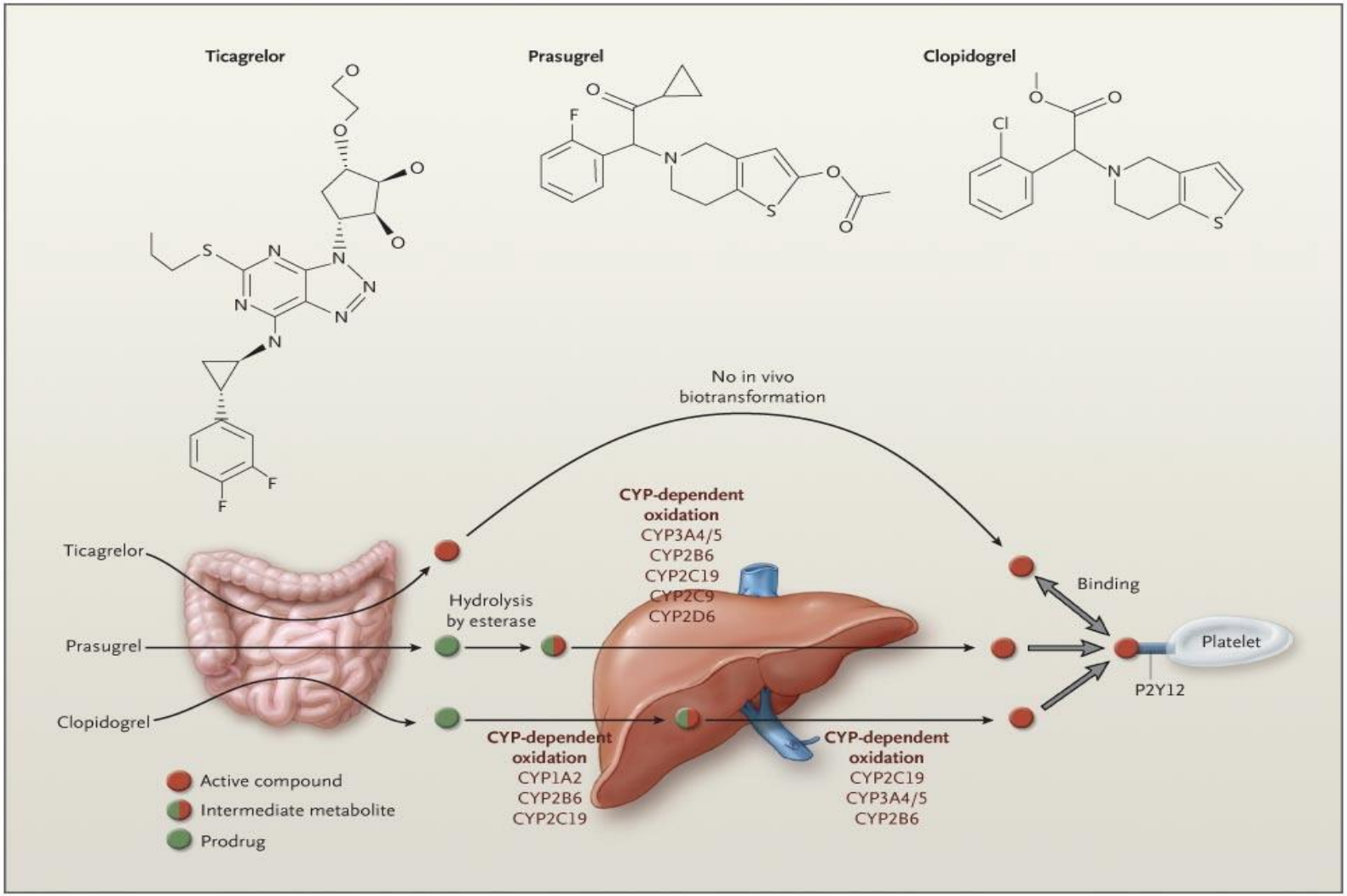
Joint meeting of Coronary Revascularization
2014.12.12-13
Novotel Ambassador Busan, Korea

New P2Y12 Receptor Inhibitors in Korean AMI Patients

Keun-Ho Park, M.D.

Chonnam National University Hospital

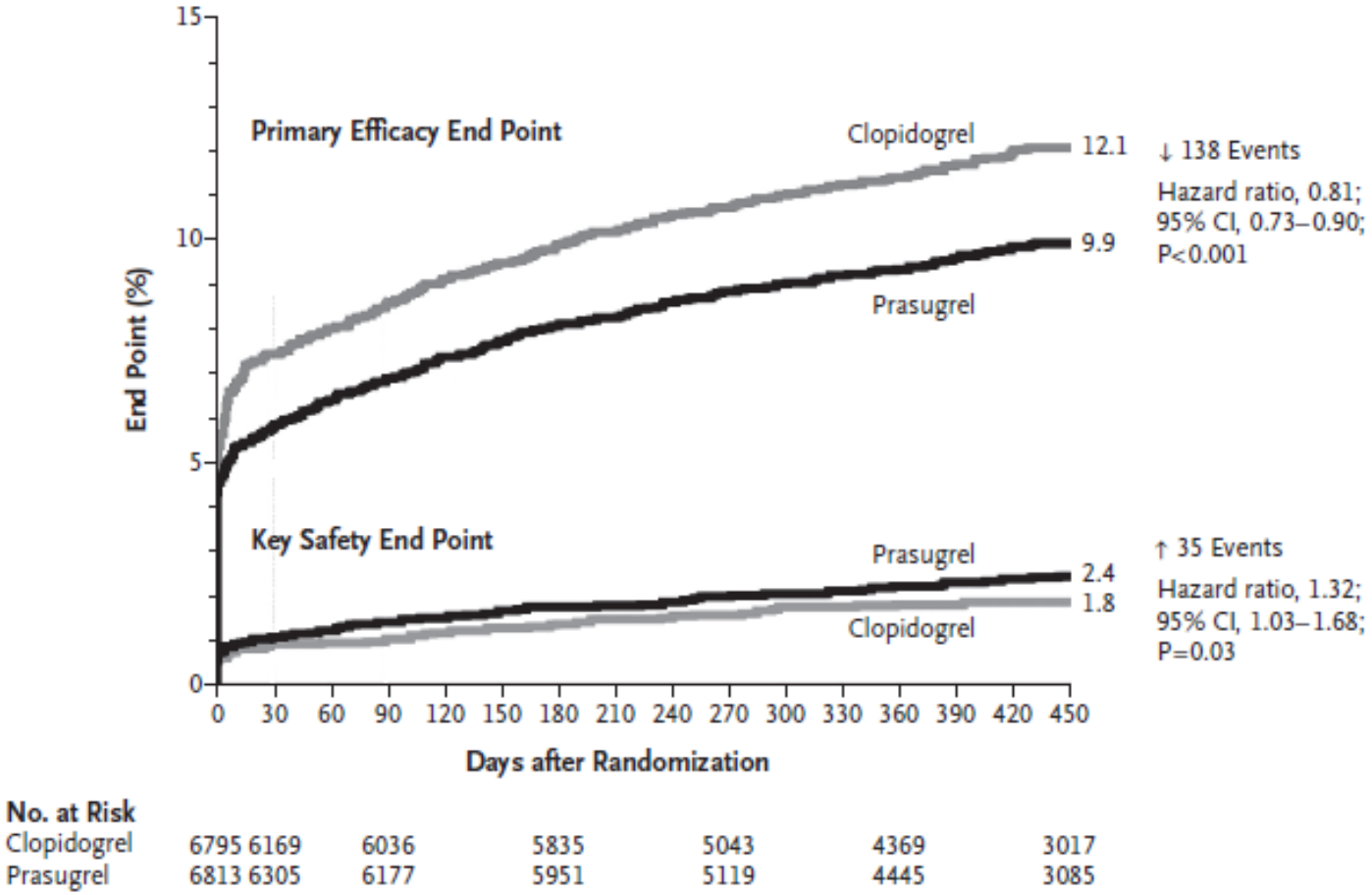
Biotransformation and Mode of Action of Clopidogrel, Prasugrel, and Ticagrelor



Schömig A. *N Engl J Med* 2009;361:1108-1111.

TRITON-TIMI 38

Superior efficacy of Prasugrel vs. clopidogrel
: 19% RRR of primary efficacy endpoints, CV Death, MI, Stroke.



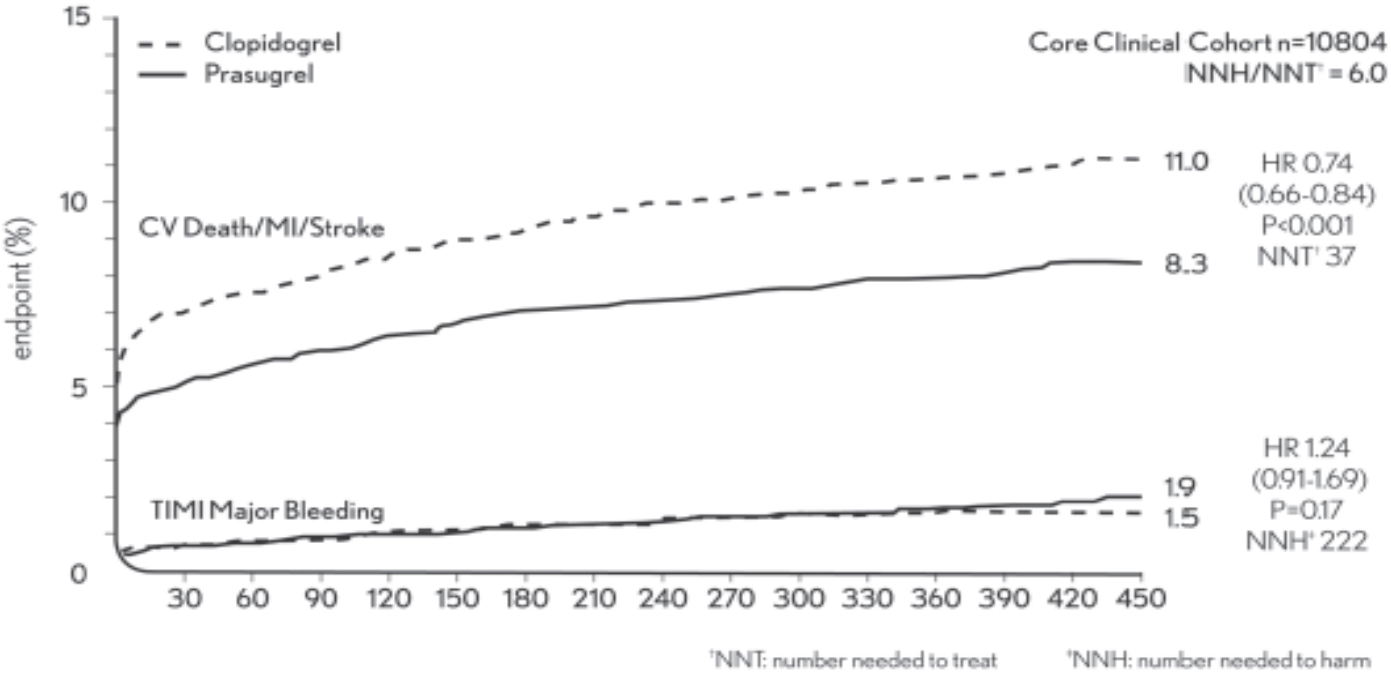
Wiviott SD et al. NEJM. 2007;357:2001-15

