19th Joint Meeting of Cardiovascular Interventon and Revascularization
Dec 12-14th 2019

Current Status of Korea Acute Myocardial Infarction Registry

Myung Ho Jeong, MD, PhD, FACC, FAHA, FESC, FSCAI, FAPSIC
On behalf of KAMIR Investigators

Principal Investigator of Korea Acute Myocardial Infarction Registry,
President of Korean Society of Myocardial Infarction,
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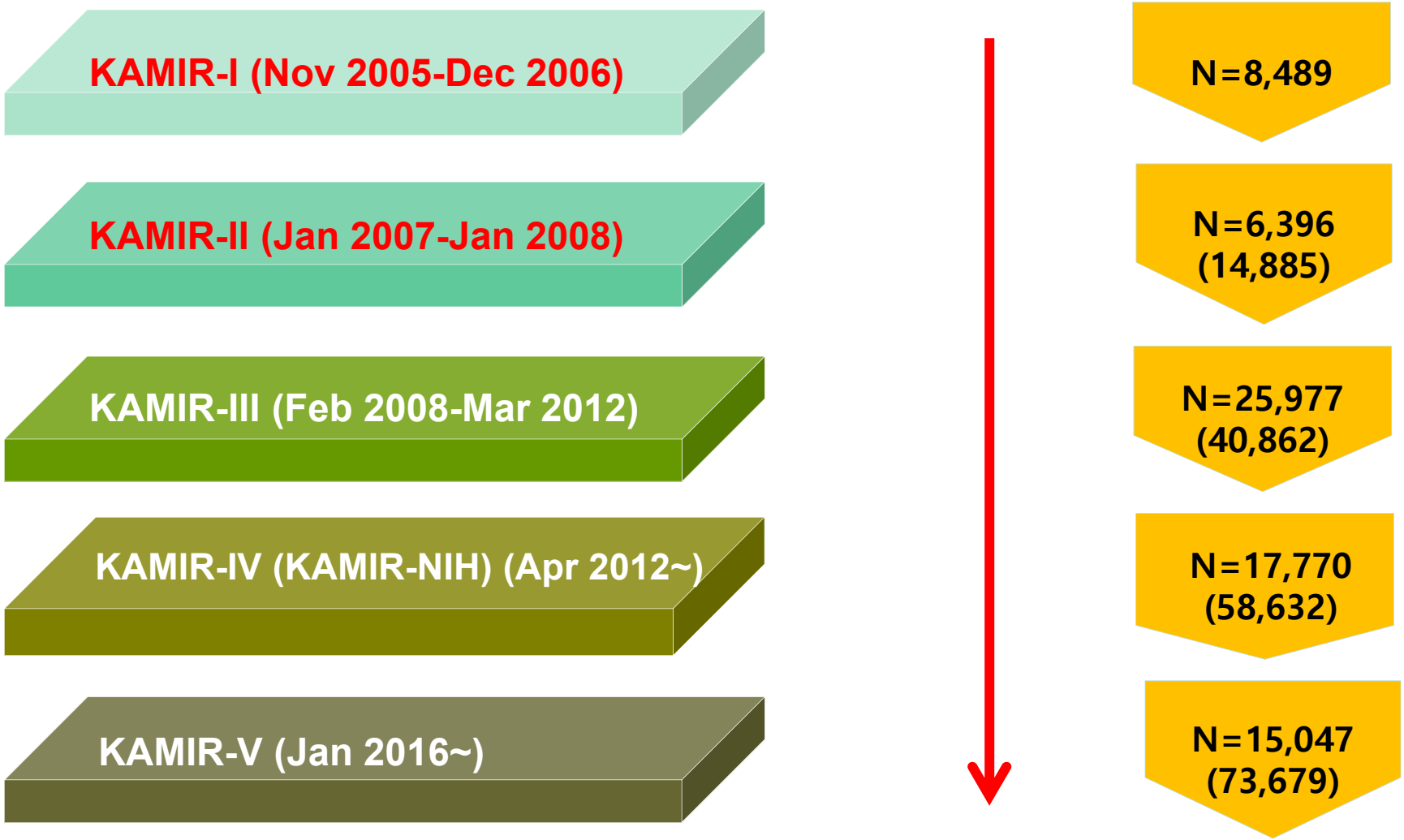
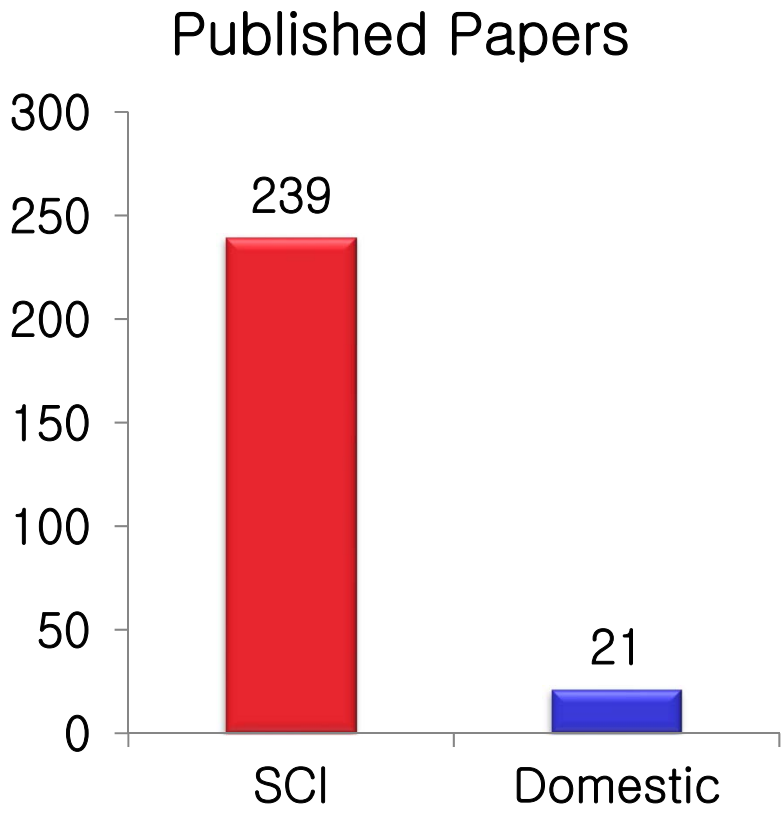
Professor of Chonnam National University Hospital, Gwangju, Korea

KAMIR Supported by Korean Society of Cardiology and Korea NIH



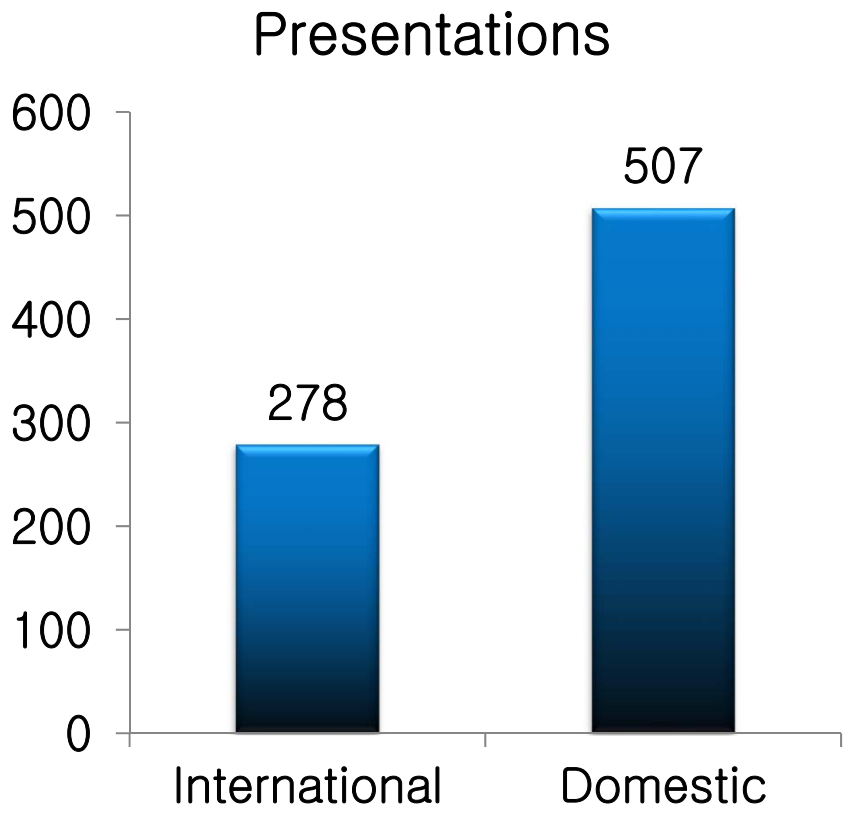
KAMIR Publications and Presentations (2005~2019)

The Largest Number of Papers in the World



260 Papers (239 SCI)

JAMA, BMJ, Circulation, JACC



785 Presentations

Clinical Experience of KAMIR

1. General Trend
2. Risk Factor
3. Risk Stratification
4. Medical Treatment
5. Interventional Treatment

General Trend of KAMIR

Current Trend of KAMIR - *Dec 2014 Am J Cardiol*

Current Trend of Acute Myocardial Infarction in Korea (from the Korea Acute Myocardial Infarction Registry from 2006 to 2013)

Hyun Yi Kook, RN[a], Myung Ho Jeong, MD[a,*], Sangeun Oh, RN, PhD[b], Sung-Hee Yoo, RN, PhD[b], Eun Jung Kim, RN[a], Youngkeun Ahn, MD[a], Ju Han Kim, MD[a], Leem Soon Chai, RN[c], Young Jo Kim, MD[d], Chong Jin Kim, MD[e], and Myeong Chan Cho, MD[f], other Korea Acute Myocardial Infarction Registry Investigators

Although the incidence of acute myocardial infarction (AMI) in Korea has been rapidly changed because of westernization of diet, lifestyle, and aging of the population, the recent trend of the myocardial infarction have not been reported by classification. We investigated recent trends in the incidence and mortality associated with the 2 major types of AMI. We reviewed 39,978 patients registered in the Korea Acute Myocardial Infarction Registry for either ST-segment elevation acute myocardial infarction (STEMI) or non–ST-segment elevation acute myocardial infarction (NSTEMI) from 2006 to 2013. When the rate for AMI were investigated according to each year, the incidence rates of STEMI decreased markedly from 60.5% in 2006 to 48.1% in 2013 ($p < 0.001$). In contrast, a gradual increase in the incidence rates of NSTEMI was observed from 39.5% in 2006 to 51.9% in 2013 ($p < 0.001$). As risk factors, hypertension, diabetes mellitus, and dyslipidemia were much more common in patients with NSTEMI than STEMI. Among medical treatments, the use of β blockers, angiotensin receptor blocker, and statin were increased from 2006 to 2013 in patients with STEMI and NSTEMI. Patients with STEMI and NSTEMI were more inclined to be increasingly treated by invasive treatments with percutaneous coronary intervention. In conclusion, this study demonstrated that the trend of myocardial infarction has been changed rapidly in the aspect of risk factors, ratio of STEMI versus NSTEMI, and therapeutic strategies during the recent 8 years in Korea. (Am J Cardiol 2014;■:■–■)

KAMIR Investigators, Am J Cardiol 2014;114:1817-22

General Trend of KAMIR

		2006	2007	2008	2009	2010	2011	2012	2013	*p* for trend
Risk factors										
HT	STEMI	1,753 (45.3)	1,453 (45.4)	1,670 (47.6)	1,456 (46.5)	1,206 (47.5)	1,172 (49.1)	920 (62.8)	760 (66.7)	<0.001
	NSTEMI	1,365 (53.9)	1,118 (54.3)	1,392 (56.3)	1,382 (56.0)	1,094 (56.1)	1,169 (57.6)	1,097 (69.4)	979 (73.4)	<0.001
DM	STEMI	951 (24.6)	794 (24.8)	878 (25.0)	771 (24.6)	616 (24.3)	622 (26.1)	505 (34.5)	411 (36.1)	<0.001
	NSTEMI	821 (32.5)	664 (32.2)	788 (31.8)	772 (31.3)	644 (33.0)	637 (31.4)	667 (42.2)	553 (41.5)	<0.001
DL	STEMI	238 (6.2)	310 (9.7)	370 (10.6)	298 (9.5)	338 (13.4)	288 (12.1)	200 (13.7)	179 (15.7)	<0.001
	NSTEMI	265 (10.5)	281 (13.7)	366 (14.8)	298 (12.1)	287 (14.8)	279 (13.8)	227 (14.4)	224 (16.8)	<0.001

