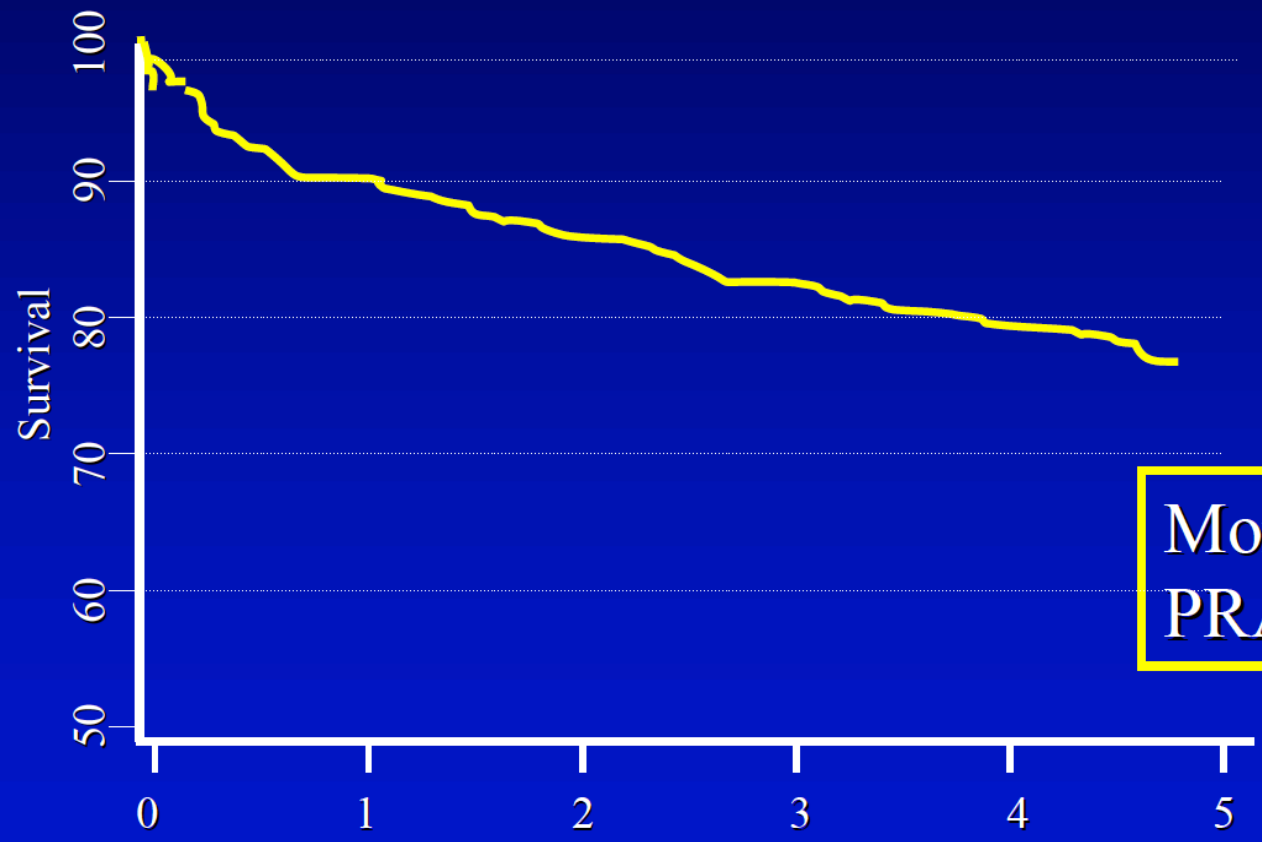


Pavesi PC, et al. Ital Heart J 2003; 4: 733-744

La recidiva ischemica nelle SCA

Necessità di un follow-up adeguato

Mortalità Ospedaliera
PRAIS-UK 1.5% vs. BLITZ-2 1.3%



Mortalità a 4 anni
PRAIS-UK 23%

Taneja S, et al. PRAIS-UK Registry Eur Heart J 2004; 25: 2013-2018

La recidiva ischemica dopo SCA

Le Domande Chiave

- La SCA è una malattia solo acuta?
- Vi sono evidenze cliniche di un rischio "ischemico" dopo la dimissione ?
- Quali problemi?
- Con quali costi?