Prasugrel Core Clinical Cohort

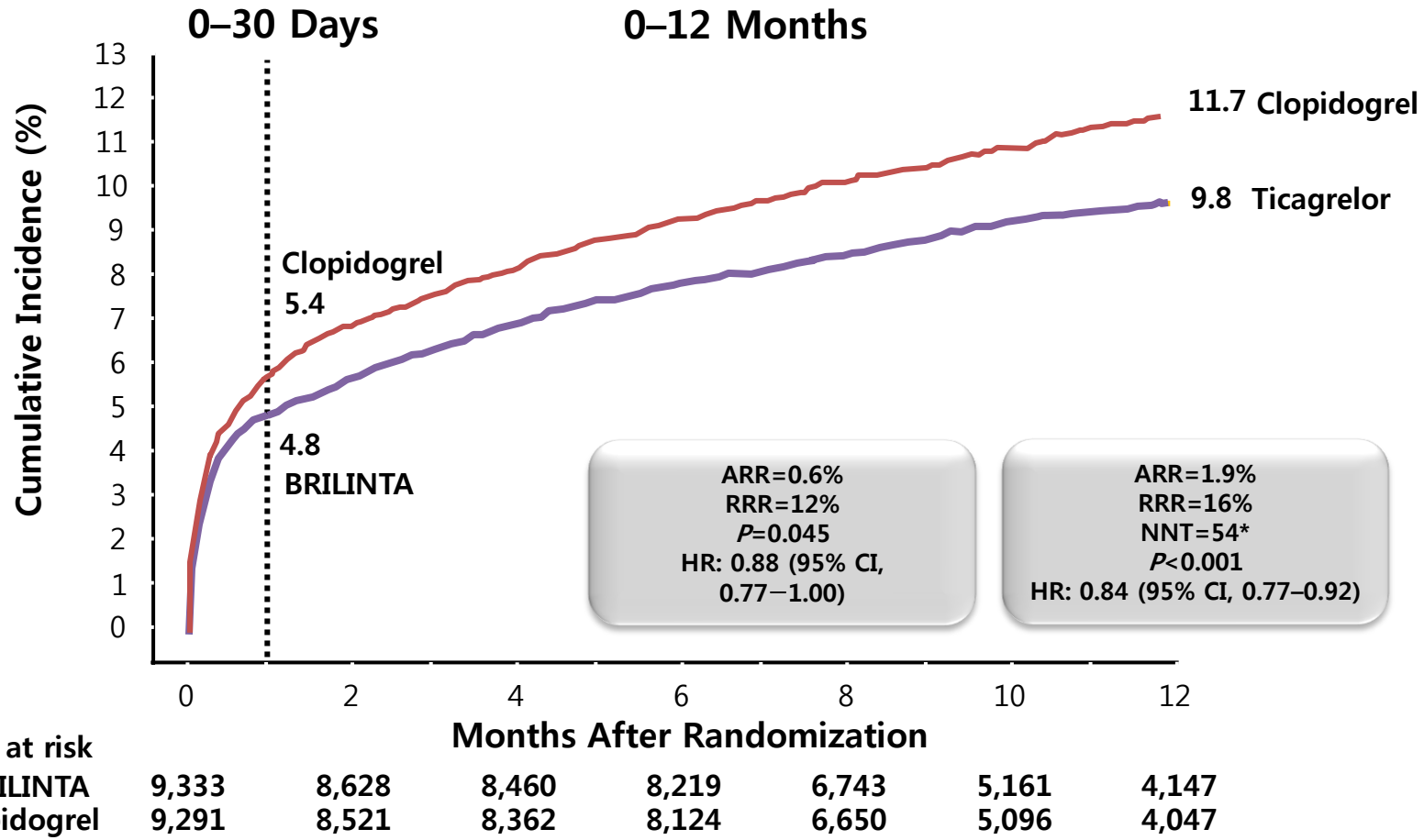
- While prasugrel demonstrated a greater benefit on ischemic end points in the indicated 'Core clinical cohort*' compared with the total TRITON-TIMI 38 trial population, there was no significant increase in the risk of TIMI major bleeding [2]

* Core clinical cohort -no history of stroke/transient ischemic attack, age <75years, and weight ≥60kg [2]

Figure. Main results figure in Core clinical cohort



PLATO: Primary Efficacy Endpoint (CV death, MI, or Stroke)



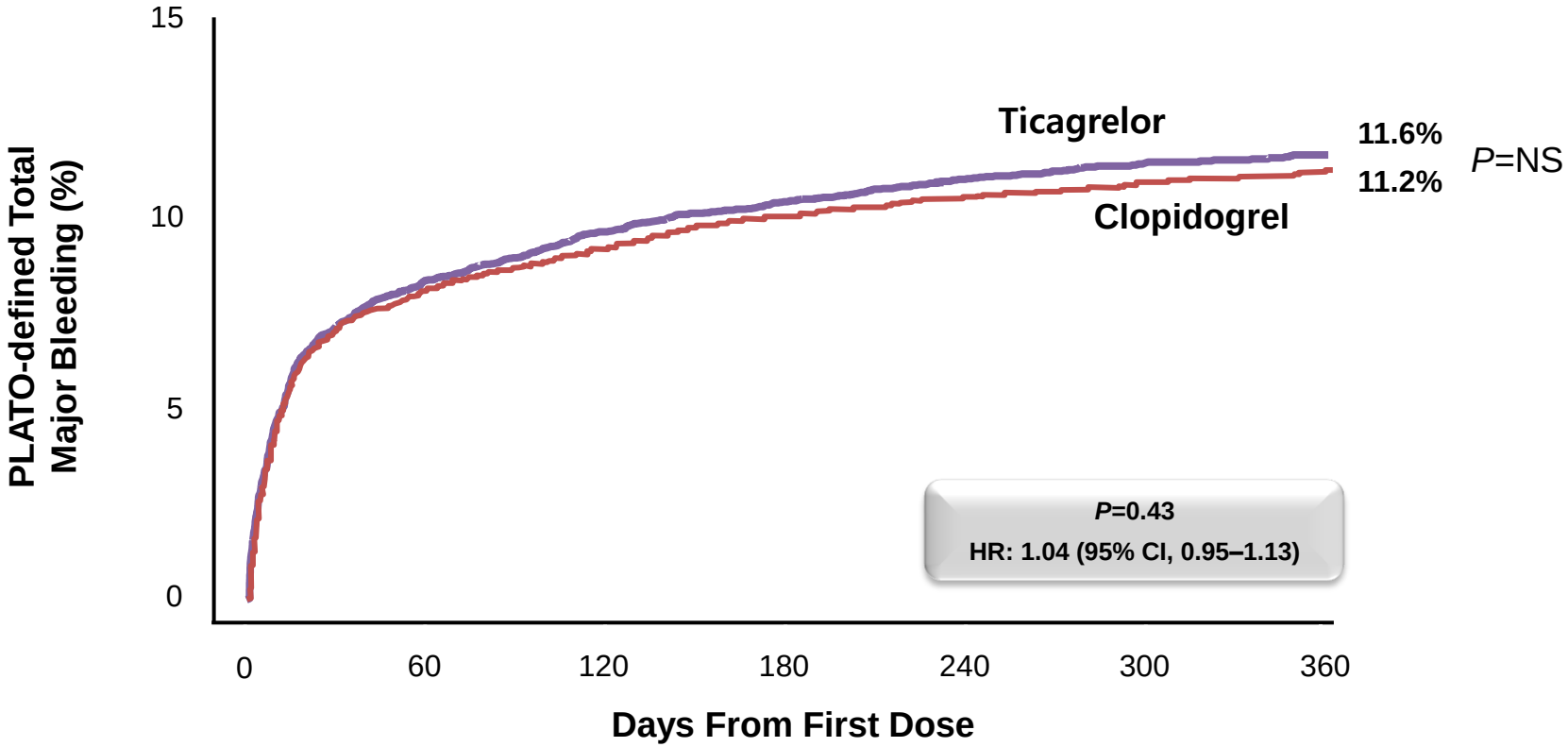
No. at risk							
BRILINTA	9,333	8,628	8,460	8,219	6,743	5,161	4,147
Clopidogrel	9,291	8,521	8,362	8,124	6,650	5,096	4,047

Both groups included aspirin.
*NNT at one year.

Wallentin L, et al. *N Engl J Med*. 2009;361:1045–1057.

ARR : Absolute risk reduction, RRR : Relative risk reduction
NNT : Number needed to treat, HR : Hazard ration, CI : Confidential interval

PLATO: Primary Safety Endpoint (Total PLATO major bleeding)



No. at risk							
BRILINTA	9,235	7,246	6,826	6,545	5,129	3,783	3,433
Clopidogrel	9,186	7,305	6,930	6,670	5,209	3,841	3,479

Both groups included aspirin.

Wallentin L, et al. *N Engl J Med*. 2009;361:1045–1057.

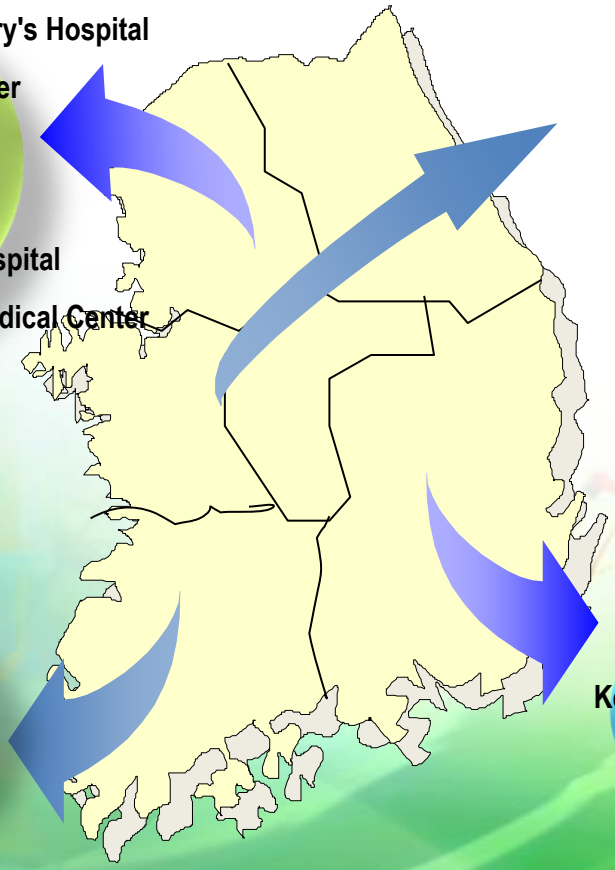
Purpose

- ✓ To evaluate the efficacy and safety of New P2Y12 receptor inhibitors (Prasugrel or Ticagrelor) compared to clopidogrel in Korean patients with AMI underwent successful PCI

KOREA CENTERS FOR DISEASE CONTROL & PREVENTION

Prospective Cohort Study for Acute Myocardial Infarction Prognostic and Surveillance Index (KAMIR-NIH registry)

The Catholic University of Korea Seoul St. Mary's Hospital
Gachon University Gil Medical Center
Korea University Guro Hospital
Seoul National University Hospital
Seoul National University Bundang Hospital
Sungkyunkwan University Seoul Samsung Medical Center



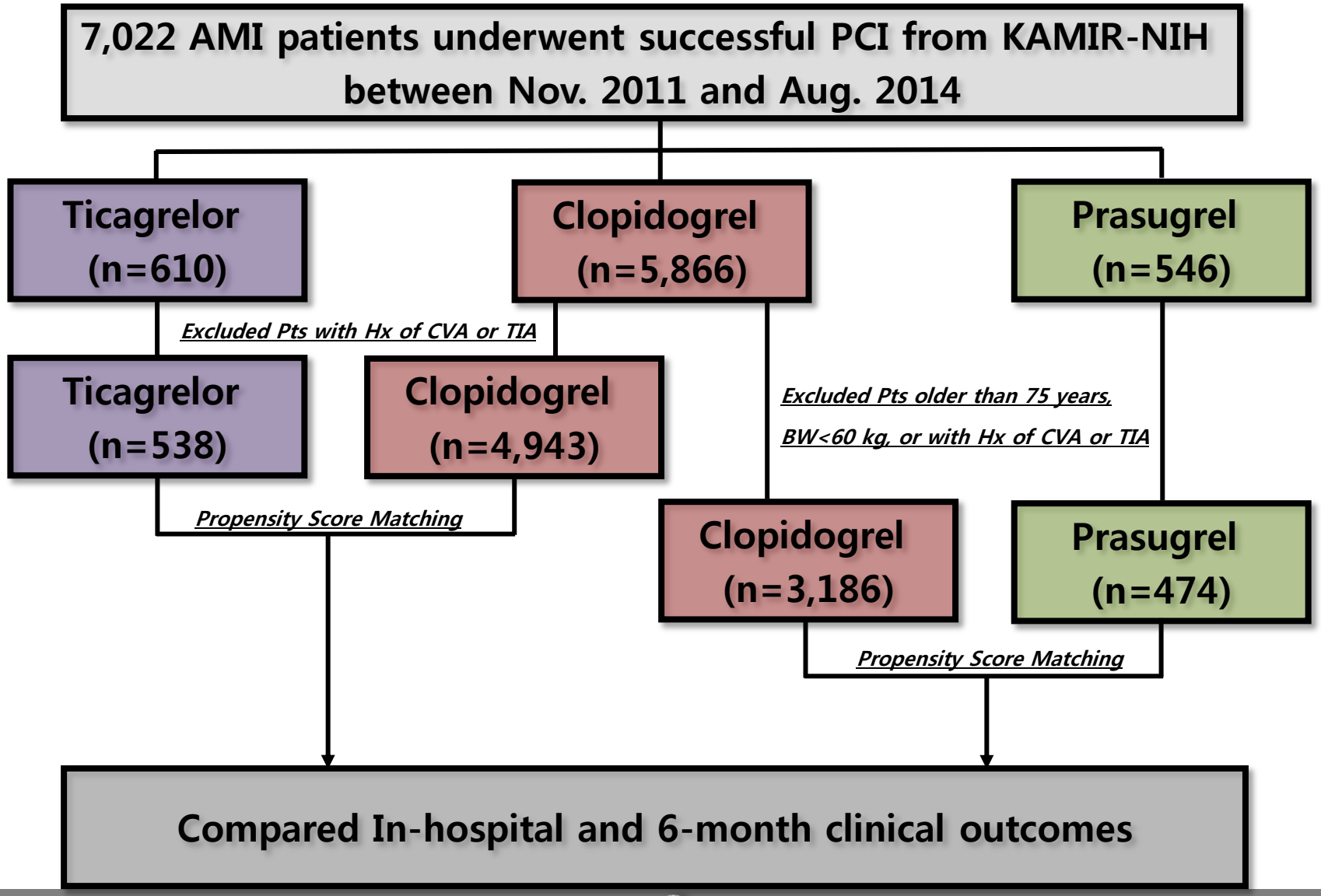
Chungnam National University Hospital
Chungbuk National University Hospital

Chonnam National University Hospital
Chonbuk National University Hospital
Wonkwang University Hospital

Kyungpook National University Hospital
Keimyung University Dongsan Medical Center
Yeungnam National Universtiy Hospital
Pusan National University Hospital

Study Flow Chart

Exclusion criteria
: the Pts with in-hospital switching among three anti-platelet agents



Definition

- ✓ **Primary end-point**

  : a composite of cardiac death, MI, and stroke during hospitalization

- ✓ **Safety end-point**

  : Thrombolysis in Myocardial Infarction (TIMI) major or minor bleeding during hospitalization

- ✓ **2ndary end-points**

  : the composite of cardiac death, non-fatal MI, stroke, and target vessel revascularization at 6-month follow-up.