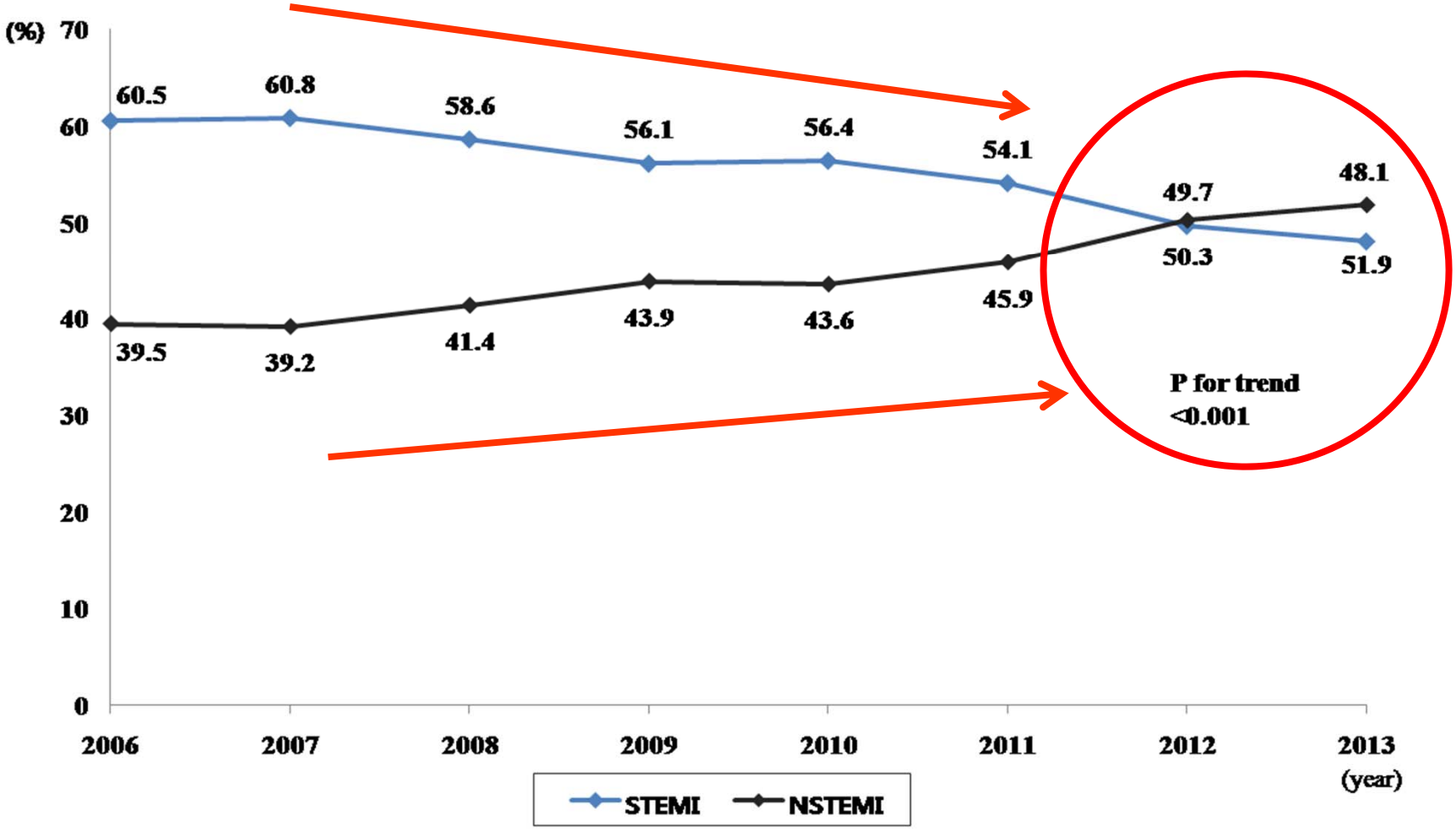
KAMIR Investigators, Am J Cardiol 2014;114:1817-22

General Trend of KAMIR

		2006	2007	2008	2009	2010	2011	2012	2013	*p* for trend
Smoking history	STEMI	2,380 (62.0)	1,922 (60.4)	1,653 (47.5)	1,475 (47.4)	1,166 (46.6)	1,129 (46.9)	871 (44.6)	728 (44.6)	<0.001
	NSTEMI	1,285 (51.1)	1,0848 (51.3)	963 (39.4)	889 (36.7)	674 (34.8)	671 (32.9)	690 (34.9)	608 (34.5)	<0.001
Previous angina	STEMI	1,467 (38.3)	1,170 (37.0)	1,233 (35.2)	953 (30.8)	826 (32.6)	804 (33.3)	461 (23.7)	364 (22.3)	<0.001
	NSTEMI	1,199 (47.7)	1081 (52.9)	1,134 (46.0)	1,015 (42.1)	888 (45.7)	964 (47.2)	671 (33.9)	560 (31.8)	<0.001

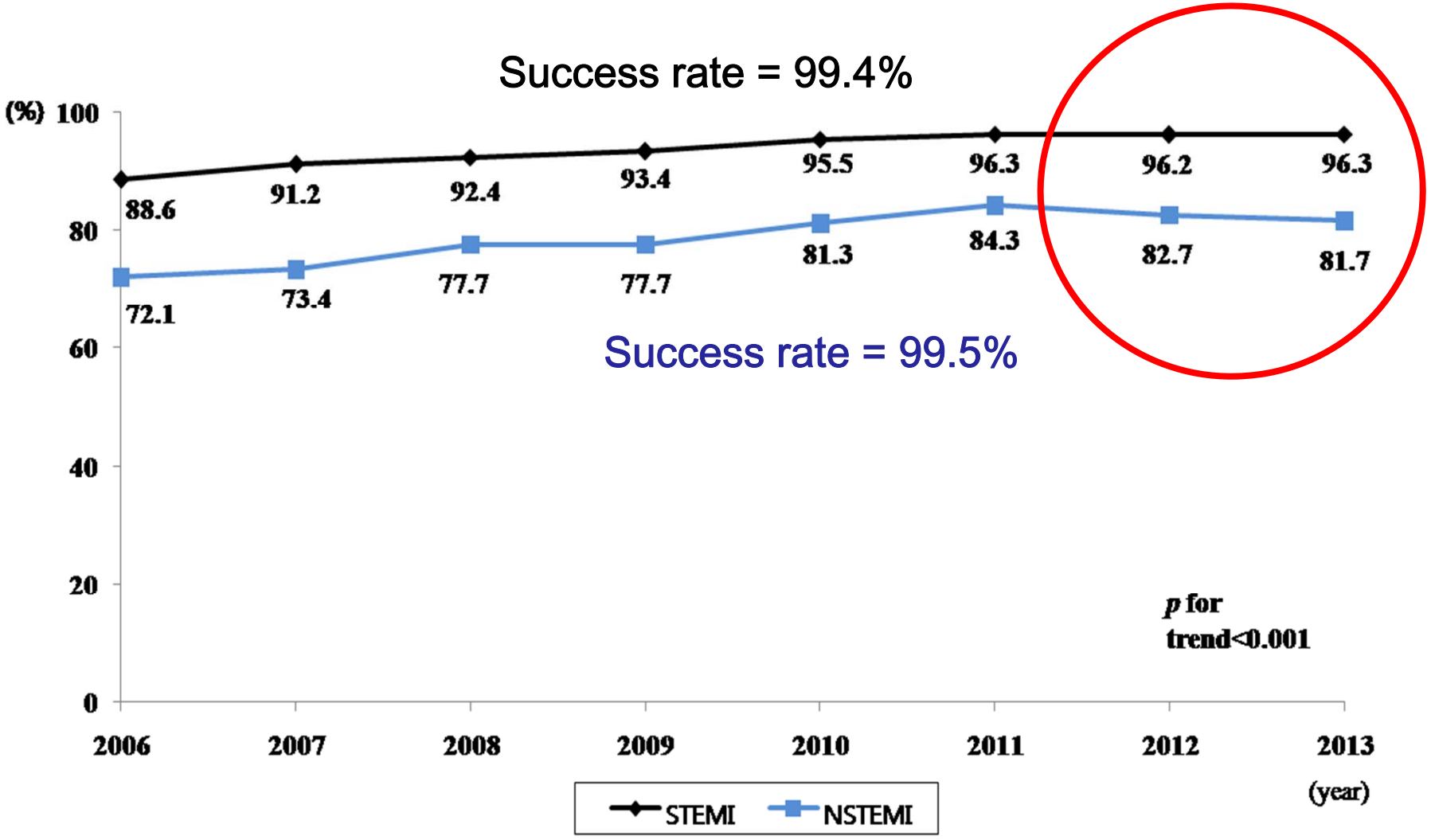
KAMIR Investigators, Am J Cardiol 2014;114:1817-22

Incidence Rate for STEMI and NSTEMI



KAMIR Investigators, Am J Cardiol 2014;114:1817-22

PCI Rate for STEMI and NSTEMI



KAMIR Investigators, Am J Cardiol 2014;114:1817-22

10-Year Experience of KAMIR - *Aug 2018 Am J Cardiol*

ARTICLE IN PRESS

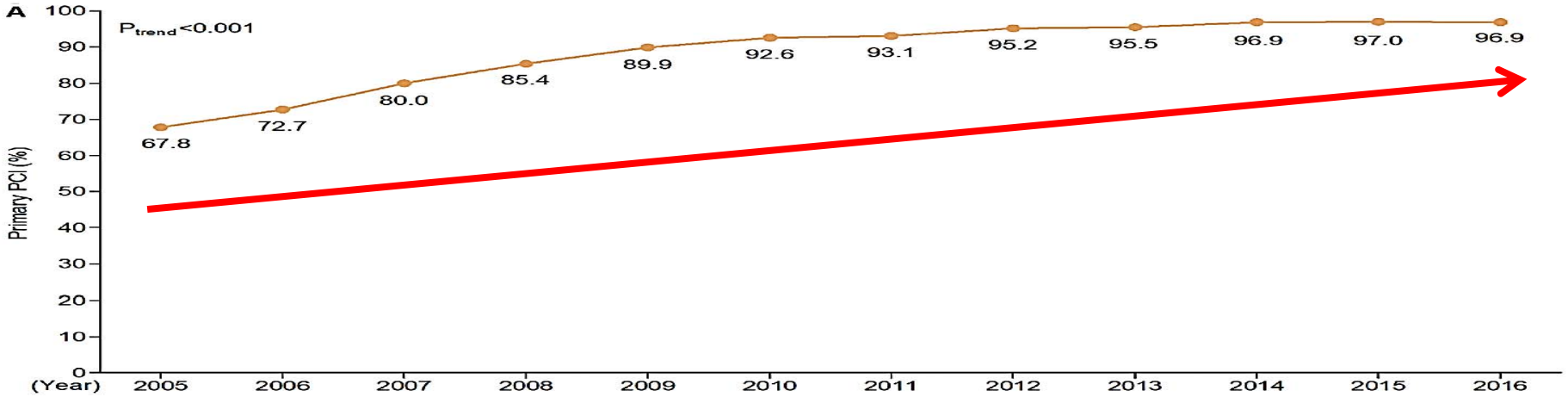
Results of a 10-Year Experience in Korea Using Drug-Eluting Stents During Percutaneous Coronary Intervention for Acute Myocardial Infarction (from the Korea Acute Myocardial Infarction Registry)

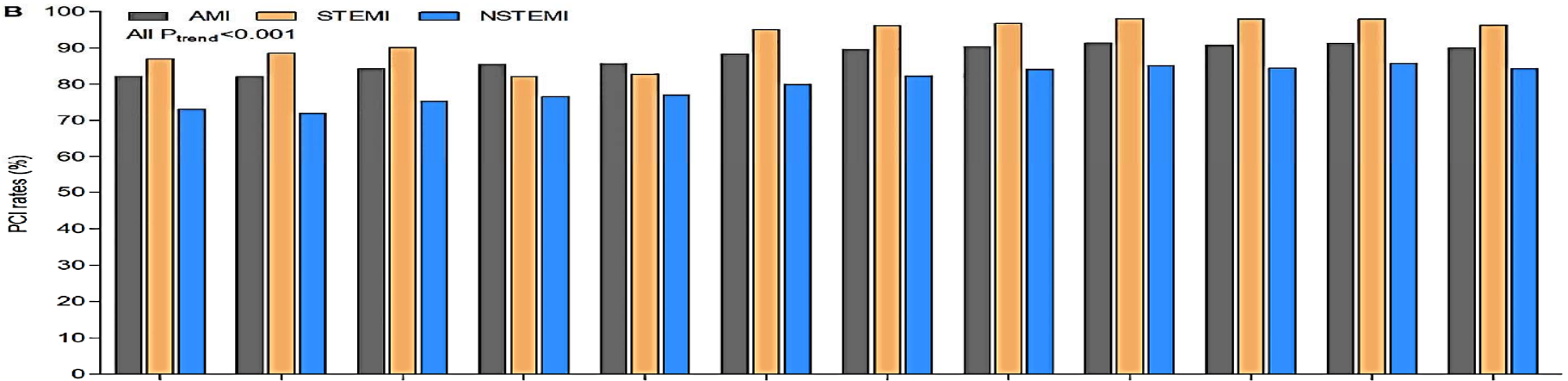
Yongcheol Kim, MD[a], Myung Ho Jeong, MD, PhD[a,*], Youngkeun Ahn, MD, PhD[a], Ju han Kim, MD, PhD[a], Young Joon Hong, MD, PhD[a], Doo Sun Sim, MD, PhD[a], Min Chul Kim, MD, PhD[a], Hyo-Soo Kim, MD, PhD[b], Seung Jung Park, MD, PhD[c], Hyeon Cheol Gwon, MD, PhD[d], Kyeong Ho Yun, MD, PhD[e], Seok Kyu Oh, MD, PhD[e], Chong Jin Kim, MD, PhD[f], and Myeong Chan Cho, MD, PhD[g], Other Korea Acute Myocardial Infarction Registry (KAMIR) Investigators