IN-ACS Outcome

Registro osservazionale

Promotori: *ANMCO, HCF, ISS*

Popolazione: *tutte le SCA <48 ore, non criteri esclusione*

Obiettivi: *outcomes clinici, organizzativi e di sicurezza*

Durata: *12 mesi*

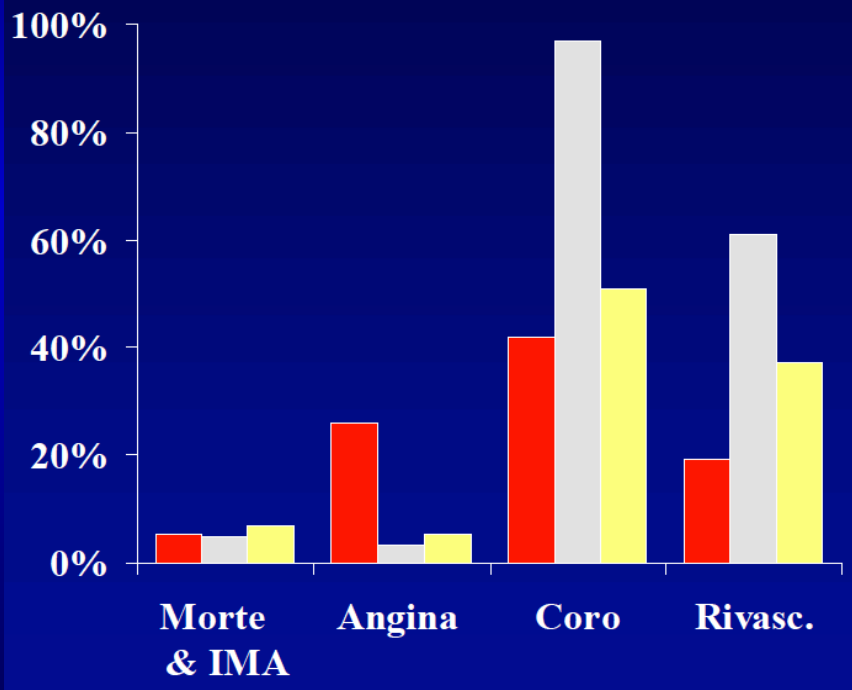
Centri Partecipanti: *70 cardiologie, 35 medicine rappresentative della realtà italiana*

Sottoprogetti: *IN-ACS Get Appropriate*

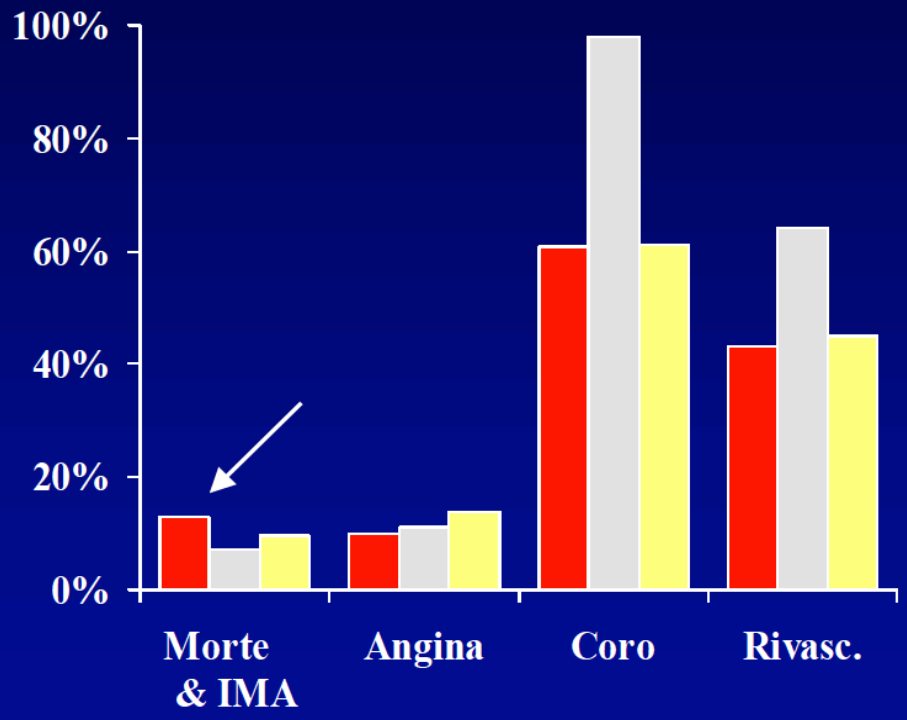
Eventi Cardiaci nelle SCA

AICARE-2 vs. TACTICS

Eventi Ospedalieri



Eventi a 6 Mesi



AICARE-2 TACTICS Inv. TACTICS Cons.