Baseline Clinical Characteristics

	Ticagrelor (n=538)	Clopidogrel (n=4,943)	p-value
Age, years	61.57±12.16	63.88±12.53	<0.001
Male gender (%)	402 (74.7)	3,630 (73.4)	0.521
Hypertension (%)	230 (42.8)	2,462 (49.8)	0.002
Diabetes (%)	127 (23.6)	1,376 (27.8)	0.037
Dyslipidemia (%)	62 (11.3)	550 (11.1)	0.882
Current smoker (%)	242 (45.0)	1,980 (40.1)	0.027
Family Hx of CAD (%)	42 (7.8)	344 (7.0)	0.466
Previous MI (%)	25 (4.6)	365 (7.4)	0.019
Previous angina (%)	20 (3.7)	505 (10.2)	<0.001
Killip class (%)			<0.001
I	458 (85.1)	3,829 (77.5)	
II	34 (6.3)	498 (10.1)	
III	21 (3.9)	384 (7.8)	
IV	25 (9.7)	232 (4.7)	
Final diagnosis			<0.001
Non ST elevation MI	204 (37.9)	2,497 (50.5)	
ST elevation MI	334 (62.1)	2,446 (49.5)	
LV ejection fraction, %	52.53±10.22	51.73±11.15	0.088
Creatinine clearance, ml/min/1.73m^2	84.08±48.99	76.28±36.80	<0.001

Baseline Procedural Characteristics

	Ticagrelor (n=538)	Clopidogrel (n=4,943)	p-value
Vascular access (%)			<0.001
Transradial approach	211 (39.2)	1,396 (28.2)	
Transfemoral approach	323 (60.0)	3,513 (71.1)	
Both approach	4 (0.7)	34 (0.7)	
Infarct-related artery (%)			0.774
LAD	240 (44.6)	2,284 (46.2)	
LCX	93 (17.3)	889 (18.0)	
RCA	193 (35.9)	1,666 (33.7)	
LM	12 (2.2)	104 (2.1)	
Involved vessel number (%)			0.006
Single vessel	270 (50.2)	2,392 (48.4)	
Two vessel	154 (28.6)	1,516 (30.7)	
Three vessel	93 (17.3)	831 (16.8)	
LM disease (simple)	8 (1.5)	20 (0.4)	
LM disease (complex)	13 (2.4)	184 (3.7)	
ACC/AHA Type B2/C (%)	479 (89.0)	4,117 (83.3)	0.001
Glycoprotein IIb/IIIa inhibitor (%)	94 (17.5)	687 (13.9)	0.024
Stent diameter at target lesion	3.17±0.46	3.12±0.44	0.005
Stent length at target lesion	25.82±7.07	24.79±7.31	0.003

In-hospital Medication

	Ticagrelor (n=538)	Clopidogrel (n=4,943)	p-value
Aspirin (%)	538 (100)	4,943 (100)	1.000
Clopiodogrel (%)	0 (0.0)	4,943 (100)	<0.001
Ticagrelor (%)	538 (100)	0 (0.0)	<0.001
Cilostazol (%)	5 (0.9)	877 (17.7)	<0.001
Beta-blocker (%)	464 (86.2)	4,268 (86.3)	0.949
Calcium channel blockers (%)	15 (2.8)	309 (6.3)	0.001
ACEi or ARB (%)	450 (83.6)	4,081 (82.6)	0.529
Statin (%)	512 (95.2)	4,561 (92.3)	0.015

Baseline Clinical Characteristics (PSM)

	Ticagrelor (n=538)	Clopidogrel (n=538)	p-value
Age, years	61.57±12.16	62.15±12.51	0.438
Male gender (%)	402 (74.7)	411 (76.4)	0.523
Hypertension (%)	230 (42.8)	234 (43.5)	0.806
Diabetes (%)	127 (23.6)	139 (25.8)	0.396
Dyslipidemia (%)	61 (11.3)	58 (10.8)	0.771
Current smoker (%)	242 (45.0)	237 (44.1)	0.759
Family Hx of CAD (%)	42 (7.8)	36 (6.7)	0.481
Previous MI (%)	25 (4.6)	27 (5.0)	0.887
Previous angina (%)	20 (3.7)	21 (3.9)	1.000
Killip class (%)			0.294
I	458 (85.1)	472 (87.7)	
II	34 (6.3)	27 (5.0)	
III	21 (3.9)	24 (4.5)	
IV	25 (4.6)	15 (2.8)	
Final diagnosis			0.851
Non ST elevation MI	204 (37.9)	207 (38.5)	
ST elevation MI	334 (62.1)	331 (61.5)	
LV ejection fraction, %	52.53±10.22	52.99±10.56	0.475
Creatinine clearance, ml/min/1.73m^2	84.08±48.99	84.44±39.52	0.895

Baseline Procedural Characteristics (PSM)

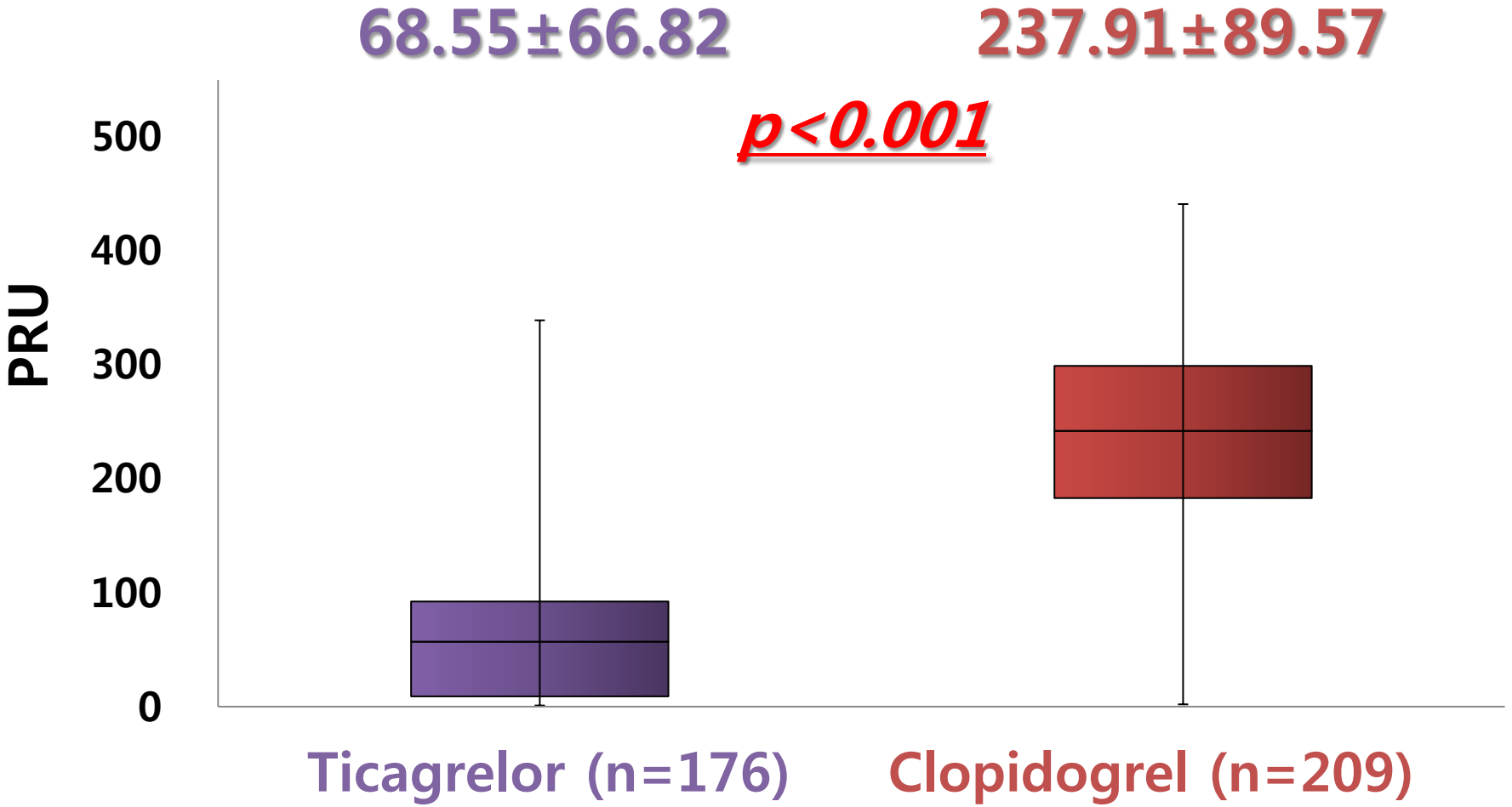
	Ticagrelor (n=538)	Clopidogrel (n=538)	p-value
Vascular access (%)			0.580
Transradial approach	211 (39.2)	218 (40.5)	
Transfemoral approach	323 (60.0)	313 (58.2)	
Both approach	4 (0.7)	7 (1.3)	
Infarct-related artery (%)			0.991
LAD	240 (44.6)	239 (44.5)	
LCX	93 (17.3)	91 (16.9)	
RCA	193 (35.9)	197 (36.6)	
LM	12 (2.2)	11 (2.0)	
Involved vessel number (%)			0.762
Single vessel	270 (50.2)	264 (49.1)	
Two vessel	154 (28.6)	156 (29.0)	
Three vessel	93 (18.2)	93 (17.3)	
LM disease (simple)	8 (1.5)	4 (0.7)	
LM disease (complex)	13 (2.4)	16 (3.0)	
ACC/AHA Type B2/C (%)	479 (89.0)	476 (88.5)	0.772
Glycoprotein IIb/IIIa inhibitor (%)	94 (17.5)	88 (16.4)	0.626
Stent diameter at target lesion	3.17±0.46	3.14±0.44	0.163
Stent length at target lesion	25.82±7.07	24.73±7.10	0.014

In-hospital Medication (PSM)