Limited information exists about characteristics of patients with acute myocardial infarction (AMI) in Asia. We examined trends in interventional treatment and clinical outcomes for AMI from the Korea Acute Myocardial Infarction Registry (KAMIR). The study population was derived from patients in the KAMIR from November 2005 to December 2016. We identified 54,402 patients with ST-elevation myocardial infarction (STEMI) (n = 29,222) and non-ST-elevation myocardial infarction (NSTEMI) (n = 25,180). The rate of percutaneous coronary intervention (PCI) increased to 96.2% of STEMI group and 84.3% of NSTEMI group in 2016, respectively (All p_{trend} <0.001). Furthermore, the rate of successful PCI was 97.3% in STEMI and 97.9% in NSTEMI. The rate of primary PCI increased from 67.8% in 2005 to 96.9% in 2016 (p_{trend} <0.001). Moreover, in patients with STEMI, the proportion of drug-eluting stent implantation increased from 88.8% in 2005 to 97.9% in 2016 (p_{trend} <0.001). Regarding 1-year clinical outcomes, incidence of definite stent thrombosis was 0.5%, 0.6%, and 0.4% in patients with AMI, STEMI, and NSTEMI, respectively. Moreover, 1-year mortality of AMI improved almost 40% compared with in 2005 (11.4% in 2005 and 6.7% in 2015, p_{trend} <0.001). In Korean patients with AMI, the rate of primary PCI and drug-eluting stent implantation in STEMI was evidently higher than in the Western registries. In 1-year clinical outcomes, the incidence of stent thrombosis was low and mortality of AMI gradually improved and was lower than in the Western registries. **(Am J Cardiol 2018;00:1–9)**

KAMIR Investigators. Am J Cardiol 2018;122:365-73

Changing Trend in Primary PCI in patients with STEMI between 2005 and 2016

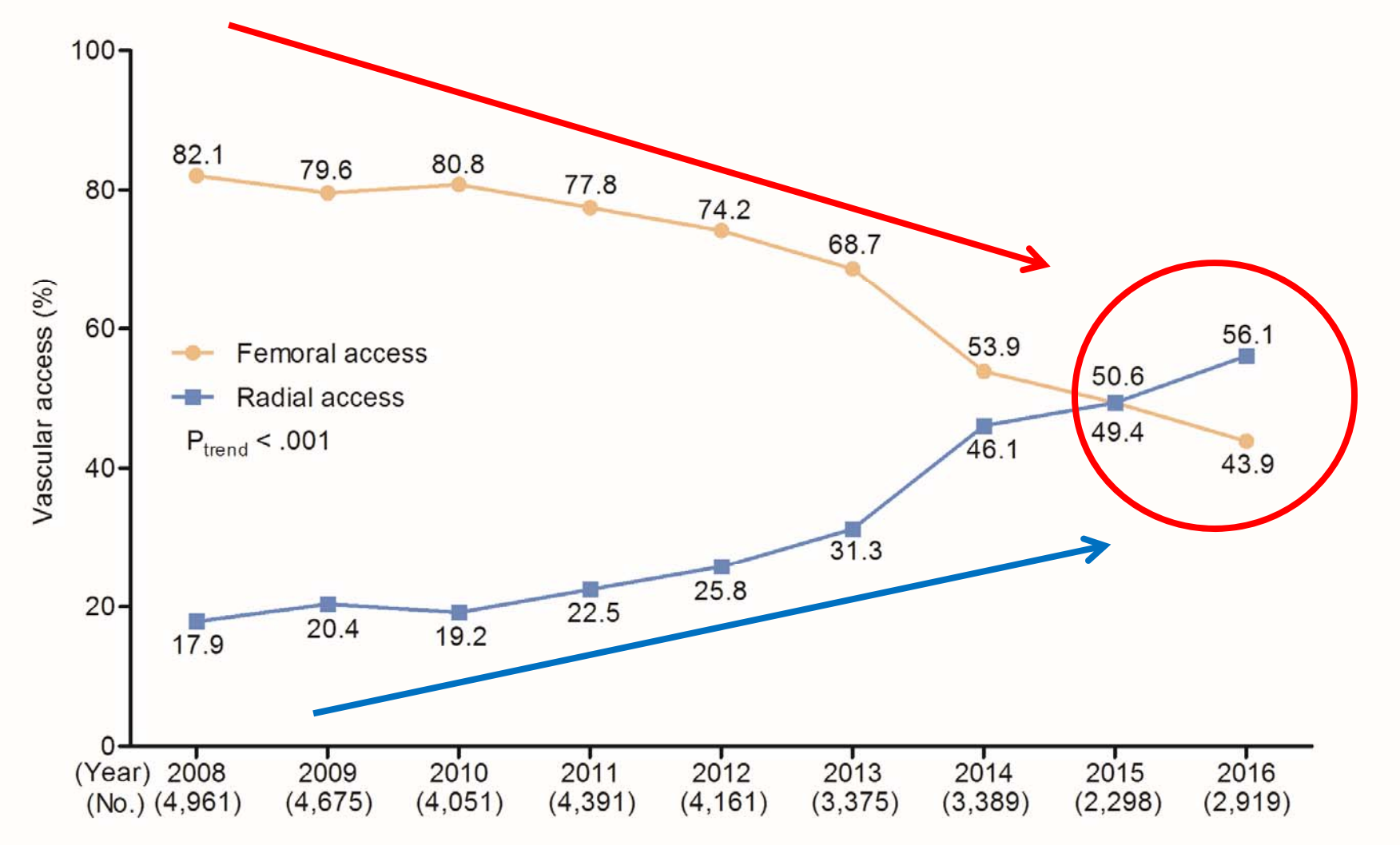




	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AMI	82.0	82.1	84.3	85.5	85.6	88.3	89.5	90.4	91.4	90.7	91.3	90.0
STEMI	87.0	88.6	90.1	92.1	92.8	95.0	96.1	96.7	98.0	97.9	97.9	96.2
NSTEMI	73.1	71.9	75.3	76.6	76.9	79.9	82.2	84.1	85.1	84.5	85.7	84.3

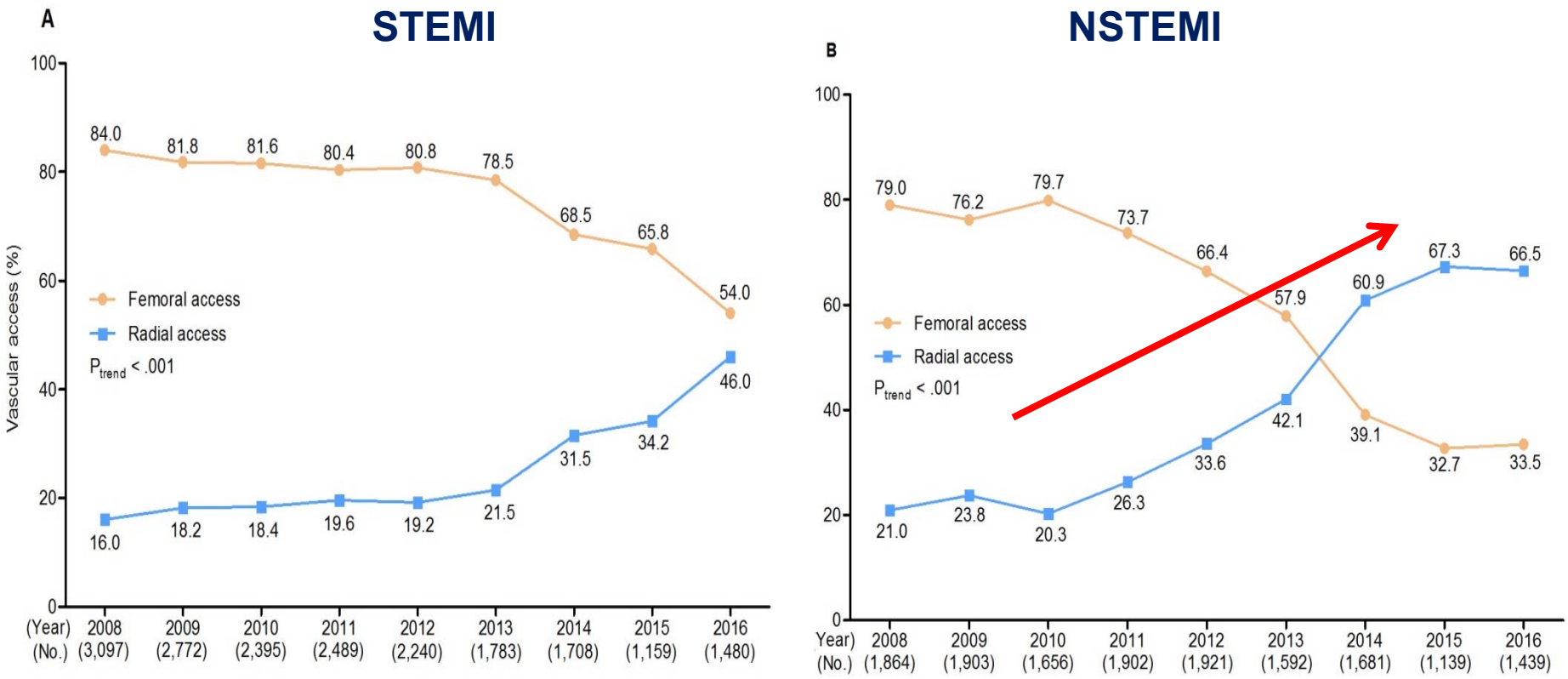
KAMIR Investigators. Am J Cardiol 2018;122:365-73

Changing Trend in Vascular Access in Patients with AMI between 2005 and 2016



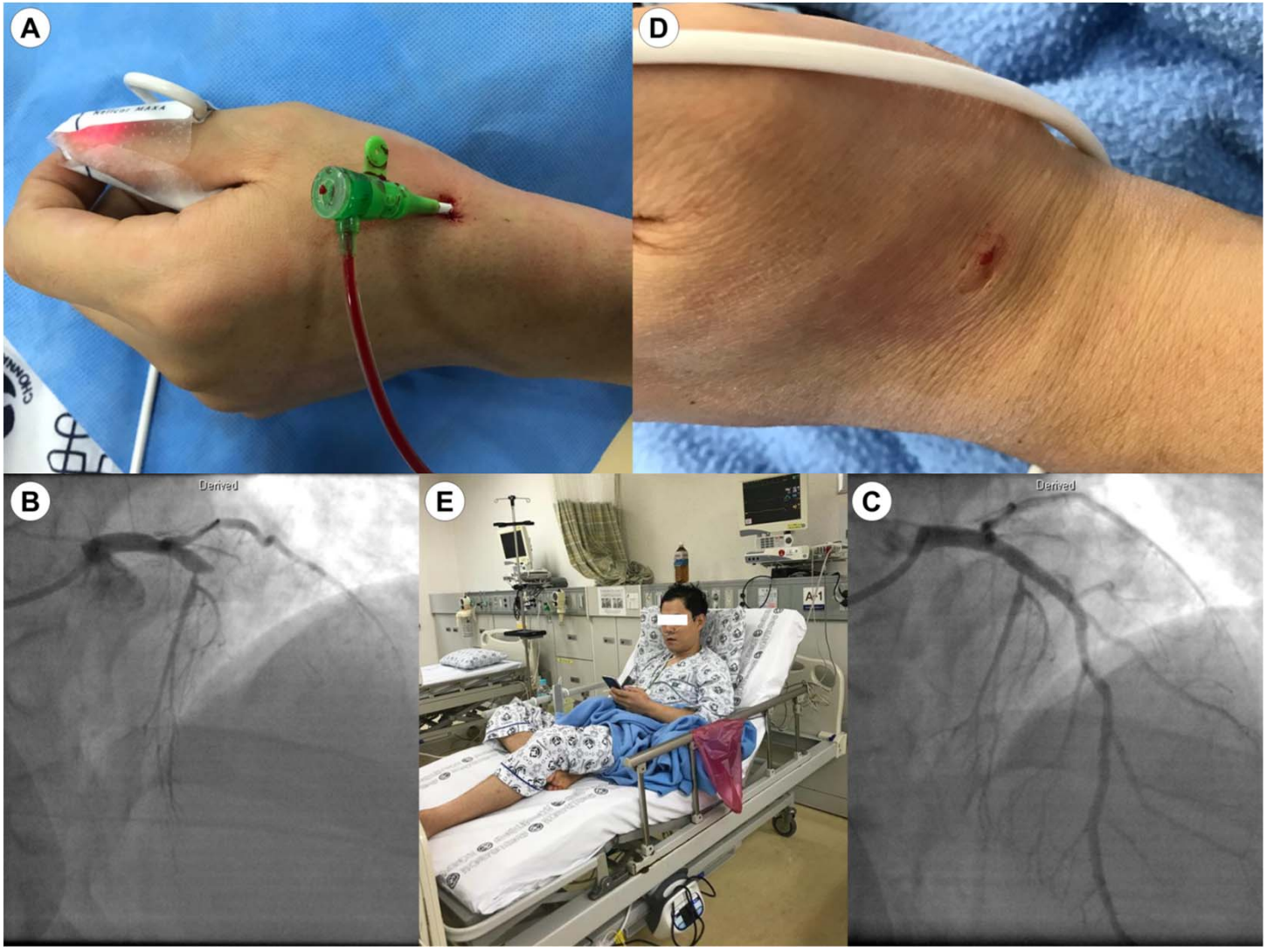
KAMIR Investigators. Am J Cardiol 2018;122:365-73