Pathogenesis of Acute Coronary Syndromes

Filippo Crea, MD, Giovanna Liuzzo, MD, PHD

Rome, Italy

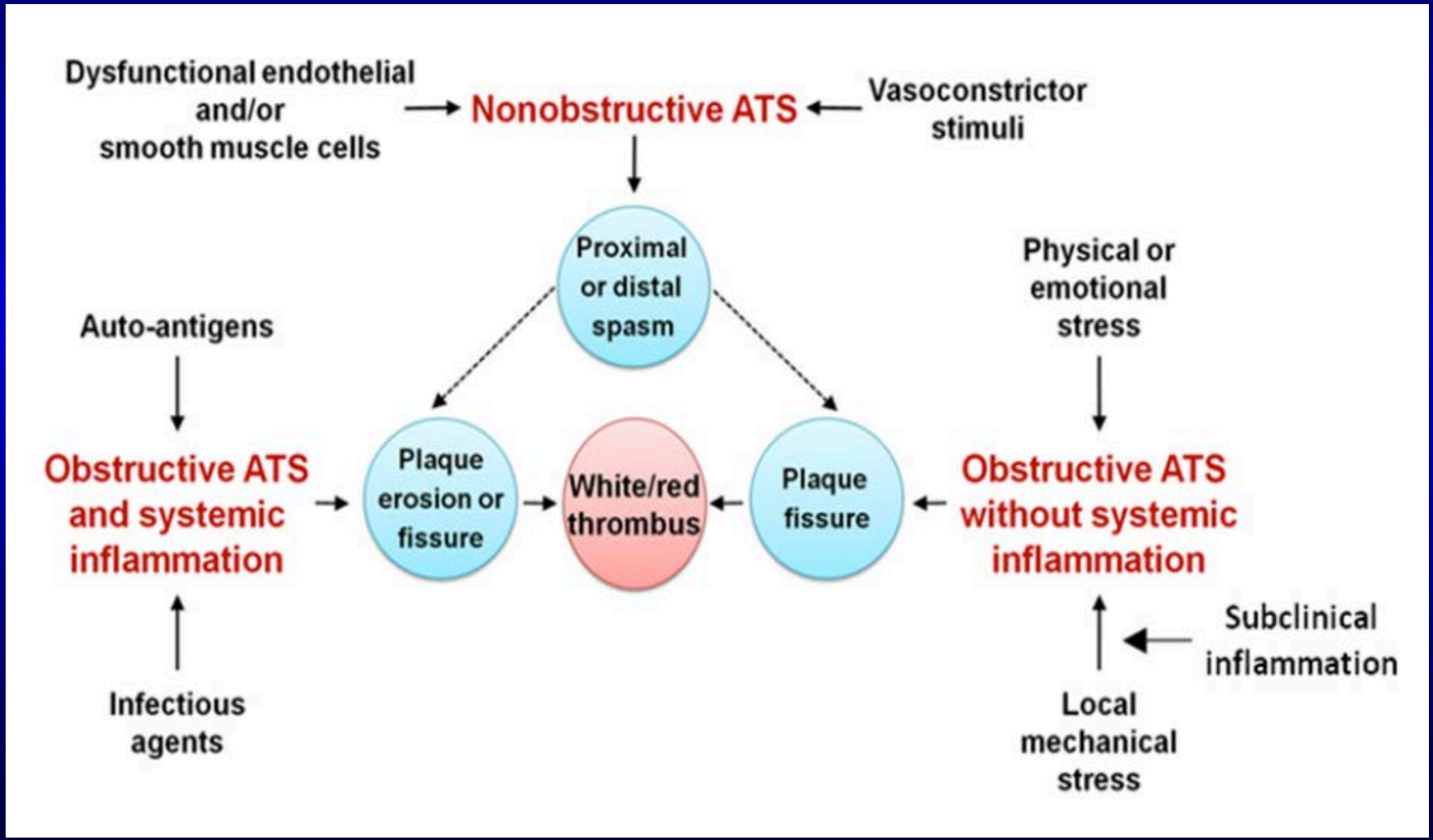
In this review, the multiple causes of coronary instability are discussed in 3 homogeneous groups of patients with a similar clinical presentation: 1) patients who have obstructive atherosclerosis and systemic inflammation; 2) patients who have obstructive atherosclerosis without systemic inflammation; and 3) patients without obstructive atherosclerosis (Fig. 1).