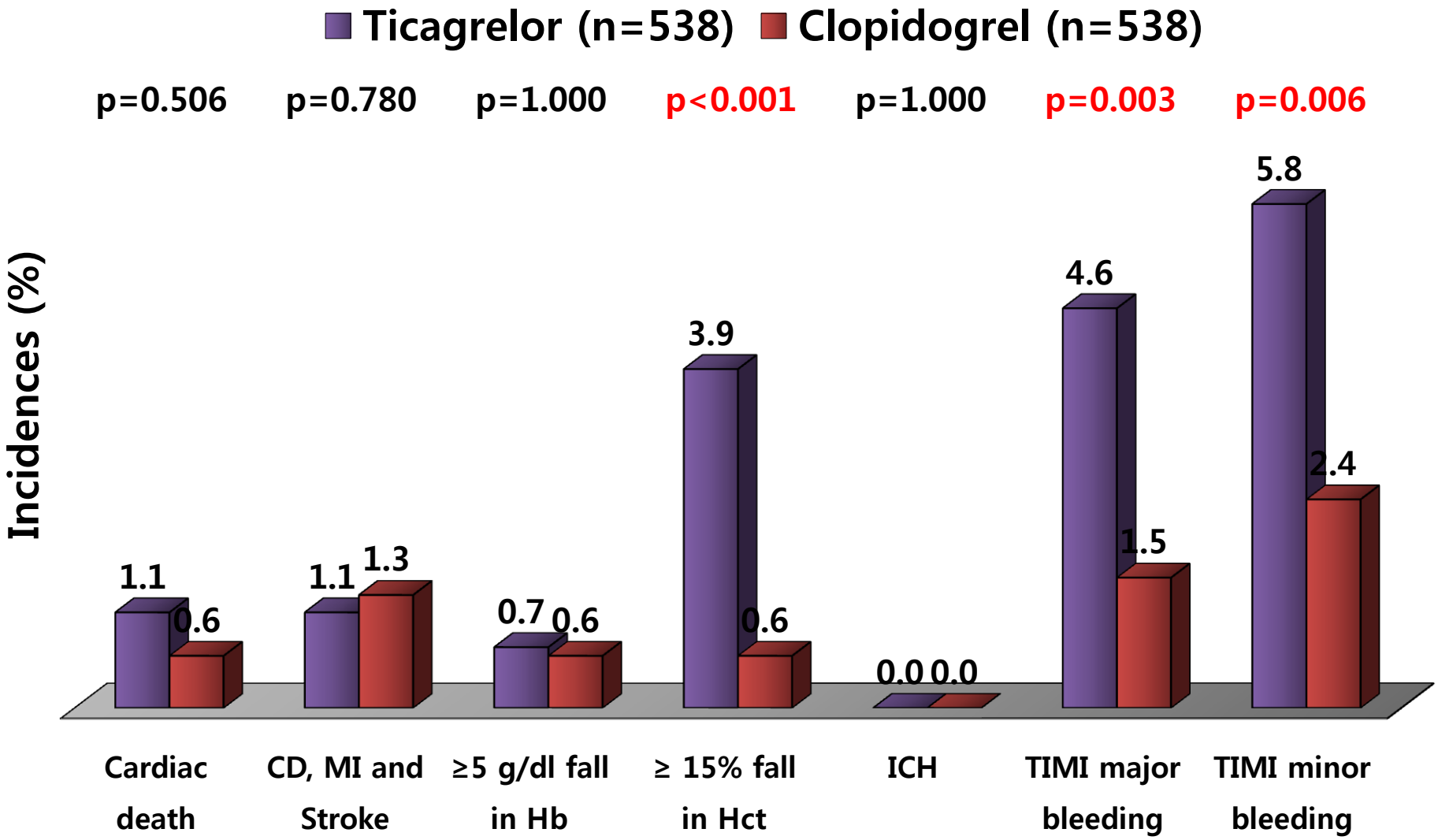
	Ticagrelor (n=538)	Clopidogrel (n=538)	p-value
Aspirin (%)	538 (100)	538 (100)	1.000
Clopiodogrel (%)	0 (0.0)	538 (100)	<0.001
Ticagrelor (%)	538 (100)	0 (0.0)	<0.001
Cilostazol (%)	5 (0.9)	99 (18.4)	<0.001
Beta-blocker (%)	464 (86.2)	468 (87.0)	0.720
Calcium channel blockers (%)	15 (2.8)	13 (2.4)	0.708
ACEi or ARB (%)	450 (83.6)	454 (84.4)	0.739
Statin (%)	512 (95.2)	509 (94.6)	0.678

PRU between Ticagrelor vs. Clopidogrel

Only available 35.8% of all patients

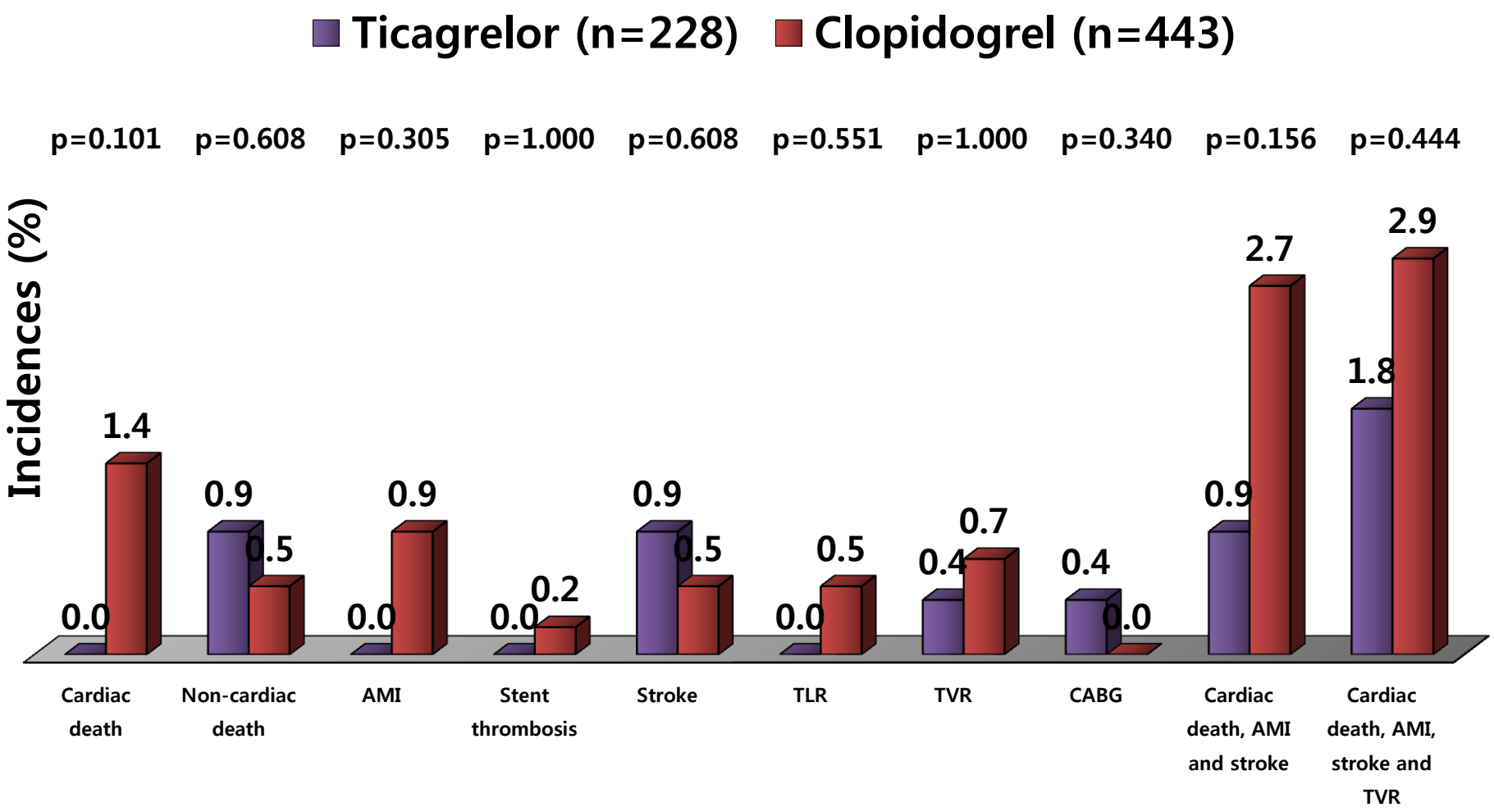


In-hospital Clinical Outcomes in Ticagrelor



6-month Clinical Outcomes in Ticagrelor

Only available 62.4% of Survivors



Baseline Clinical Characteristics

	Prasugrel (n=474)	Clopidogrel (n=3,186)	p-value
Age, years	55.13±8.93	57.71±9.914	<0.001
Male gender (%)	446 (94.1)	2,870 (90.1)	0.005
Hypertension (%)	179 (37.8)	1,409 (44.2)	0.008
Diabetes (%)	100 (21.1)	824(25.9)	0.026
Dyslipidemia (%)	53 (11.3)	414 (13.0)	0.270
Current smoker (%)	273 (57.6)	1,637 (51.4)	0.012
Family Hx of CAD (%)	30 (6.3)	294 (9.2)	0.038
Previous MI (%)	22 (4.6)	225 (7.1)	0.050
Previous angina (%)	21 (4.4)	291 (9.1)	0.001
Killip class (%)			0.008
I	415 (87.6)	2,584 (81.1)	
II	25 (5.3)	265 (8.3)	
III	16 (3.4)	174 (5.5)	
IV	18 (3.8)	163 (5.1)	
Final diagnosis			<0.001
Non ST elevation MI	169 (35.7)	1,522 (47.8)	
ST elevation MI	305 (64.3)	1,664 (52.2)	
LV ejection fraction, %	52.57±9.80	52.64±10.63	0.893
Creatinine clearance, ml/min/1.73m^2	100.57±33.38	89.93±34.40	<0.001

Baseline Procedural Characteristics

	Prasugrel (n=474)	Clopidogrel (n=3,186)	p-value
Vascular access (%)			<0.001
Transradial approach	196 (41.4)	927 (29.1)	
Transfemoral approach	277 (58.4)	2,245 (70.5)	
Both approach	1 (0.2)	14 (0.4)	
Infarct-related artery (%)			0.616
LAD	224 (47.3)	1,474 (46.3)	
LCX	83 (17.5)	603 (18.9)	
RCA	160 (33.8)	1,038 (32.6)	
LM	7 (1.5)	71 (2.2)	
Involved vessel number (%)			0.085
Single vessel	275 (58.6)	276 (58.8)	
Two vessel	133 (28.4)	111 (23.7)	
Three vessel	51 (10.9)	65 (13.9)	
LM disease (simple)	4 (0.9)	2 (0.4)	
LM disease (complex)	6 (1.3)	15 (3.2)	
ACC/AHA Type B2/C (%)	430(90.7)	2,649 (83.1)	<0.001
Glycoprotein IIb/IIIa inhibitor (%)	104 (21.9)	505 (15.9)	0.001
Stent diameter at target lesion	3.28±0.45	3.18±0.46	<0.001
Stent length at target lesion	24.38±7.37	24.71±7.32	0.374

In-hospital Medication

	Prasugrel (n=474)	Clopidogrel (n=3,189)	p-value
Aspirin (%)	469 (98.9)	3,141 (98.6)	0.531
Clopiodogrel 75mg MD (%)	0 (0.0)	3,189 (100.0)	<0.001
Prasugrel 10mg/5mg MD (%)	459 (96.8)/15(3.2)	0 (0.0)	<0.001
Cilostazol (%)	2 (0.4)	527 (16.5)	<0.001
Beta-blocker (%)	433 (91.4)	2,797 (87.8)	0.025
Calcium channel blockers (%)	15 (3.2)	208 (6.5)	0.004
ACEi or ARB (%)	400 (84.4)	2,662 (83.6)	0.646
Statin (%)	450 (94.9)	2,950 (92.6)	0.064

Baseline Clinical Characteristics (PSM)

	Prasugrel (n=469)	Clopidogrel (n=469)	p-value
Age, years	55.14±8.88	55.38±10.11	0.693
Male gender (%)	446 (94.5)	446 (95.1)	0.660
Hypertension (%)	177 (37.7)	167 (35.6)	0.498
Diabetes (%)	99 (21.1)	86 (18.3)	0.286
Dyslipidemia (%)	53 (11.3)	60 (12.8)	0.483
Current smoker (%)	269 (57.4)	266 (56.7)	0.843
Family Hx of CAD (%)	30 (6.4)	20 (4.3)	0.146
Previous MI (%)	22 (4.7)	29 (6.2)	0.313
Previous angina (%)	21 (4.5)	12 (2.6)	0.111
Killip class (%)			0.922
I	411 (87.6)	413 (88.1)	
II	24 (5.1)	20 (4.3)	
III	16 (3.4)	18 (3.8)	
IV	18 (3.8)	18 (3.8)	
Final diagnosis			1.000
Non ST elevation MI	167 (35.6)	167 (35.6)	
ST elevation MI	302 (64.4)	302 (64.4)	
LV ejection fraction, %	52.56±9.81	52.28±9.87	0.675
Creatinine clearance, ml/min/1.73m^2	100.57±33.38	99.26±38.15	0.578

Baseline Procedural Characteristics (PSM)