The comparison of trends in vascular access in patients with STEMI and NSTEMI



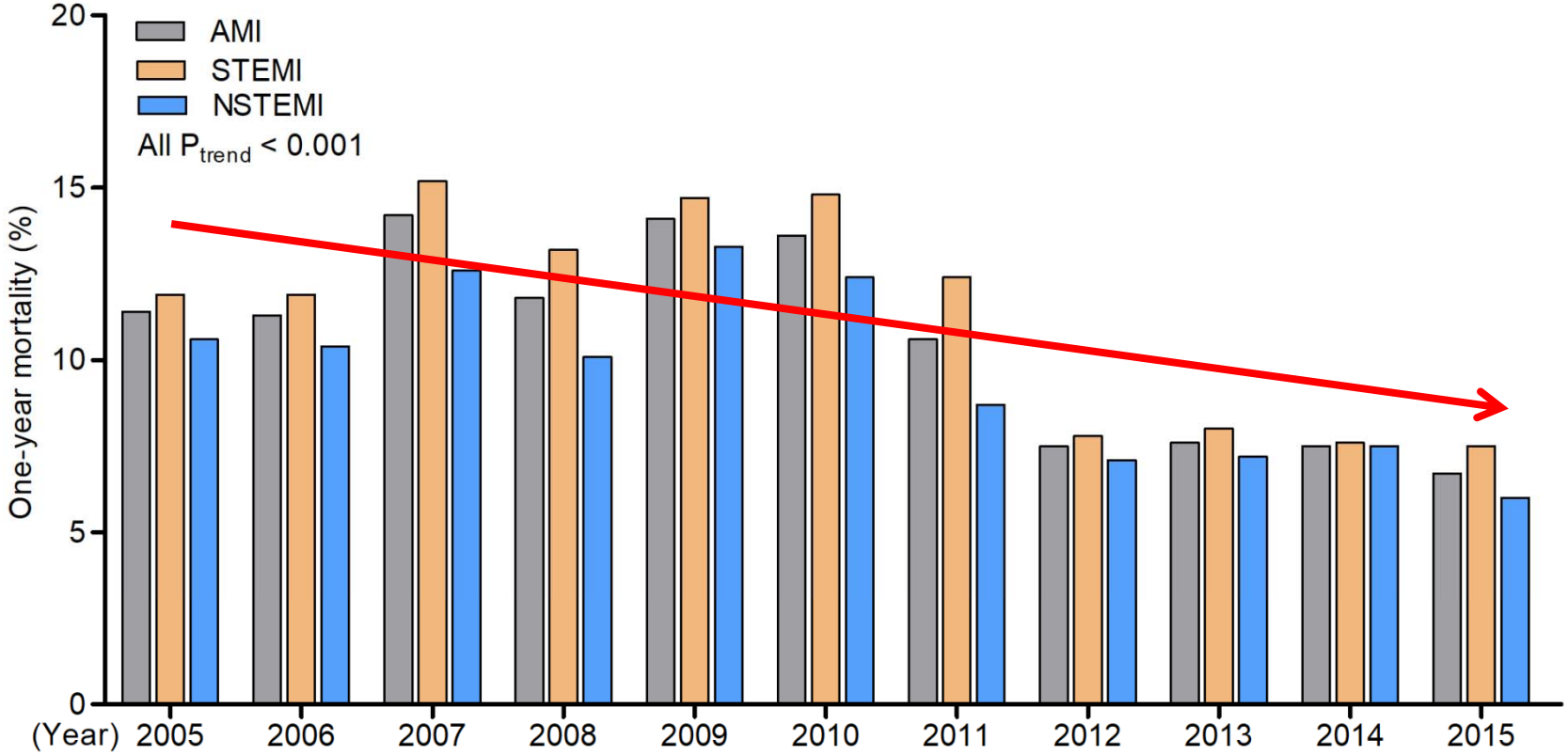
KAMIR Investigators. Am J Cardiol 2018;122:365-73

Successful Primary PCI in patients with STEMI through Left Snuffbox Approach



CNUH data. Cardiol J 2019;26:198-199

Changing Trend in One-year Mortality in patients with STEMI and NSTEMI between 2005 and 2016



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AMI	11.4	11.3	14.2	11.8	14.1	13.6	10.6	7.5	7.6	7.5	6.7
STEMI	11.9	11.9	15.2	13.2	14.7	14.8	12.4	7.8	8.0	7.6	7.5
NSTEMI	10.6	10.4	12.6	10.1	13.3	12.4	8.7	7.1	7.2	7.5	6.0

KAMIR Investigators. Am J Cardiol 2018;122:365-73

Clinical Experience of KAMIR

1. General Trend
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4. Medical Treatment
5. Interventional Treatment

Original Article

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kcj
Korean Circulation Journal

Differential Benefit of Statin in Secondary Prevention of Acute Myocardial Infarction according to the Level of Triglyceride and High Density Lipoprotein Cholesterol

Kyung Hwan Kim, MD[1*], Cheol Hwan Kim, MD[1*], Myung Ho Jeong, MD[1], Youngkeun Ahn, MD[1], Young Jo Kim, MD[2], Myeong Chan Cho, MD[3], Wan Kim, MD[4], Jong Jin Kim, MD[5], and Other Korea Acute Myocardial Infarction Registry Investigators

[1]Chonnam National University Hospital, Gwangju, [2]Yeungnam University Hospital, Busan, [3]Chungbuk National University Hospital, Cheongju, [4]Gwangju Veterans Hospital, Gwangju, [5]Kyunghee University College of Medicine, Seoul, Korea

Background and Objectives: The differential benefit of statin according to the state of dyslipidemia has been sparsely investigated. We sought to address the efficacy of statin in secondary prevention of myocardial infarction (MI) according to the level of triglyceride and high density lipoprotein cholesterol (HDL-C) on admission.

Subjects and Methods: Acute MI patients (24653) were enrolled and the total patients were divided according to level of triglyceride and HDL-C on admission: group A (HDL-C≥40 mg/dL and triglyceride<150 mg/dL; n=11819), group B (HDL-C≥40 mg/dL and triglyceride≥150 mg/dL; n=3329), group C (HDL-C<40 mg/dL and triglyceride<150 mg/dL; n=6062), and group D (HDL-C<40 mg/dL & triglyceride≥150 mg/dL; n=3443). We evaluated the differential efficacy of statin according to the presence or absence of component of dyslipidemia. The primary end points were major adverse cardiac events (MACE) for 2 years.

Results: Statin therapy significantly reduced the risk of MACE in group A (hazard ratio =0.676; 95% confidence interval: 0.582-0.785; p<0.001). [redacted] was similar. In

HDL-C<40 mg/dL or/and TG>150 mg = 54%

Conclusion: The benefit of statin in patients with MI was different according to the presence or absence of dyslipidemia. In particular, because of the insufficient benefit of statin in patients with MI and dyslipidemia, a different lipid-lowering strategy is necessary in these patients. **(Korean Circ J 2016;46(3):324-334)**

KAMIR Investigators. *Kor Circ J 2016;46: 324-34*

After propensity matc

MACE				
Group A	(n=6070)		08	1.000
Group B	(n=1388)		97	0.557
Group C	(n=3158)		99	0.376
Group D	(n=1466)		03	0.043

Fig. 1. The benefit of statin on MACE before and after propensity matching in each of the 4 groups, which were divided according to the baseline level of high density lipoprotein cholesterol and triglyceride. Group A (HDL-C≥40 mg/dL and triglyceride<150 mg/dL; n=11819), group B (HDL-C≥40 mg/dL and triglyceride≥150 mg/dL; n=3329), group C (HDL-C<40 mg/dL and triglyceride<150 mg/dL; n=6062) and group D (HDL-C<40 mg/dL and triglyceride≥150 mg/dL; n=3443). MACE: major adverse cardiac event, HDL-C: high density lipoprotein cholesterol, HR: hazard ratio, CI: confidence interval.

Conclusion: The benefit of statin in patients with MI was different according to the presence or absence of dyslipidemia. In particular, because of the insufficient benefit of statin in patients with MI and dyslipidemia, a different lipid-lowering strategy is necessary in these patients. **(Korean Circ J 2016;46(3):324-334)**

KAMIR Investigators. ***Kor Circ J 2016;46: 324-34***
Best Poster Award at 2015 ESC

International Journal of Cardiology 172 (2014) e54–e58

Contents lists available at ScienceDirect

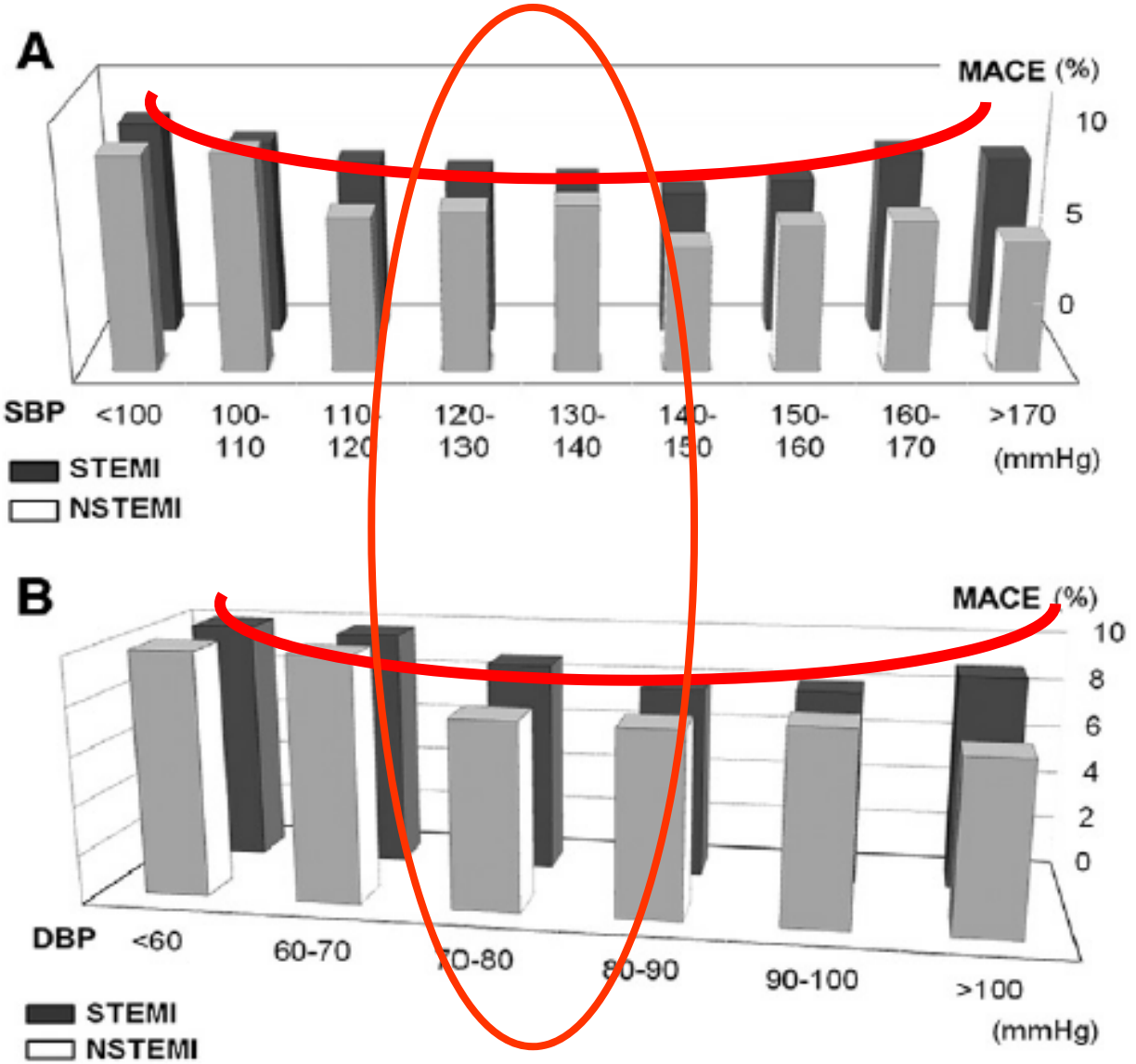
International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard

Impact of high admission blood pressure without history of hypertension on clinical outcomes of patients with acute myocardial infarction: From Korea Acute Myocardial Infarction Registry

Jae Yeong Cho [a], Myung Ho Jeong [a,*], Youngkeun Ahn [a], Hae Chang Jeong [a], Su Young Jang [a], Sung Soo Kim [a], Shi Hyun Rhew [a], Young Wook Jeong [a], Ki Hong Lee [a], Keun-Ho Park [a], Doo Sun Sim [a], Nam Sik Yoon [a], Hyun Ju Yoon [a], Kye Hun Kim [a], Young Joon Hong [a], Hyung Wook Park [a], Ju Han Kim [a], Jeong Gwan Cho [a], Jong Chun Park [a], Young Jo Kim [b], Chong Jin Kim [c], Myeong Chan Cho [d], Kyoo Rok Han [e], Hyo Soo Kim [f], the Korea Acute Myocardial Infarction Registry Investigators