deed, our classification of ACS provides a framework for understanding basic mechanisms responsible for coronary instability rather than a classification for immediate clinical use such as that provided by the universal definition of MI.

Pathogenetic classification of ACS

based on simple clinical descriptor

F. Crea et al. JACC 2013



Pathogenetic classification of ACS

based on simple clinical descriptor

F. Crea et al. JACC 2013

Auto-antigens

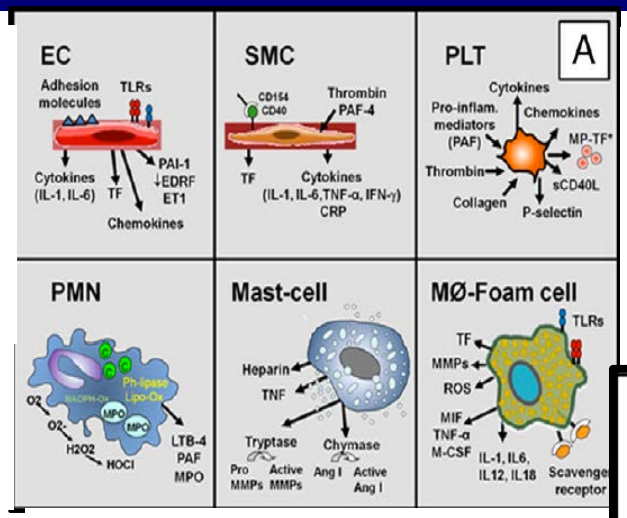
↓

Obstructive ATS and systemic inflammation

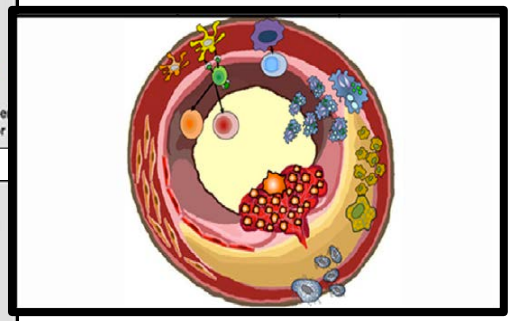
→ Plaque erosion or fissure

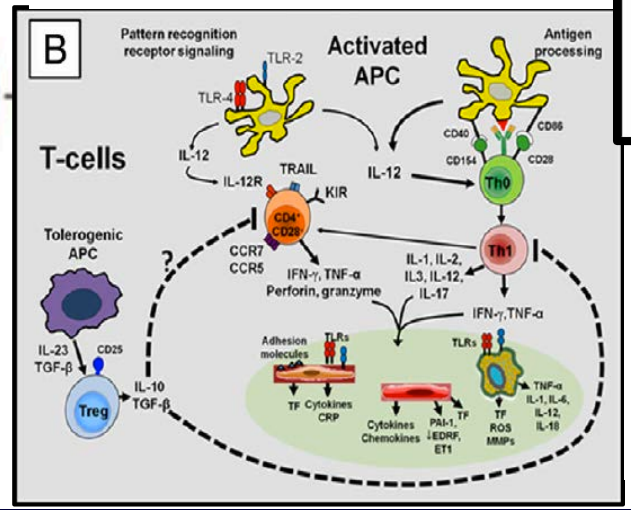
↑

Infectious agents



INNATE IMMUNITY





ADAPTIVE IMMUNITY

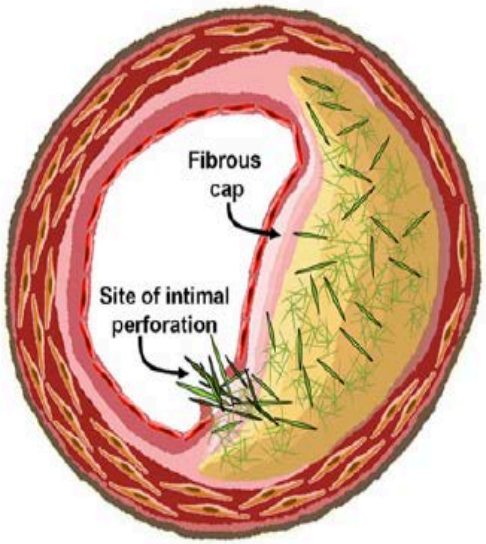
Pathogenetic classification of ACS

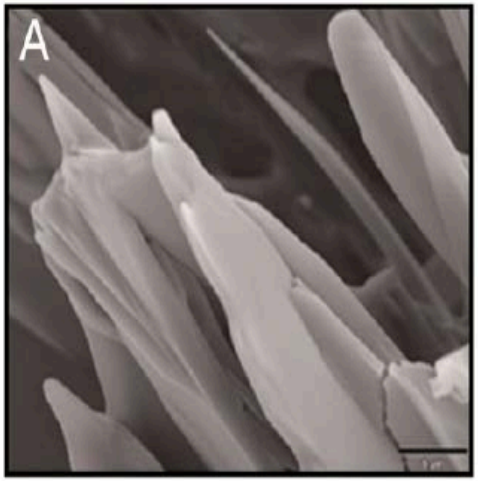