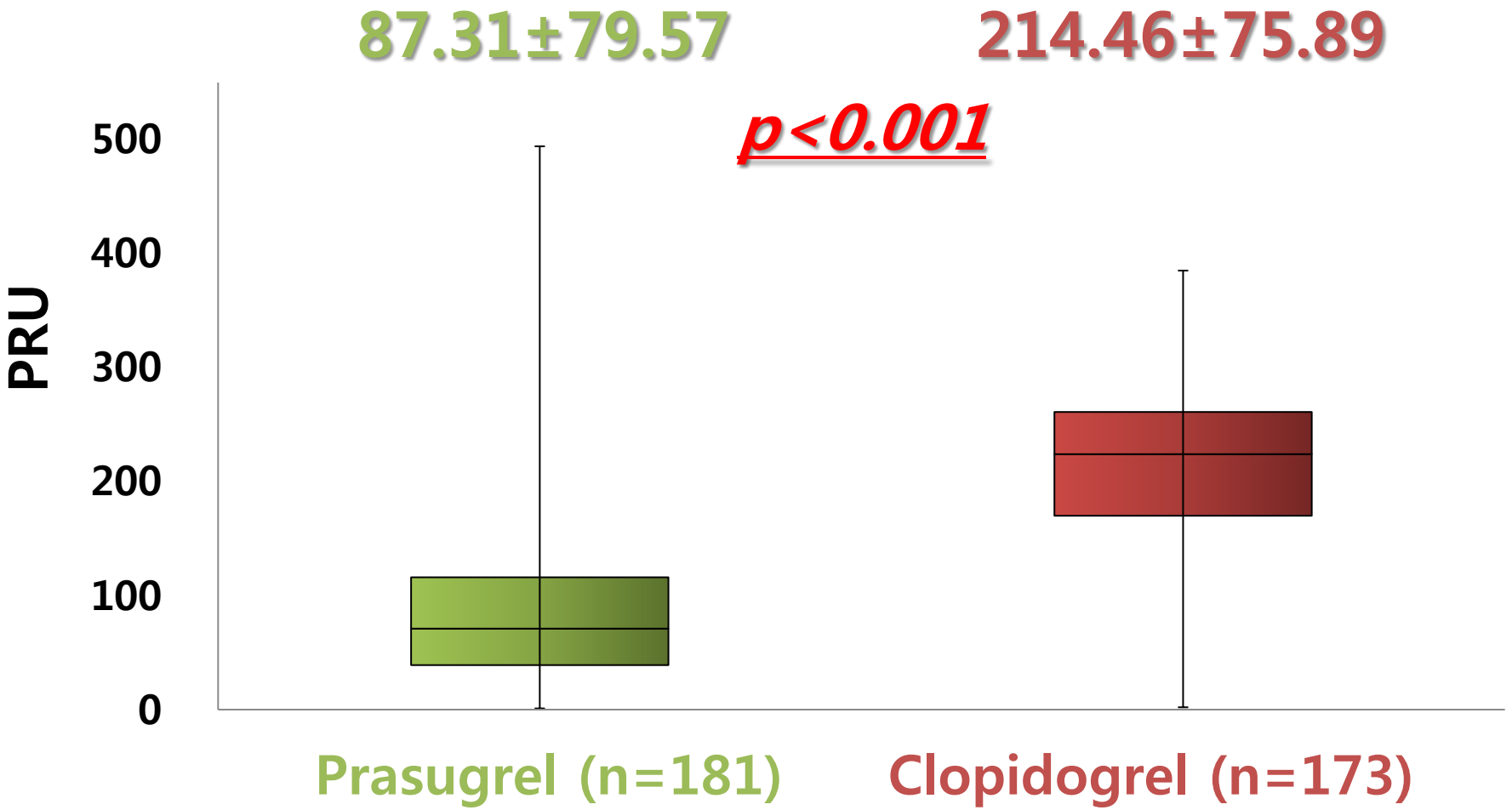
	Prasugrel (n=469)	Clopidogrel (n=469)	p-value
Vascular access (%)			0.868
Transradial approach	193 (41.2)	185 (39.4)	
Transfemoral approach	275 (58.6)	283 (60.3)	
Both approach	1 (0.2)	1 (0.2)	
Infarct-related artery (%)			0.945
LAD	223 (47.5)	226 (48.2)	
LCX	81 (17.3)	86 (18.3)	
RCA	158 (33.7)	150 (32.0)	
LM	7 (1.5)	7 (1.5)	
Involved vessel number (%)			0.085
Single vessel	275 (58.6)	276 (58.8)	
Two vessel	133 (28.4)	111 (23.7)	
Three vessel	51 (10.9)	65 (13.9)	
LM disease (simple)	4 (0.9)	2 (0.4)	
LM disease (complex)	6 (1.3)	15 (3.2)	
ACC/AHA Type B2/C (%)	426 (90.8)	419 (89.3)	0.444
Glycoprotein IIb/IIIa inhibitor (%)	103 (22.0)	99 (21.1)	0.751
Stent diameter at target lesion	3.28±0.45	3.22±0.46	0.054
Stent length at target lesion	24.40±7.33	25.40±7.20	0.041

In-hospital Medication (PSM)

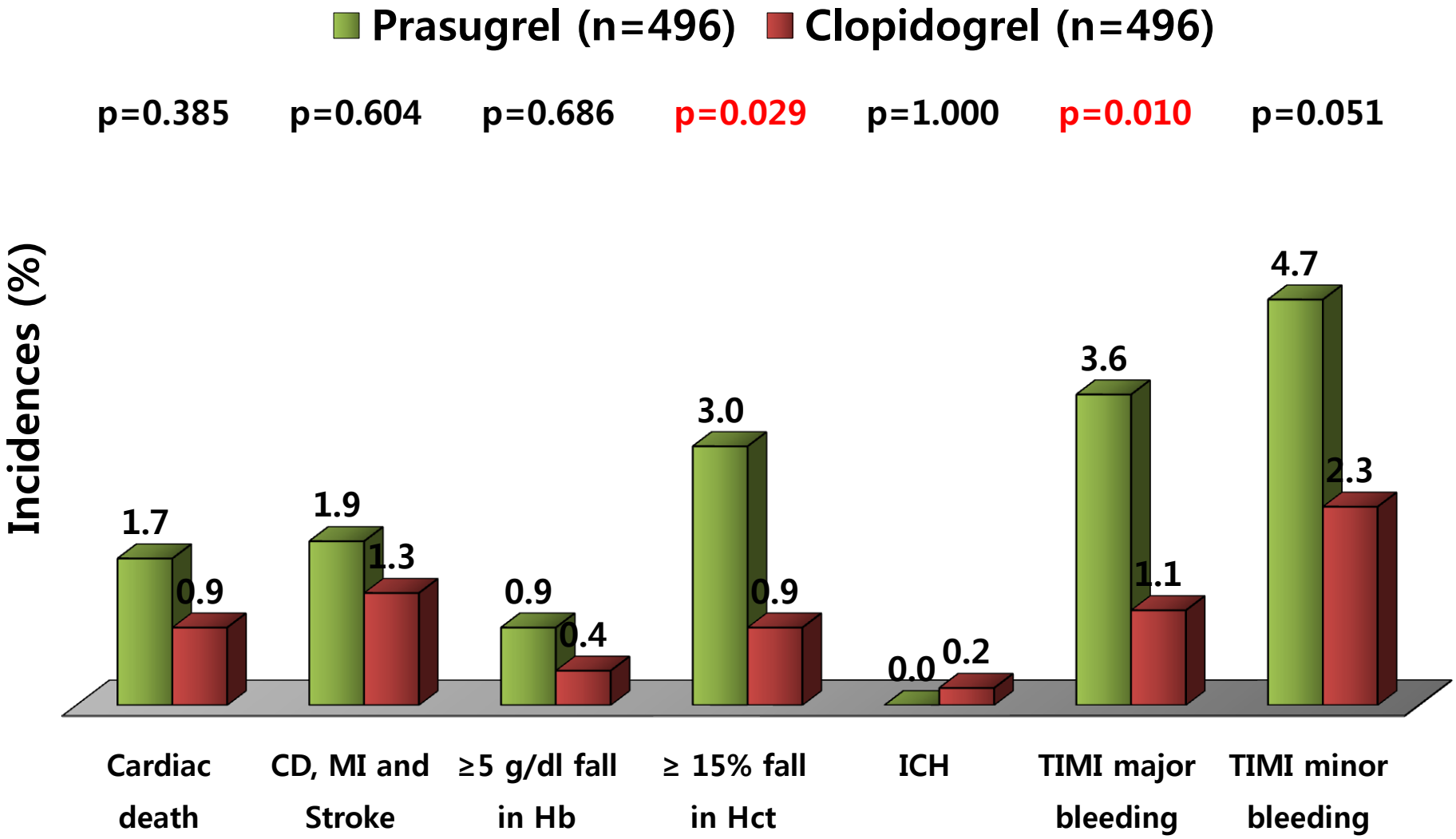
	Prasugrel (n=469)	Clopidogrel (n=469)	p-value
Aspirin (%)	469 (100.0)	469 (100.0)	1.000
Clopiodogrel 75mg MD (%)	0 (0.0)	469 (100.0)	<0.001
Prasugrel 10mg/5mg MD (%)	454 (96.8)/15(3.2)	0 (0.0)	<0.001
Cilostazol (%)	2 (0.4)	73 (15.6)	<0.001
Beta-blocker (%)	430 (91.7)	432 (92.1)	0.811
Calcium channel blockers (%)	15 (3.2)	13 (2.8)	0.701
ACEi or ARB (%)	397 (84.6)	414 (88.3)	0.105
Statin (%)	447 (95.3)	446 (95.1)	0.879

PRU between Prasugrel vs. Clopidogrel

Only available 37.7% of all patients

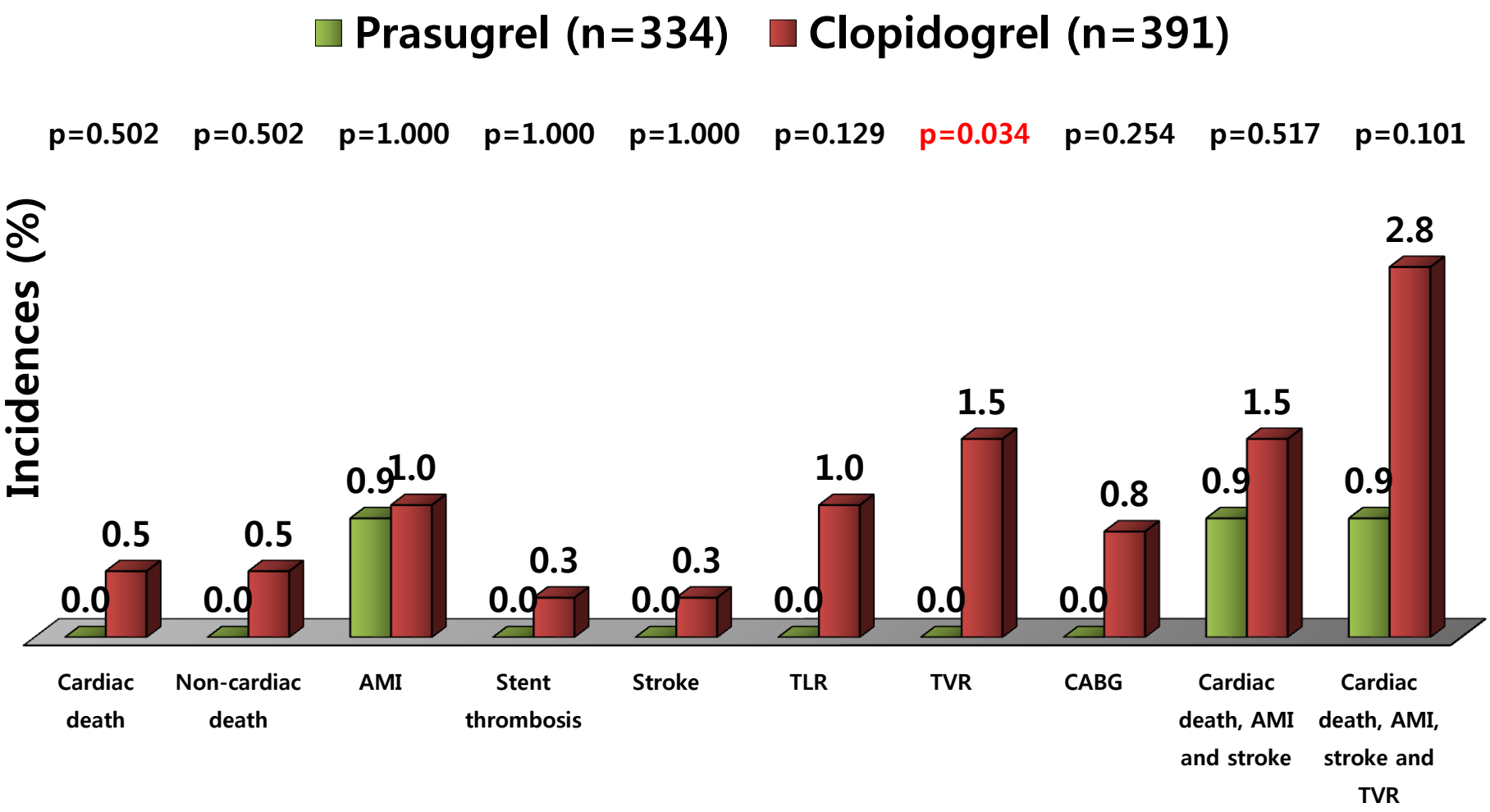


In-hospital Clinical Outcomes in Prasugrel



6-month Clinical Outcomes

Only available 77.3% of Survivors



Are the New P2Y12 RI really harmful to Korean AMI patients ?