KAMIR Investigators. ***Int J Cardiol 2014;172:e54-8***



KAMIR Investigators. *Int J Cardiol 2014;172:e54-8*

Hypoglycemia at Admission in Patients With Acute Myocardial Infarction Predicts a Higher 30-Day Mortality in Patients With Poorly Controlled Type 2 Diabetes Than in Well-Controlled Patients

*Sang Ah Lee,[1] Suk Ju Cho,[2] Myung Ho Jeong,[3] Young Jo Kim,[4] Chong Jin Kim,[5] Myeong Chan Cho,[6] Hyo-Soo Kim,[7] Youngkeun Ahn,[3] Gwanpyo Koh,[1] Jeong mi Lee,[8] Seok Kyu Oh,[9] Kyeong Ho Yun,[9] Ha Young Kim,[9] Chung Gu Cho,[9] and Dae Ho Lee,[9] on behalf of the KAMIR/KorMI Registry**

Diabetes Care 2014;37:2366–2373 | DOI: 10.2337/dc13-2856

KAMIR Investigators. *Diabetes Care 2014;37:2366-73*

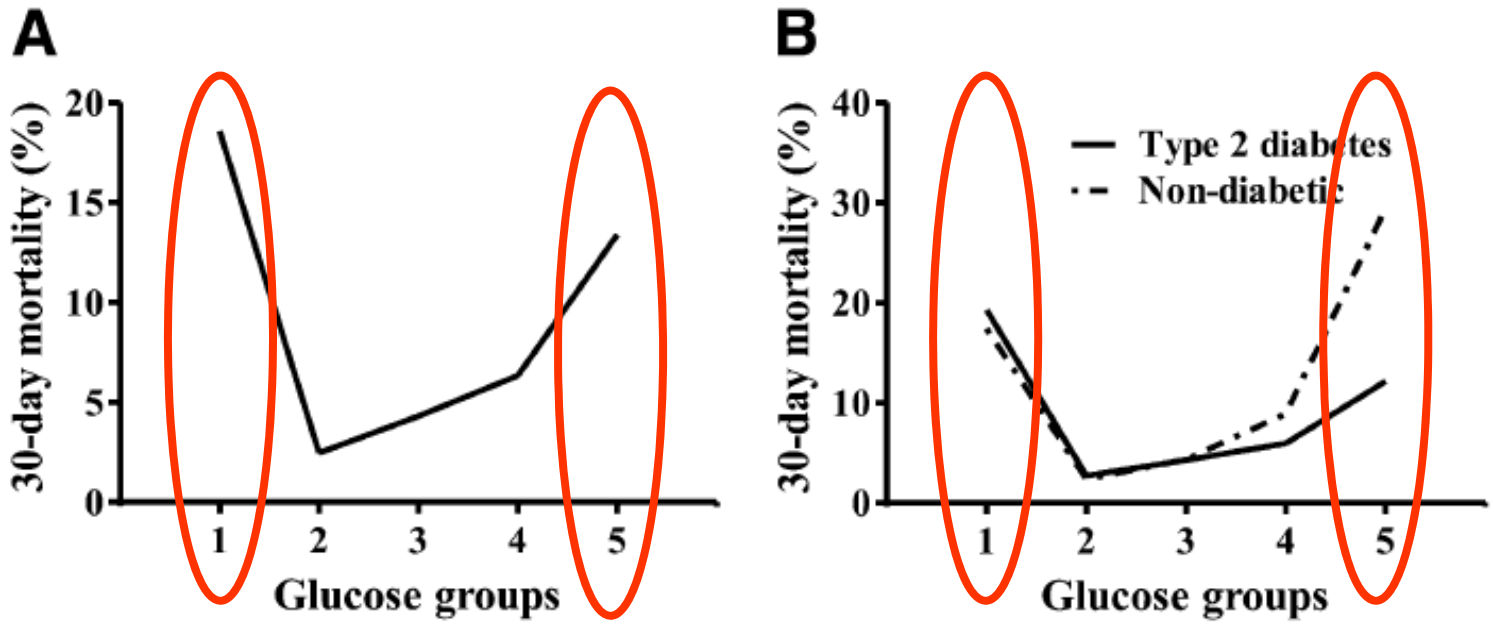


Figure 1—The 30-day mortality rates of the five glucose-based groups among the total AMI patient cohort (n = 34,943) (*A*) and the AMI patients with (n = 20,714) and without type 2 diabetes (n = 14,229) (*B*). The five glucose subgroups of AMI patients were categorized according to the admission serum-glucose levels, as follows: group 1, <3.9 mmol/L (<70 mg/dL); group 2, 3.9–7.72 mmol/L (70–139 mg/dL); group 3, 7.78–11.06 mmol/L (140–199 mg/dL); group 4, 11.11–14.39 mmol/L (200–259 mg/dL); and group 5, ≥14.44 mmol/L (≥260 mg/dL).

KAMIR Investigators. ***Diabetes Care 2014;37:2366-73***

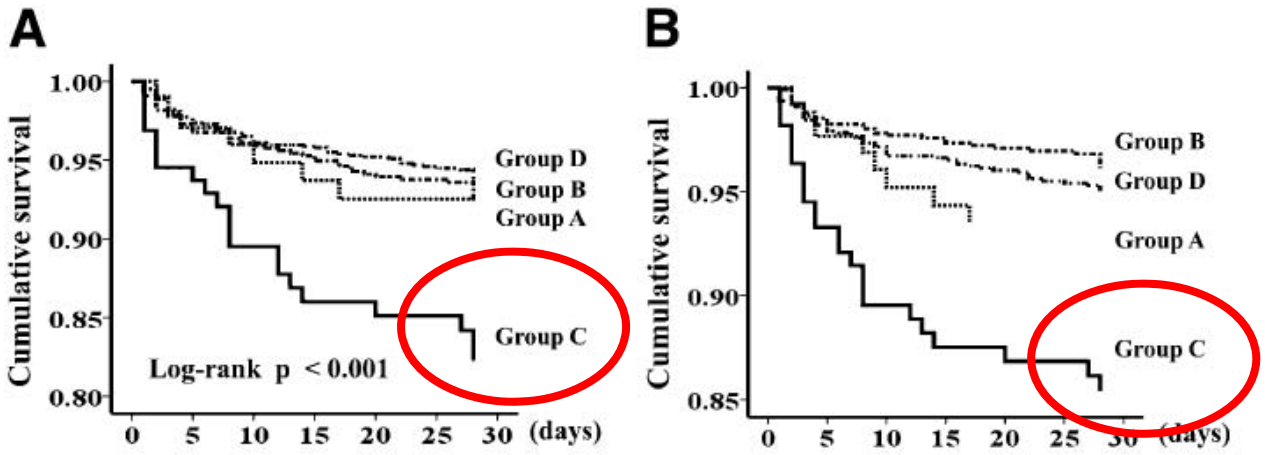


Figure 3—The effects of admission hypoglycemia and the preadmission diabetes-control status on 30-day cumulative survival in AMI patients with type 2 diabetes. Kaplan-Meier survival estimates (*A*) and the Cox proportional hazards regression analysis (*B*) after adjusting for age, sex, BMI, hypertension, hypertensive medication use, dyslipidemia, sBP, dBP, Killip class, aspirin use, statin use, hsCRP, smoking, total cholesterol, TGs, HDL cholesterol, LDL cholesterol, serum creatinine, PAD, CVA, previous MI history, and HF. We classified the AMI patients with type 2 diabetes according to the HbA_{1c} and serum-glucose levels at admission as follows: group A, HbA_{1c} <6.5% (48 mmol/mol) and serum glucose <3.9 mmol/L (<70 mg/dL); group B, HbA_{1c} <6.5% (48 mmol/mol) and serum glucose ≥11.11 mmol/L (≥200 mg/dL); group C, HbA_{1c} ≥8.0% (64 mmol/mol) and serum glucose <3.9 mmol/L (<70 mg/dL); and group D, HbA_{1c} ≥8.0% (64 mmol/mol) and serum glucose ≥11.11 mmol/L (≥200 mg/dL).

KAMIR Investigators. *Diabetes Care 2014;37:2366-73*

Clinical Experience of KAMIR

1. General Trend
2. Risk Factor
3. Risk Stratification
4. Medical Treatment
5. Interventional Treatment

Hospital Discharge Risk Score System for the Assessment of Clinical Outcomes in Patients With Acute Myocardial Infarction (Korea Acute Myocardial Infarction Registry [KAMIR] Score)

Hyun Kuk Kim, MD[a], Myung Ho Jeong, MD[a,*], Youngkeun Ahn, MD[a], Jong Hyun Kim, MD[b], Shung Chull Chae, MD[c], Young Jo Kim, MD[d], Seung Ho Hur, MD[e], In Whan Seong, MD[f], Taek Jong Hong, MD[g], Dong Hoon Choi, MD[h], Myeong Chan Cho, MD[i], Chong Jin Kim, MD[j], Ki Bae Seung, MD[k], Wook Sung Chung, MD[k], Yang Soo Jang, MD[h], Seung Woon Rha, MD[l], Jang Ho Bae, MD[m], Jeong Gwan Cho, MD[a], and Seung Jung Park, MD[n], and Other Korea Acute Myocardial Infarction Registry Investigators

Assessment of risk at time of discharge could be a useful tool for guiding postdischarge management. The aim of this study was to develop a novel and simple assessment tool for better hospital discharge risk stratification. The study included 3,997 hospital-discharged patients with acute myocardial infarction who were enrolled in the nationwide prospective Korea Acute Myocardial Infarction Registry-1 (KAMIR-1) from November 2005 through December 2006. The new risk score system was tested in 1,461 hospital-discharged patients who were admitted from January 2007 through January 2008 (KAMIR-2). The new risk score system was compared to the Global Registry of Acute Coronary Events (GRACE) postdischarge risk model during a 12-month clinical follow-up. During 1-year follow-up, all-cause death occurred in 228 patients (5.7%) and 81 patients (5.5%) in the development and validation cohorts, respectively. The new risk score (KAMIR score) was constructed using 6 independent variables related to the primary end point using a multivariable Cox regression analysis: age, Killip class, serum creatinine, no in-hospital percutaneous coronary intervention, left ventricular ejection fraction, and admission glucose based on multivariate-adjusted risk relation. The KAMIR score demonstrated significant differences in its predictive accuracy for 1-year mortality compared to the GRACE score for the developmental and validation cohorts. In conclusion, the KAMIR score for patients with acute myocardial infarction is a simpler and better risk scoring system than the GRACE hospital discharge risk model in prediction of 1-year mortality. (Am J Cardiol 2011;107:965–971)

KAMIR Investigators. *Am J Cardiol 2011;107:965-71*

Table 3
Multivariate analysis for predictors of one-year mortality

Characteristics	Beta Coefficient	p Value	HR (95% CI)
Age (years)			
65–74	0.871	0.001	2.39 (1.44–3.97)
>75	1.468	<0.001	4.34 (2.59–7.28)
Killip class			
II	0.850	0.001	2.34 (1.39–3.94)
III to IV	1.401	<0.001	4.06 (2.54–6.50)
No percutaneous coronary intervention	0.797	<0.001	2.22 (1.65–2.98)
Serum creatinine ≥1.5 mg/dl	0.580	0.012	1.79 (1.13–2.81)
Left ventricular ejection fraction <40%	0.805	<0.001	2.24 (1.47–3.41)
Admission glucose >180 mg/dl	0.417	0.040	1.52 (1.02–2.26)