based on simple clinical descriptor

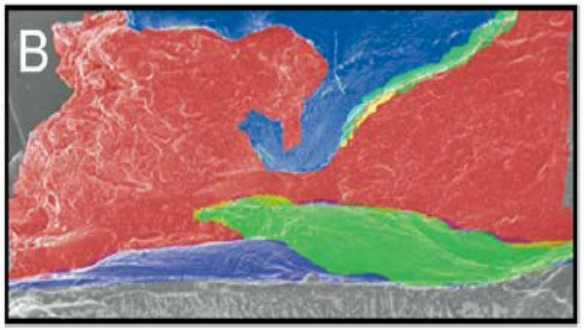
F. Crea et al. JACC 2013

Factors affecting cholesterol crystallization

- Cholesterol saturation
- Hydration
- Temperature
- pH
- Plaque hemorrhage







← **Obstructive ATS without systemic inflammation**

↑ ← **Subclinical inflammation**

Local mechanical stress

Pathogenetic classification of ACS

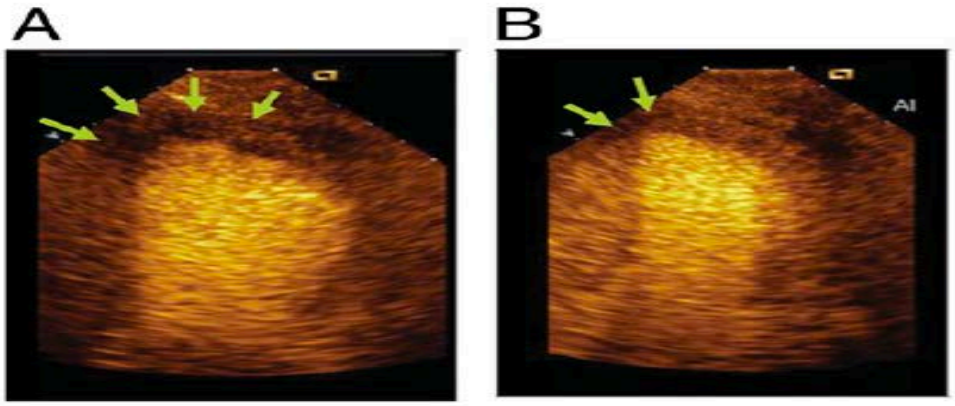
based on simple clinical descriptor

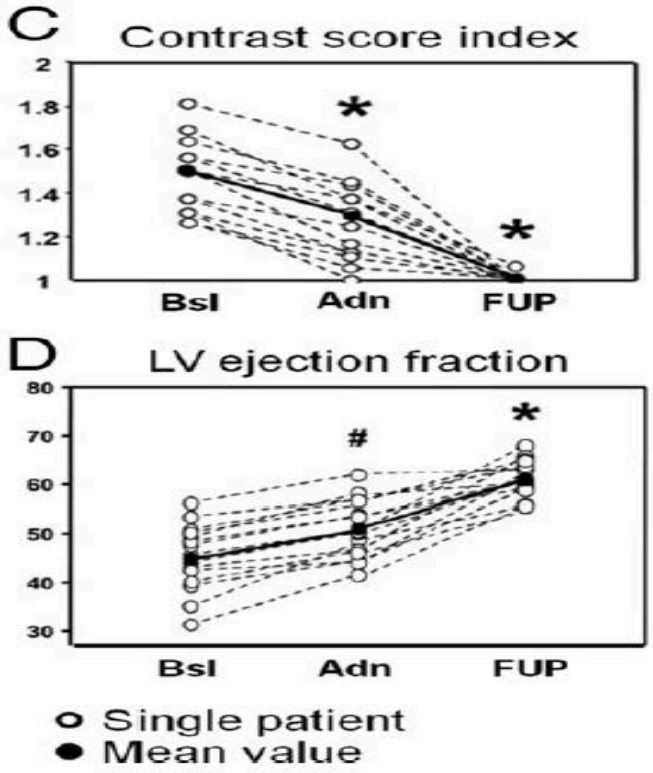
F. Crea et al. JACC 2013

Dysfunctional endothelial and/or smooth muscle cells → Nonobstructive ATS ← Vasoconstrictor stimuli

↓

Apical ballooning syndrome -adenosine infusion -





Pathogenetic classification of ACS
Clinical perspective

- More potent antithrombotic regimens ?
- Ant-inflammatory treatment ?
- Vulnerable plaque studies ?
- Rho-kinase inhibitor ?