"Poison and medicine are often the same thing, given in different proportions."
- Jodi Picoult

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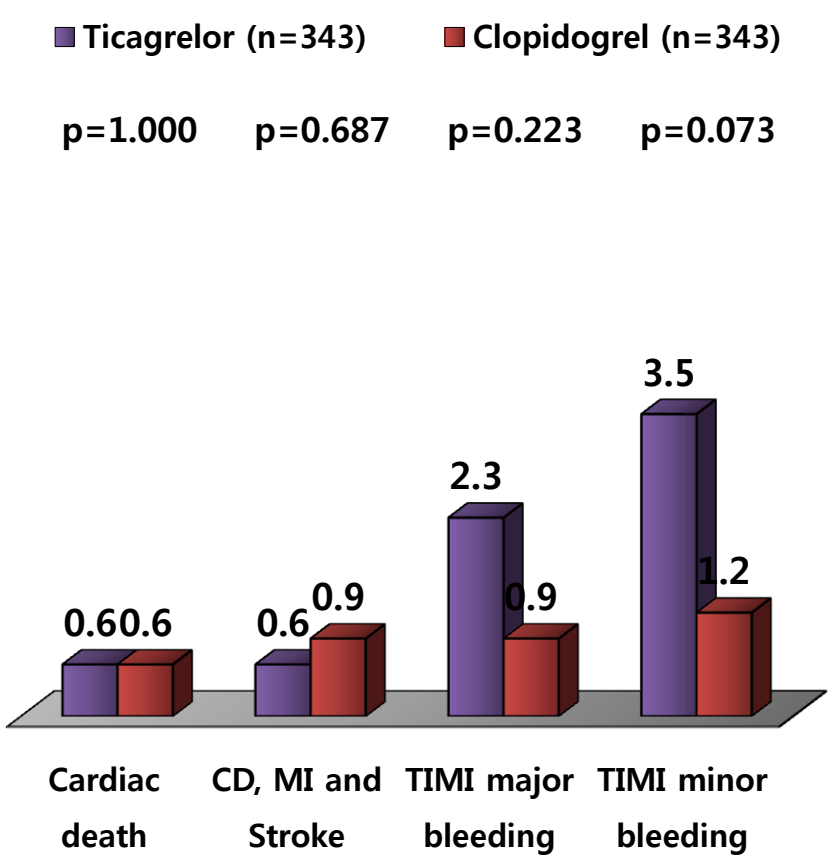
What can we do?

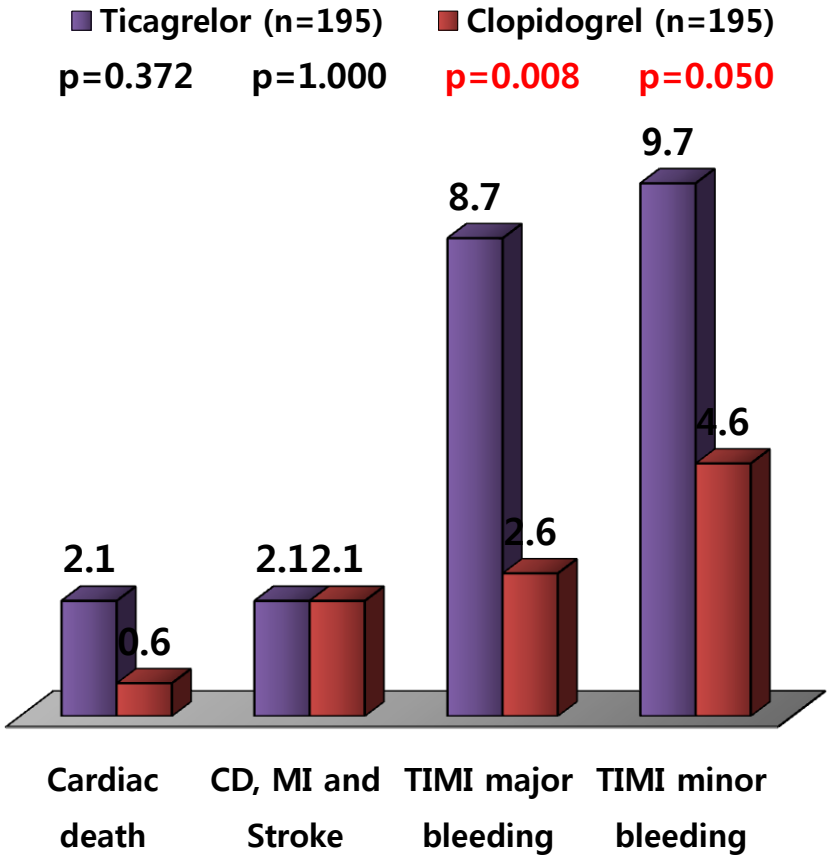
- ✓ Patients selection in Ticagrelor
- ✓ Pretreatment of Prasugrel in NSTE-ACS
- ✓ Optimal MD of Prasugrel

In-hospital Clinical Outcome in Ticagrelor : Core Cohort

<75 yrs old or BW ≥60kg



≥75 yrs old or BW <60kg



2014 ESC/EACTS Guidelines for STEMI undergoing Primary PCI

Recommendations	Class[a]	Level[b]	Ref[c]
Antiplatelet therapy			
ASA is recommended for all patients without contraindications at an initial oral loading dose of 150–300 mg (or 80–150 mg i.v.) and at a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	I	A	776,794
A $P2Y_{12}$ inhibitor is recommended in addition to ASA and maintained over 12 months unless there are contraindications such as excessive risk of bleeding. Options are:	I	A	–
• Prasugrel (60 mg loading dose, 10 mg daily dose) if no contraindication	I	B	828
• Ticagrelor (180 mg loading dose, 90 mg twice daily) if no contraindication	I	B	823
• Clopidogrel (600 mg loading dose, 75 mg daily dose), only when prasugrel or ticagrelor are not available or are contraindicated.	I	B	812
It is recommended to give $P2Y_{12}$ inhibitors at the time of first medical contact.	I	B	777,846–848
GP IIb/IIIa inhibitors should be considered for bail-out or evidence of no-reflow or a thrombotic complication.	IIa	C	–
Upstream use of a GP IIb/IIIa inhibitor (vs. in-lab use) may be considered in high-risk patients undergoing transfer for primary PCI.	IIb	B	271,834, 835,849

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Pretreatment with Prasugrel in Non–ST-Segment Elevation Acute Coronary Syndromes

Gilles Montalescot, M.D., Ph.D., Leonardo Bolognese, M.D., Dariusz Dudek, M.D., Ph.D., Patrick Goldstein, M.D., Christian Hamm, M.D., Jean-Francois Tanguay, M.D., Jurrien M. ten Berg, M.D., Ph.D., Debra L. Miller, R.N., Timothy M. Costigan, Ph.D., Jochen Goedicke, M.D., Johanne Silvain, M.D., Ph.D., Paolo Angioli, M.D., Jacek Legutko, M.D., Ph.D., Margit Niethammer, M.D., Zuzana Motovska, M.D., Ph.D., Joseph A. Jakubowski, Ph.D., Guillaume Cayla, M.D., Ph.D., Luigi Oltrona Visconti, M.D., Eric Vicaut, M.D., Ph.D., and Petr Widimsky, M.D., D.Sc., for the ACCOAST Investigators*

ABSTRACT

BACKGROUND

Although $P2Y_{12}$ antagonists are effective in patients with non–ST-segment elevation (NSTE) acute coronary syndromes, the effect of the timing of administration — before or after coronary angiography — is not known. We evaluated the effect of administering the $P2Y_{12}$ antagonist prasugrel at the time of diagnosis versus administering it after the coronary angiography if percutaneous coronary intervention (PCI) was indicated.

METHODS

We enrolled 4033 patients with NSTE acute coronary syndromes and a positive troponin level who were scheduled to undergo coronary angiography within 2 to 48 hours after randomization. Patients were randomly assigned to receive prasugrel (a 30-mg loading dose) before the angiography (pretreatment group) or placebo (control group). When PCI was indicated, an additional 30 mg of prasugrel was given in the pretreatment group at the time of PCI and 60 mg of prasugrel was given in the control group.

RESULTS

The rate of the primary efficacy end point, a composite of death from cardiovascular causes, myocardial infarction, stroke, urgent revascularization, or glycoprotein IIb/IIIa inhibitor rescue therapy (glycoprotein IIb/IIIa bailout) through day 7, did not differ significantly between the two groups (hazard ratio with pretreatment, 1.02; 95% confidence interval [CI], 0.84 to 1.25; P=0.81). The rate of the key safety end point of all Thrombolysis in Myocardial Infarction (TIMI) major bleeding episodes, whether related or not related to coronary-artery bypass grafting (CABG), through day 7 was increased with pretreatment (hazard ratio, 1.90; 95% CI, 1.19 to 3.02; P=0.006). The rates of TIMI major bleeding and life-threatening bleeding not related to CABG were increased by a factor of 3 and 6, respectively. Pretreatment did not reduce the rate of the primary outcome among patients undergoing PCI (69% of the patients) but increased the rate of TIMI major bleeding at 7 days. All the results were confirmed at 30 days and in prespecified subgroups.

CONCLUSIONS

Among patients with NSTE acute coronary syndromes who were scheduled to undergo catheterization, pretreatment with prasugrel did not reduce the rate of major ischemic events up to 30 days but increased the rate of major bleeding complications. (Funded by Daiichi Sankyo and Eli Lilly; ACCOAST ClinicalTrials.gov number, NCT01015287.)

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Montalescot at the ACTION Study Group, Institut de Cardiologie, Centre Hospitalier Universitaire Pitié–Salpêtrière, 47 Blvd. de l'Hôpital, 75013 Paris, France, or at gilles.montalescot@psl.aphp.fr.

* Investigators in the Comparison of Prasugrel at the Time of Percutaneous Coronary Intervention (PCI) or as Pretreatment at the Time of Diagnosis in Patients with Non-ST Elevation Myocardial Infarction (ACCOAST) are listed in the Supplementary Appendix, available at NEJM.org.

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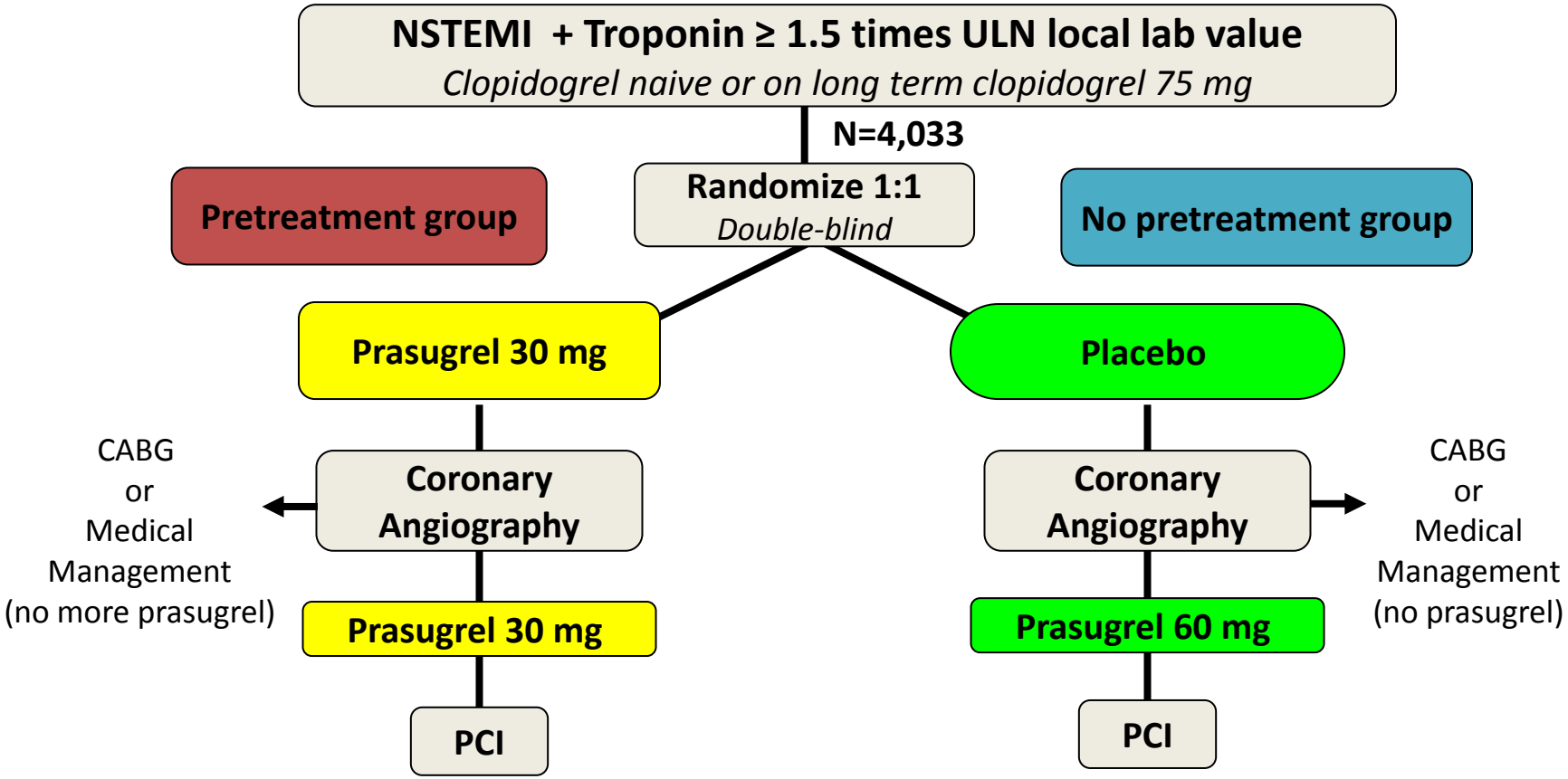
Study Design