KAMIR Investigators. ***Am J Cardiol 2011;107:965-71***

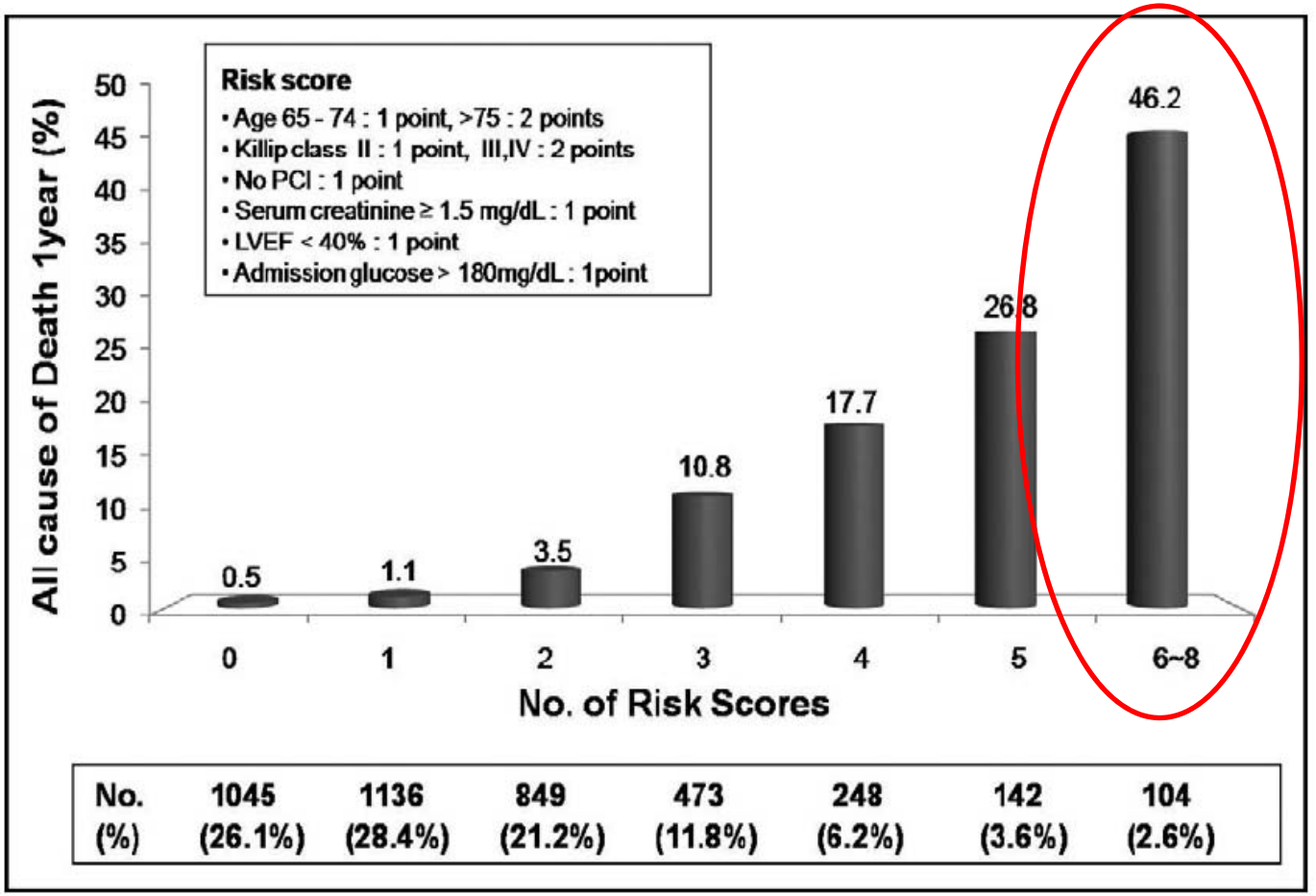


Figure 1. A new risk score predicting 1-year death from acute myocardial infarction. LVEF = left ventricular ejection fraction.

KAMIR Investigators. ***Am J Cardiol 2011;107:965-71***

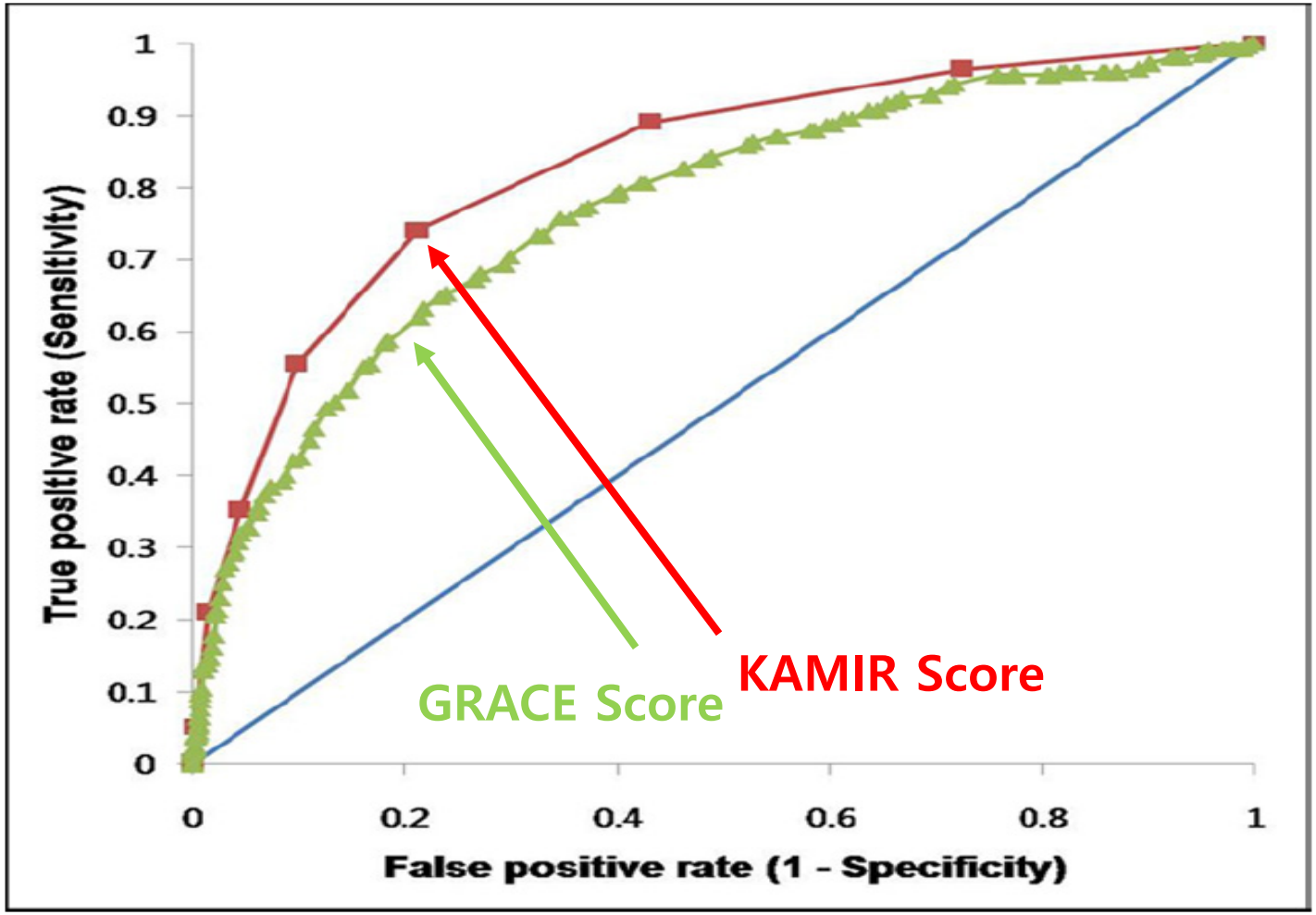


Figure 2. Receiver operator characteristic curves of no discrimination *(solid line)*, new risk score *(squares)*, and Global Registry of Acute Coronary Events score *(triangles)* for 1-year mortality in patients with acute myocardial infarction.

KAMIR Investigators. ***Am J Cardiol 2011;107:965-71***

G Model
JJCC-1670; No. of Pages 7

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Journal of Cardiology xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Journal of Cardiology

journal homepage: www.elsevier.com/locate/jjcc

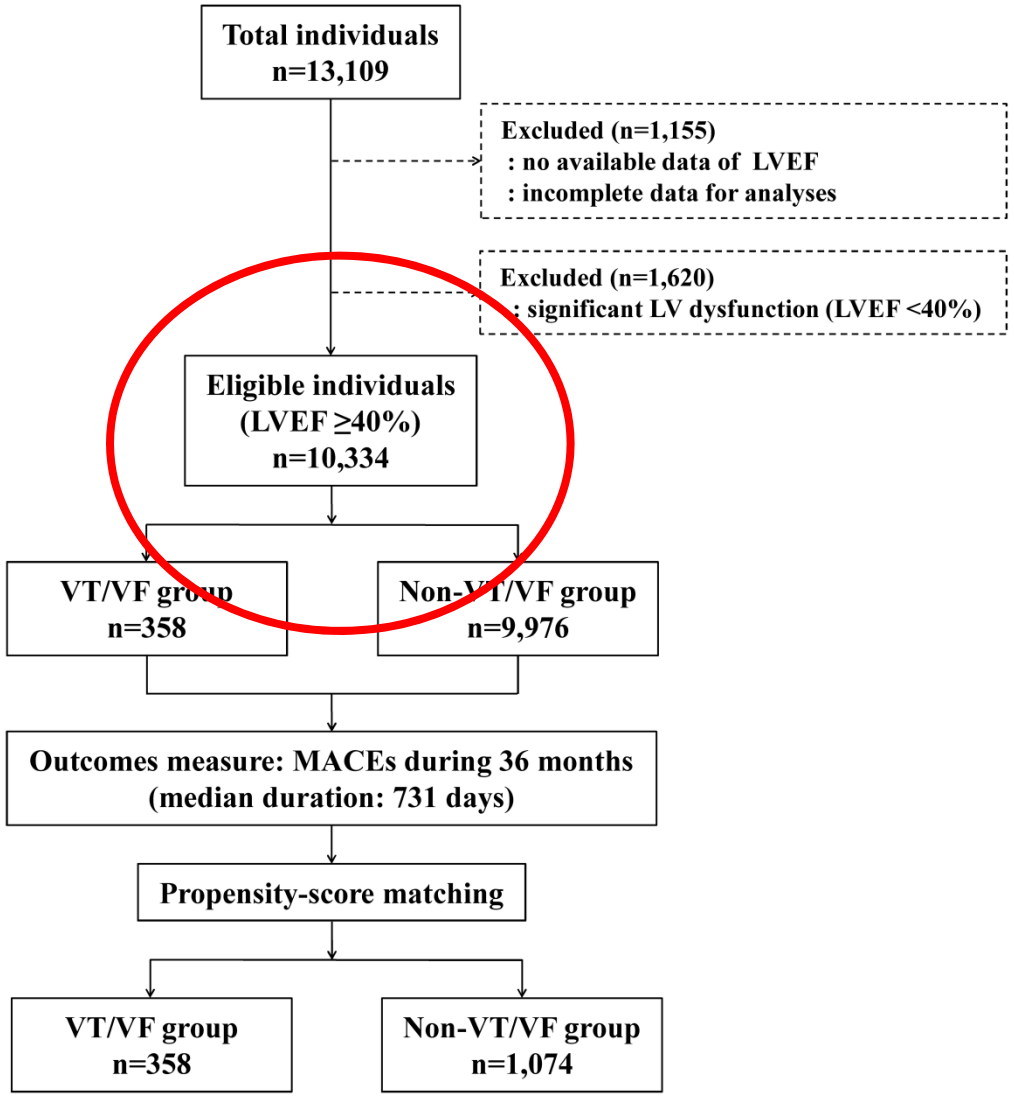
Original article

A new risk score for ventricular tachyarrhythmia in acute myocardial infarction with preserved left ventricular ejection fraction

Seung Hun Lee (MD)[a], Myung Ho Jeong (MD, PhD)[a,*], Ju Han Kim (MD, PhD)[a], Min Chul Kim (MD, PhD)[a], Doo Sun Sim (MD, PhD)[a], Young Joon Hong (MD, PhD)[a], Youngkeun Ahn (MD, PhD)[a], Shung Chull Chae (MD, PhD)[b], In Whan Seong (MD, PhD)[c], Jong Sun Park (MD, PhD)[d], Jei Keon Chae (MD, PhD)[e], Seung Ho Hur (MD, PhD)[f], Kwang-Soo Cha (MD, PhD)[g], Hyo-Soo Kim (MD, PhD)[h], Hyeon Cheol Gwon (MD, PhD)[i], Ki Bae Seung (MD, PhD)[j], Seung Woon Rha (MD, PhD)[k]
other Korea Acute Myocardial Infarction Registry (KAMIR) Investigators

KAMIR Investigators. *J Cardiol 2018;72:420-6*

Ventricular tachyArrhythmia risk for Myocardial Infarction with pReserved EF (VAMIR) Score



3.5 %

KAMIR Investigators. *J Cardiol 2018;72:420-6*

Ventricular tachyArrhythmia risk for Myocardial Infarction with pReserved EF (VAMIR) Score

Diagnosis of STEMI	**12**
Cardiogenic shock (Killip IV)	**19**
Acute pulmonary edema (Killip III)	**8**
Smoking	**4**
ECG rhythm at presentation	
- Sinus rhythm	**-6**
- Wide QRS tachycardia	**9**
LBBB	**14**
LVEF	
- >60%	**4**
- 50~60%	**8**
- 40~50%	**12**