European Heart Journal (2013) **34**, 993–1001
doi:10.1093/eurheartj/ehs389

CLINICAL RESEARCH
Prevention and epidemiology

Influence of 23 coronary artery disease variants on recurrent myocardial infarction or cardiac death: the GRACE Genetics Study

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Rs579459 in the ABO locus is a novel risk factor for adverse cardiac outcome after an index ACS.

Homozygous carriers of the at risk C allele exhibited an increased risk of developing a recurrent MI o death within 5 yrs.

The association was independent of CAD RF

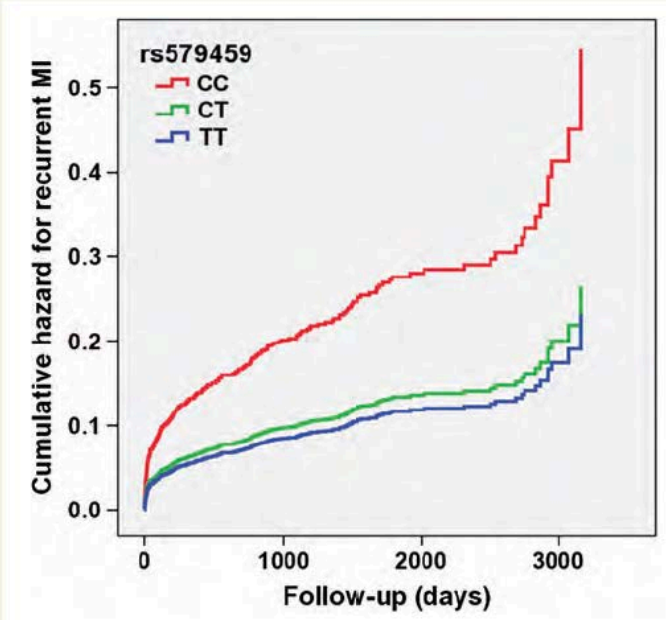

Figure 1 Cumulative hazard curves for recurrent MI by rs579459 genotype. Cumulative hazard curves, with multivariable adjustment and by rs579459 genotype, for recurrent MI in the GRACE UK–Belgian discovery cohort. MI, myocardial infarction.