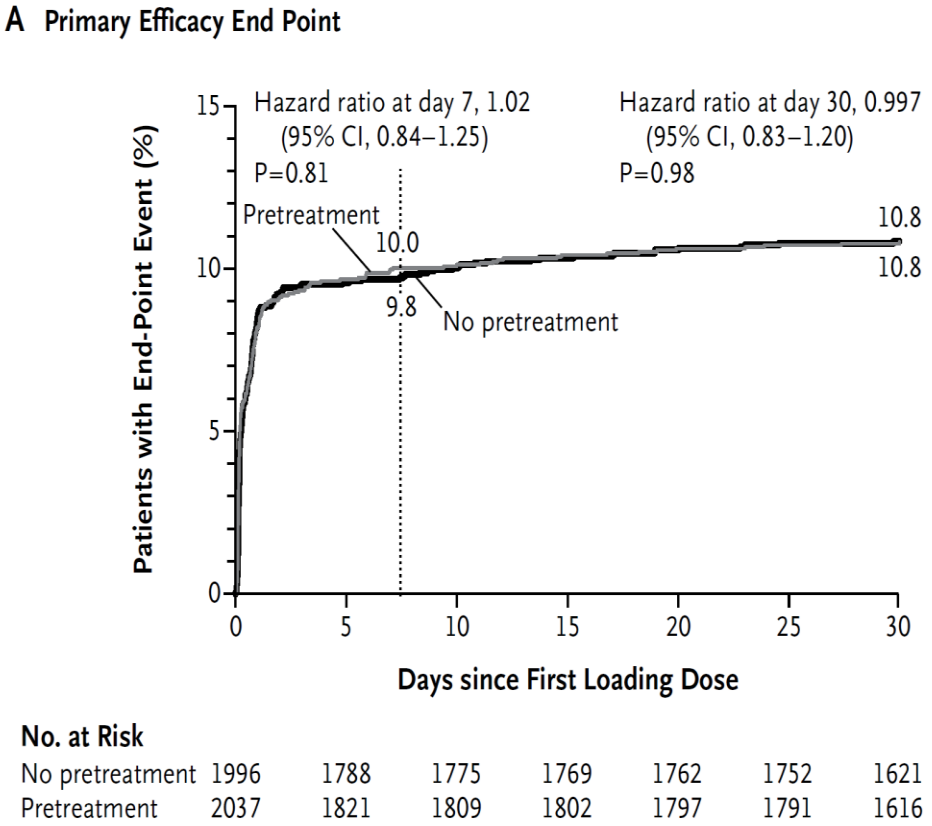


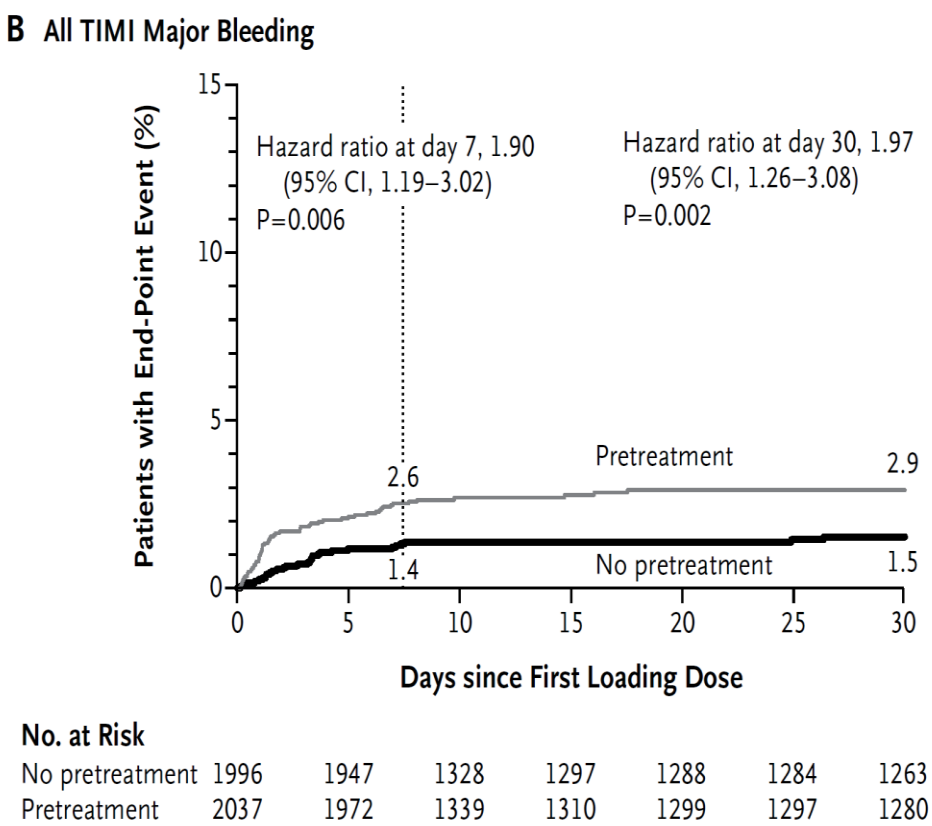
Prasugrel 10 mg or 5 mg (based on weight and age) for 30 days

1° Endpoint: CV Death, MI, Stroke, Urg Revasc, GP IIb/IIIa bailout, at 7 days

Montalescot G et al. *Am Heart J* 2011;161:650-656.

Primary Efficacy and Safety Endpoints : All patients





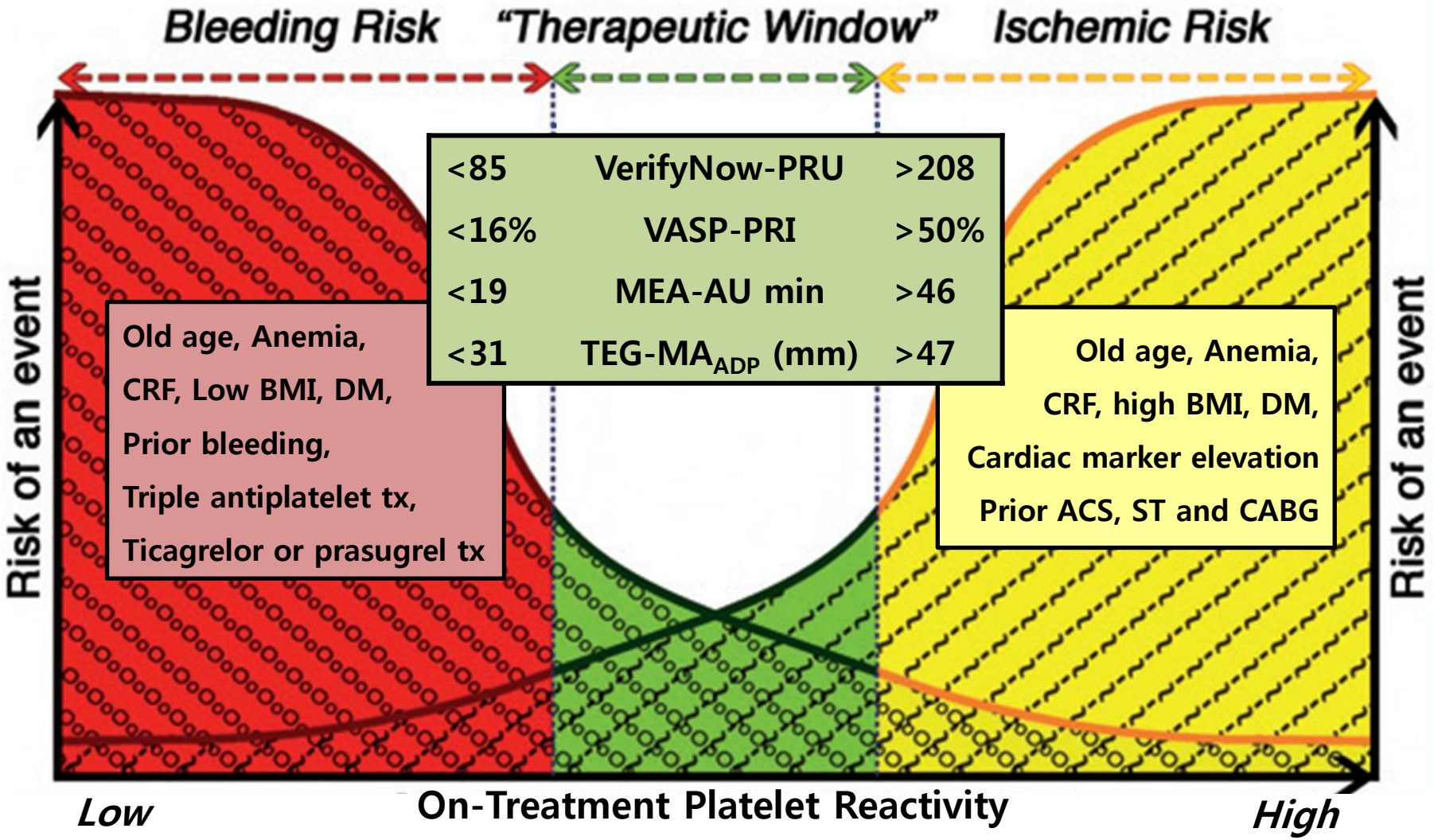
Montalescot G et al. *N Engl J Med* 2013;369:999-1010.

2014 ESC/EACTS Guidelines for NSTE-ACS undergoing PCI

Recommendations	Class[a]	Level[b]	Ref[c]
Antiplatelet therapy			
ASA is recommended for all patients without contraindications at an initial oral loading dose of 150–300 mg (or 80–150 mg i.v.), and at a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	I	A	774,776,794
A $P2Y_{12}$ inhibitor is recommended in addition to ASA, and maintained over 12 months unless there are contraindications such as excessive risk of bleeding. Options are:	I	A	337,341,825
• Prasugrel (60 mg loading dose, 10 mg daily dose) in patients in whom coronary anatomy is known and who are proceeding to PCI if no contraindication.	I	B	337
• Ticagrelor (180 mg loading dose, 90 mg twice daily) for patients at moderate-to-high risk of ischaemic events, regardless of initial treatment strategy including those pre-treated with clopidogrel if no contraindication.	I	B	341
• Clopidogrel (600 mg loading dose, 75 mg daily dose), only when prasugrel or ticagrelor are not available or are contraindicated.	I	B	812,825
GP IIb/IIIa antagonists should be considered for bail-out situation or thrombotic complications.	IIa	C	
Pre-treatment with prasugrel in patients in whom coronary anatomy not known, is not recommended.	III	B	826
Pre-treatment with GP IIb/IIIa antagonists in patients in not known, is not recommended.	III	A	357,815