KAMIR Investigators. ***J Cardiol 2018;72:420-6***

Clinical Experience of KAMIR

1. General Trend
2. Risk Factor
3. Risk Stratification
4. Medical Treatment
5. Interventional Treatment

International Journal of Cardiology 215 (2016) 193–200

Contents lists available at ScienceDirect

International Journal of Cardiology

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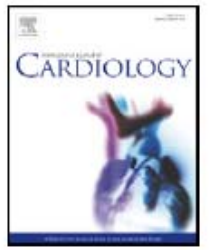
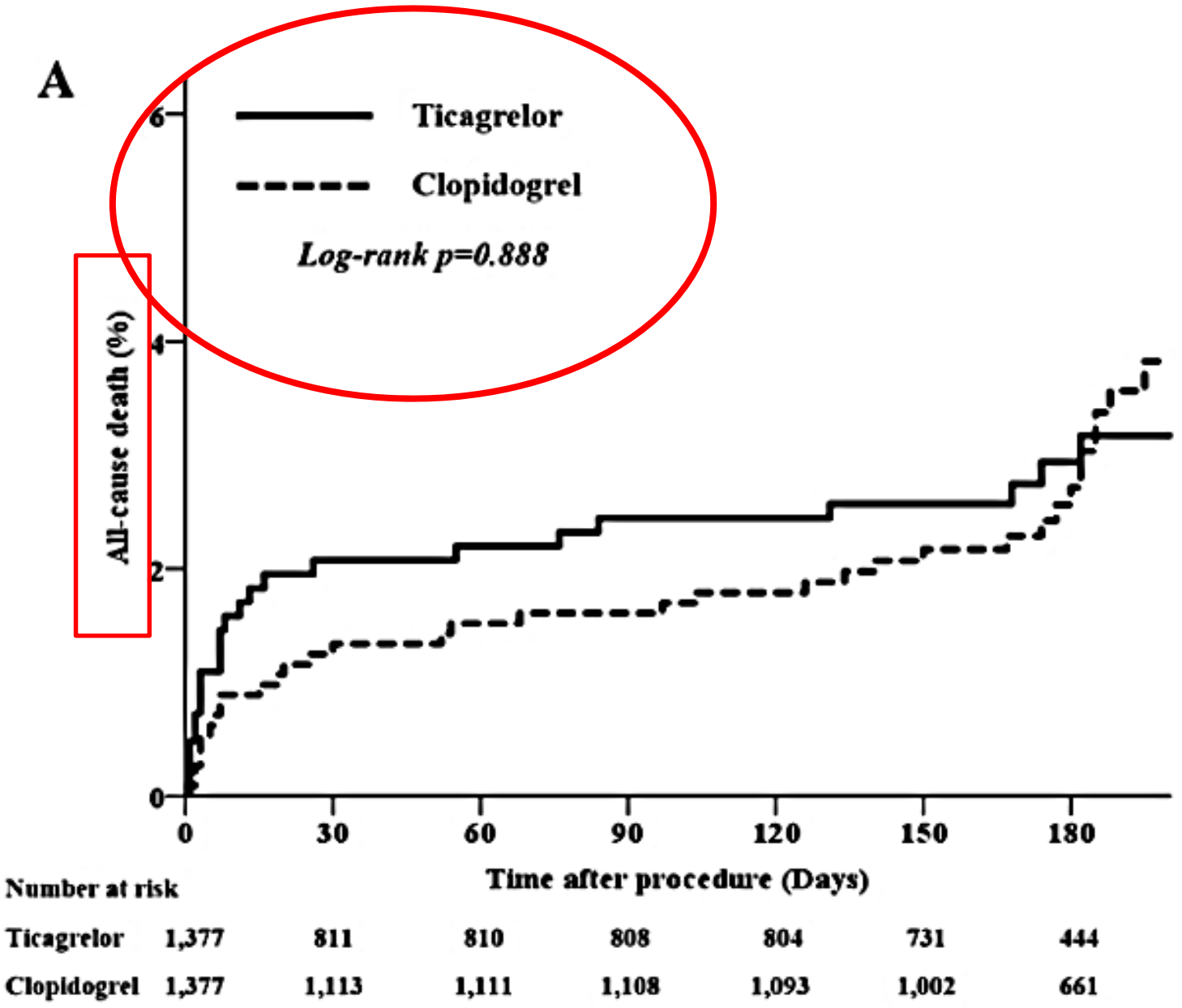


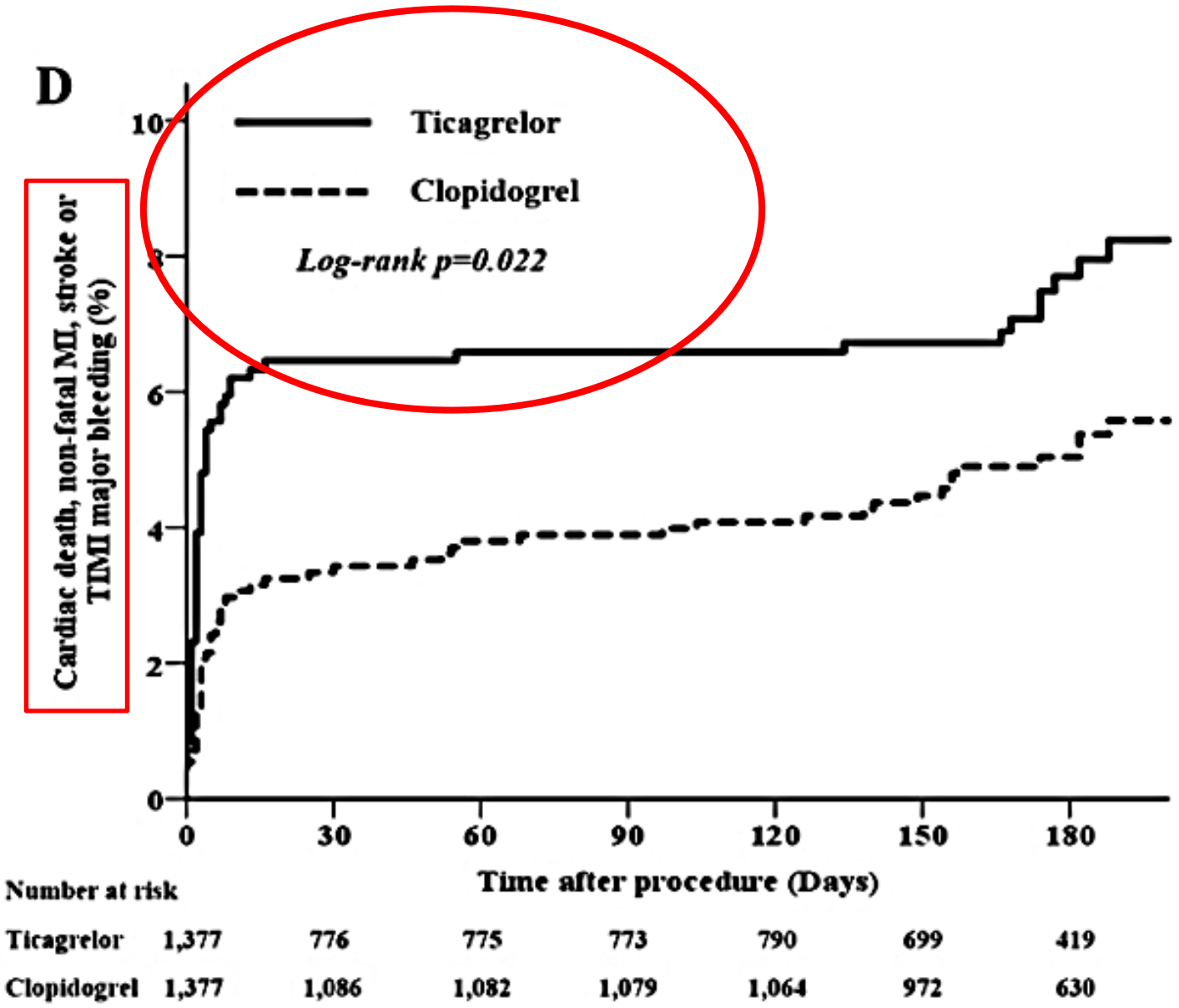
Comparison of short-term clinical outcomes between ticagrelor versus clopidogrel in patients with acute myocardial infarction undergoing successful revascularization; from Korea Acute Myocardial Infarction Registry—National Institute of Health

Keun-Ho Park [a], Myung Ho Jeong [b,*,1], Youngkeun Ahn [b], Tae Hoon Ahn [c], Ki Bae Seung [d], Dong Joo Oh [e], Dong-Joo Choi [f], Hyo-Soo Kim [g], Hyeon Cheol Gwon [h], In Whan Seong [i], Kyung Kuk Hwang [j], Shung Chull Chae [k], Kwon-Bae Kim [l], Young Jo Kim [m], Kwang Soo Cha [n], Seok Kyu Oh [o], Jei Keon Chae [p], on behalf of KAMIR-NIH registry investigators:

KAMIR Investigators, Int J Cardiol 2016;215:193-200



KAMIR Investigators, Int J Cardiol 2016;215:193-200



KAMIR Investigators, Int J Cardiol 2016;215:193-200

G Model
JJCC-1506; No. of Pages 8
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Journal of Cardiology xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Journal of Cardiology

journal homepage: www.elsevier.com/locate/jjcc

Original article

Comparison of prasugrel versus clopidogrel in Korean patients with acute myocardial infarction undergoing successful revascularization

Keun-Ho Park (MD)[a], Myung Ho Jeong (MD)[b,*], Hyun Kuk Kim (MD)[a], Tae Hoon Ahn (MD)[c], Ki Bae Seung (MD)[d], Dong Joo Oh (MD)[e], Dong-Joo Choi (MD)[f], Hyo-Soo Kim (MD)[g], Hyeon Cheol Gwon (MD)[h], In Whan Seong (MD)[i], Kyung Kuk Hwang (MD)[j], Shung Chull Chae (MD)[k], Kwon-Bae Kim (MD)[l], Young Jo Kim (MD)[m], Kwang Soo Cha (MD)[n], Seok Kyu Oh (MD)[o], Jei Keon Chae (MD)[p], on behalf of the KAMIR-NIH Registry Investigators

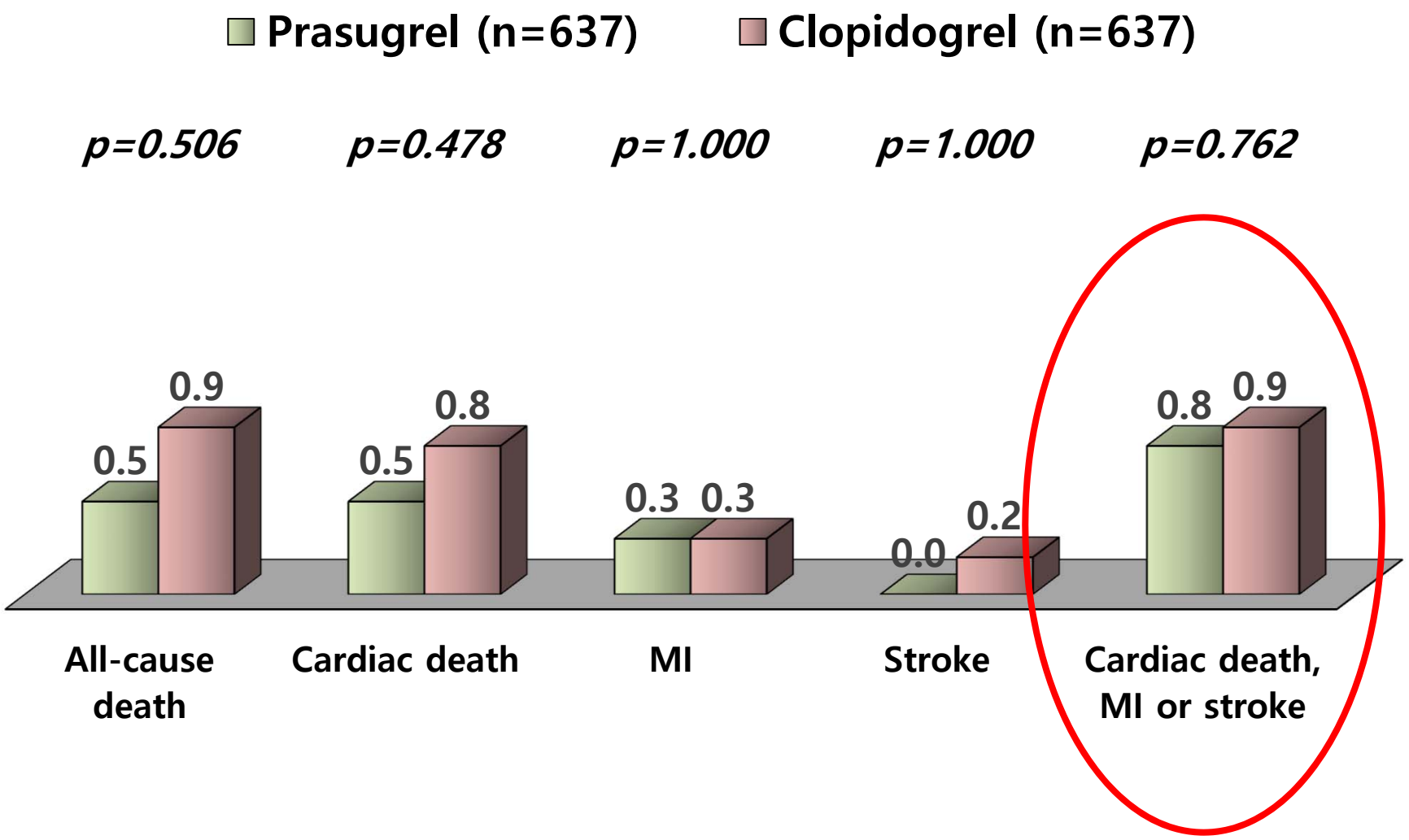
Background: Although there have been several reports that prasugrel can improve clinical outcomes, the efficacy and safety of prasugrel is unknown in Korean patients with acute myocardial infarction (AMI) undergoing successful revascularization.

Methods: A total of 4421 patients [637 patients were prescribed prasugrel (60/10 or 5 mg, loading/maintenance dose) and 3784 patients clopidogrel (600 or 300/75 mg)] with AMI undergoing successful revascularization were enrolled from the core clinical cohort of Korea Acute Myocardial Infarction Registry-National Institute of Health.