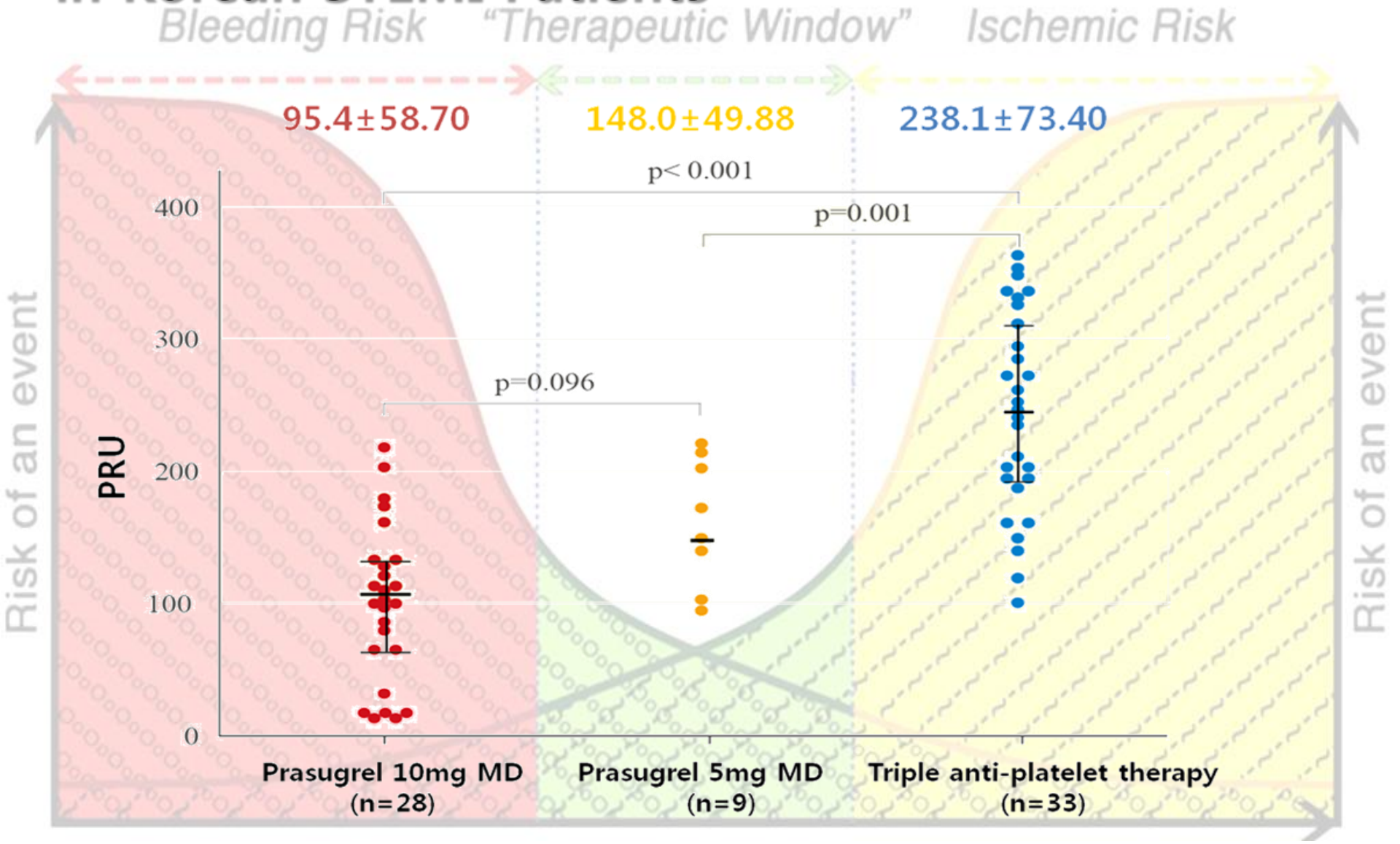
What is the Optimal Dosage of Prasugrel in Korean AMI Patients ?

Impact of Platelet Reactivity on the Balanace between Safety and Efficacy



Tantry US et al. *J Am Coll Cardiol* 2013;62(24):2261-73.

PRU at Pre-discharge according to MD Prasugrel in Korean STEMI Patients

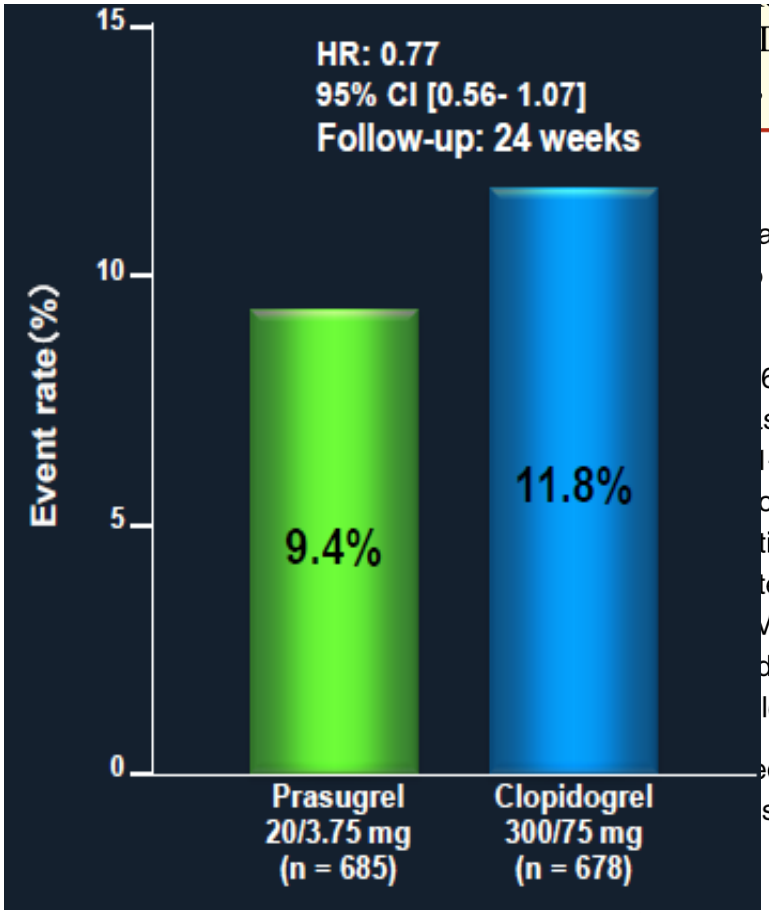


Park KH et al. *J of Cardiol* 2014;63:99-105.

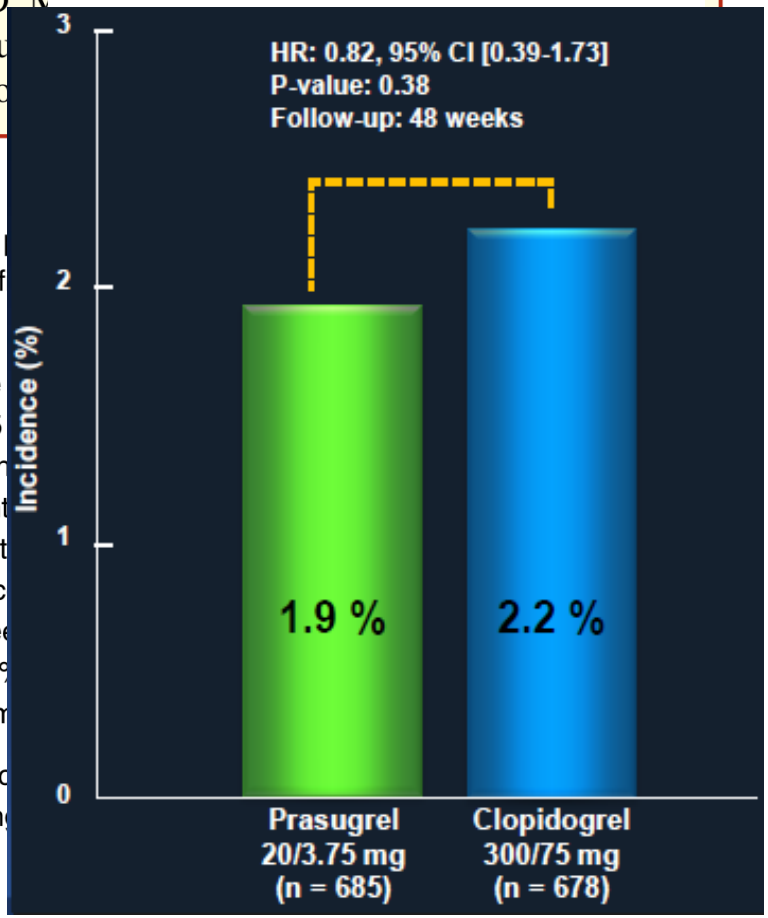
Efficacy and Safety of Adjusted-Dose Prasugrel Compared With Clopidogrel in Japanese Patients With Acute Coronary Syndrome

– The PRASFIT-ACS Study –

CV death, non-fatal MI and Stroke

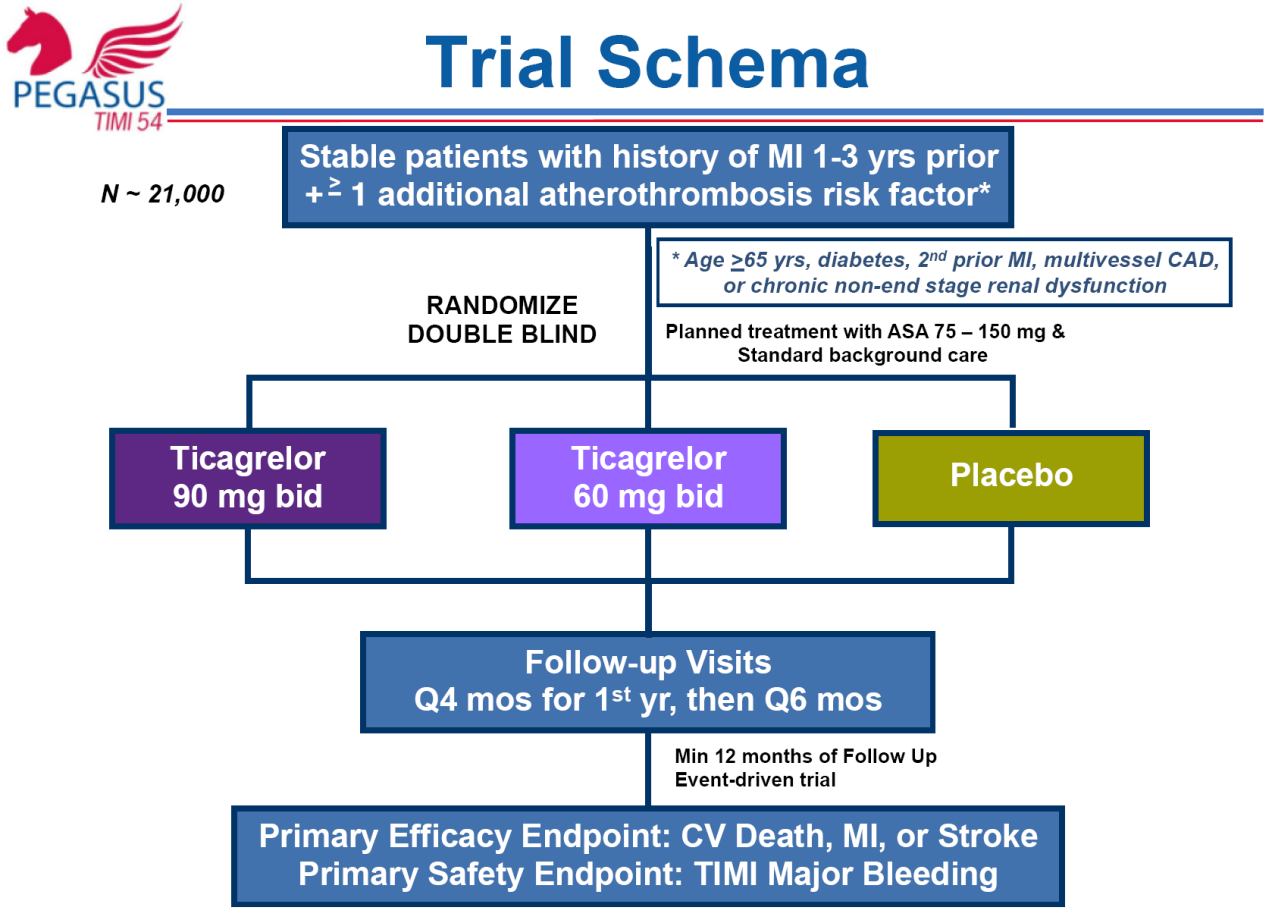


Non-CABG major bleeding



Key Words: Acute coronary syndrome; Clopidogrel; Major adverse cardiovascular events; Percutaneous coronary intervention; Prasugrel

Low Dosage of Ticagrelor



Study Schema for PEGASUS-TIMI 54. *CAD*, Coronary artery disease; *MI*, myocardial infarction.

Bonaca MP et al. *Am Heart J* 2014;167:437-444.

Study Limitations

- ✓ Our study was a large, prospective, observational registry and non-randomized trial.

- ✓ This might have introduced a significant bias in patient selection, even though it was partially compensated for by propensity score matching analysis to control the baseline biases.

- ✓ Long-term follow-up data were not available.

Conclusion

- ✓ New P2Y12 RI (Ticagrelor or Prasugrel) are superior to clopidogrel for AMI/PCI with statistically significant higher inhibition of platelet aggregation (IPA).
- ✓ In the KAMIR-NIH registry, a significantly higher incidence of in-hospital bleeding complications is observed in New P2Y12 RI compared with clopidogrel, even though it couldn't be affected in short-term mortality.
- ✓ Therefore, further large, long-term, and randomized trial will be needed to evaluate the efficacy and the safety of new P2Y12 RI in Korean AMI patients.

Thank you for your attention !