Conclusions: Our study shows that the recommended dose of prasugrel had significantly higher in-hospital bleeding complications without reducing ischemic events compared with clopidogrel. However, further large-scale, long-term, randomized clinical trials are required to accurately assess the efficacy and safety of prasgurel and to find out the optimal dose for Korean AMI patients.

KAMIR Investigators, J Cardiol 2018;71:36-43

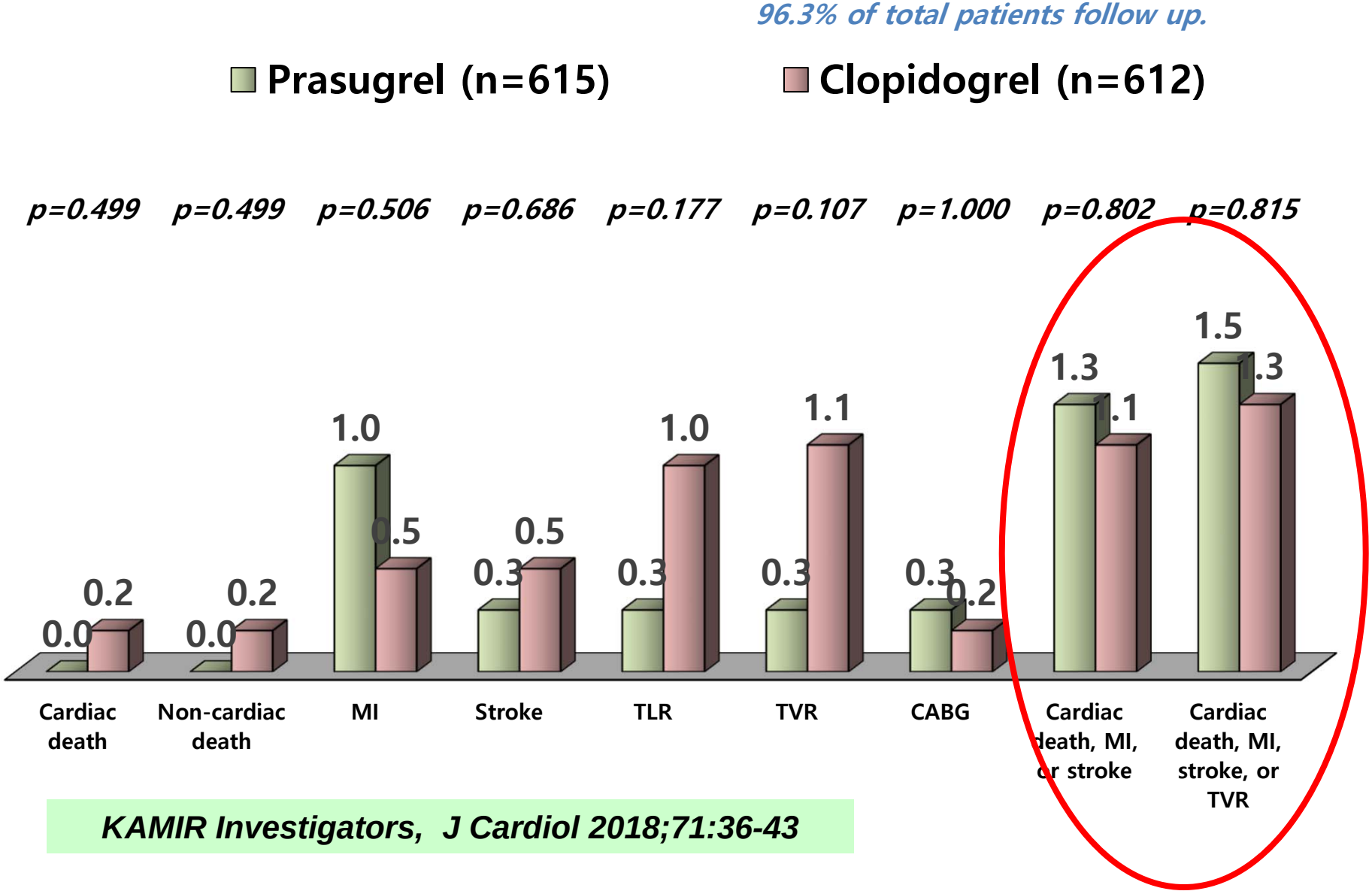
In-hospital Clinical Outcomes



KAMIR Investigators, J Cardiol 2018;71:36-43

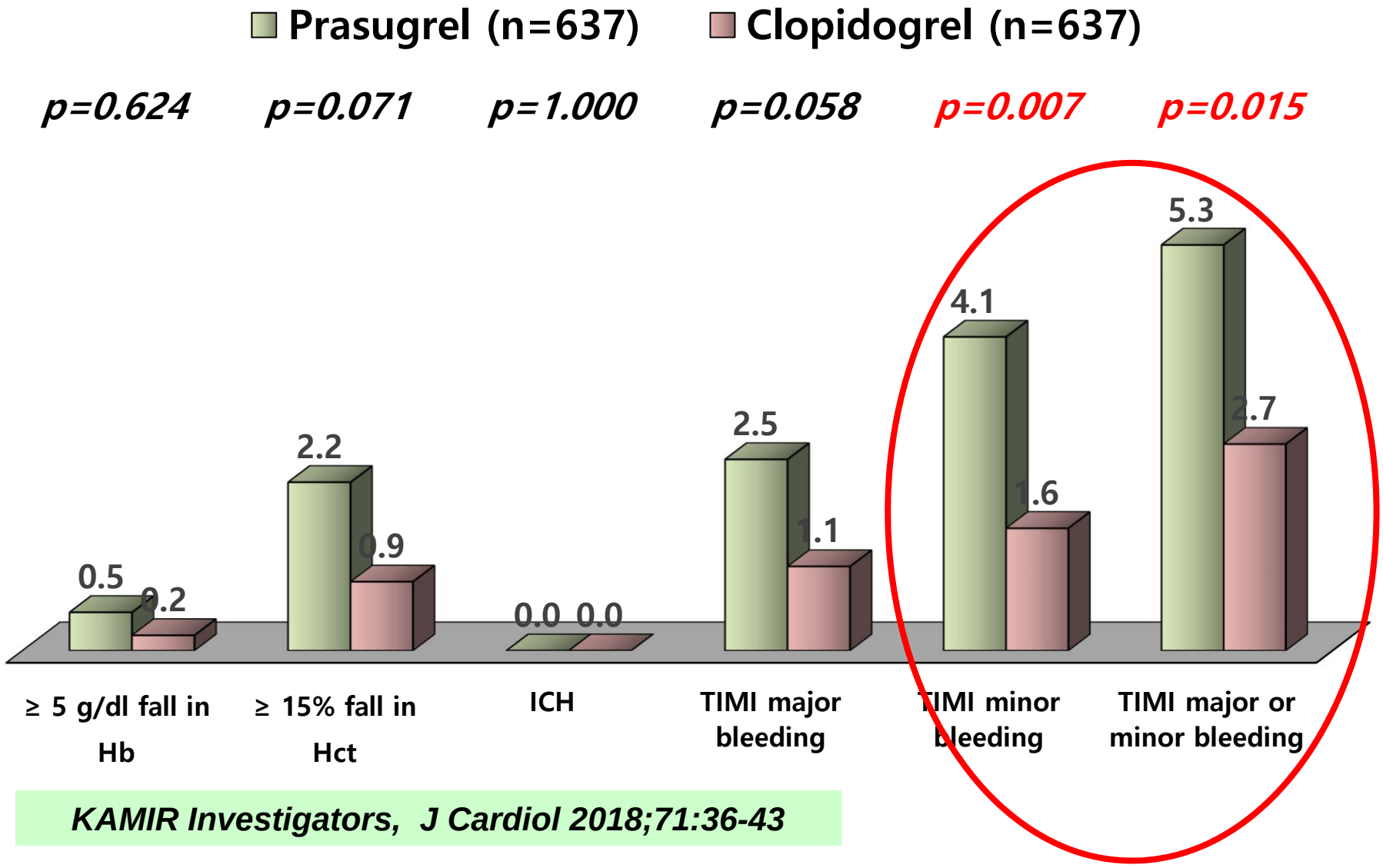
Six-month Clinical Outcomes

96.3% of total patients follow up.



KAMIR Investigators, J Cardiol 2018;71:36-43

In-hospital Bleeding Complications



KAMIR Investigators, J Cardiol 2018;71:36-43

G Model
JJCC-1668; No. of Pages 9

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Journal of Cardiology xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

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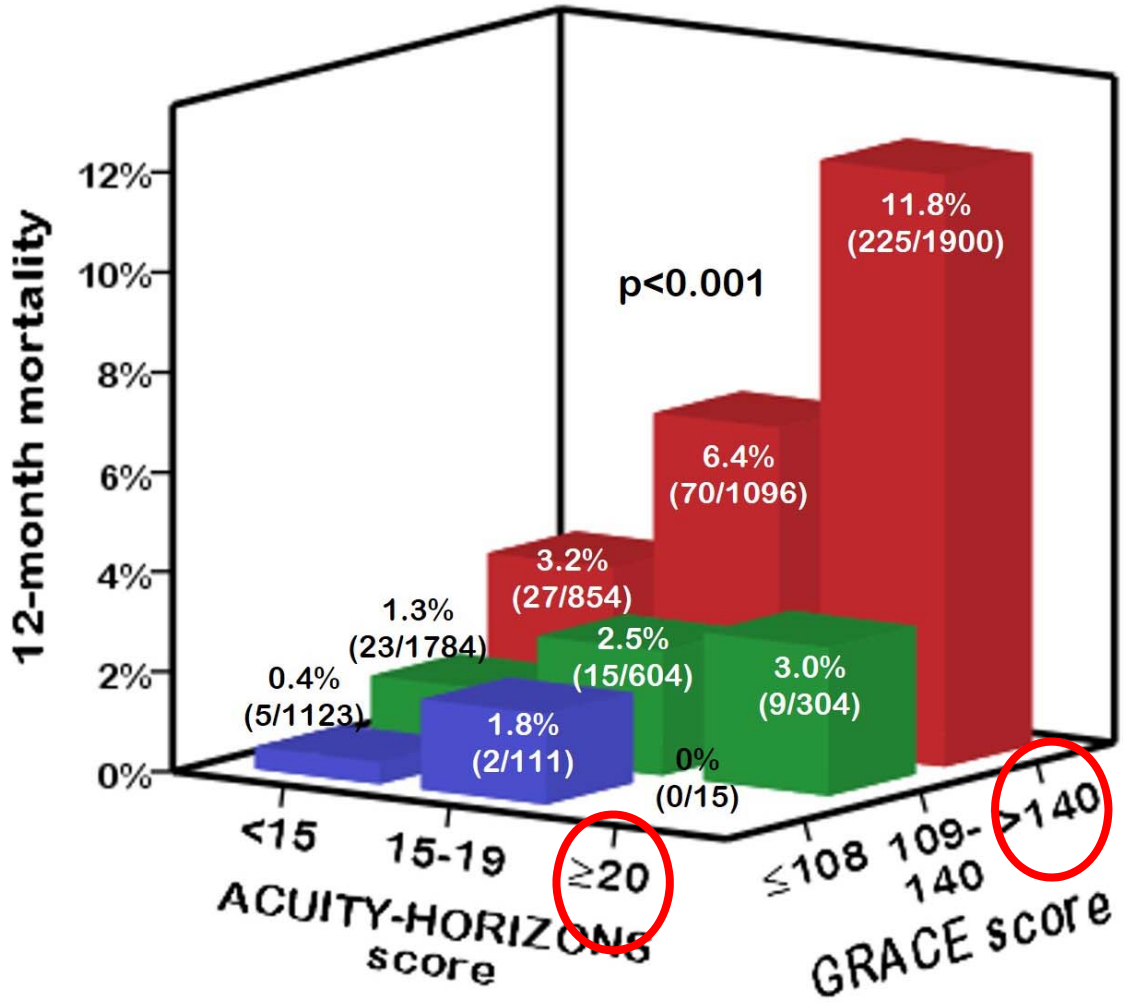
Original article

Utility of GRACE and ACUITY-HORIZONS risk scores to guide dual antiplatelet therapy in Korean patients with acute myocardial infarction undergoing drug-eluting stenting

Doo Sun Sim (MD, PhD)[a], Myung Ho Jeong (MD, PhD)[a,*], Hyo Soo Kim (MD, PhD)[b], Hyeon Cheol Gwon (MD, PhD)[c], Ki Bae Seung (MD, PhD)[d], Seung Woon Rha (MD, PhD)[e], Shung Chull Chae (MD, PhD)[f], Chong Jin Kim (MD, PhD)[g], Kwang Soo Cha (MD, PhD)[h], Jong Sun Park (MD, PhD)[i], Jung Han Yoon (MD, PhD)[j], Jei Keon Chae (MD, PhD)[k], Seung Jae Joo (MD, PhD)[l], Dong Ju Choi (MD, PhD)[m], Seung Ho Hur (MD, PhD)[n], In Whan Seong (MD, PhD)[o], Myeong Chan Cho (MD, PhD)[p], Doo Il Kim (MD, PhD)[q], Seok Kyu Oh (MD, PhD)[r], Tae Hoon Ahn (MD, PhD)[s], Jin Yong Hwang (MD, PhD)[t]
on behalf of the KAMIR-NIH registry investigators

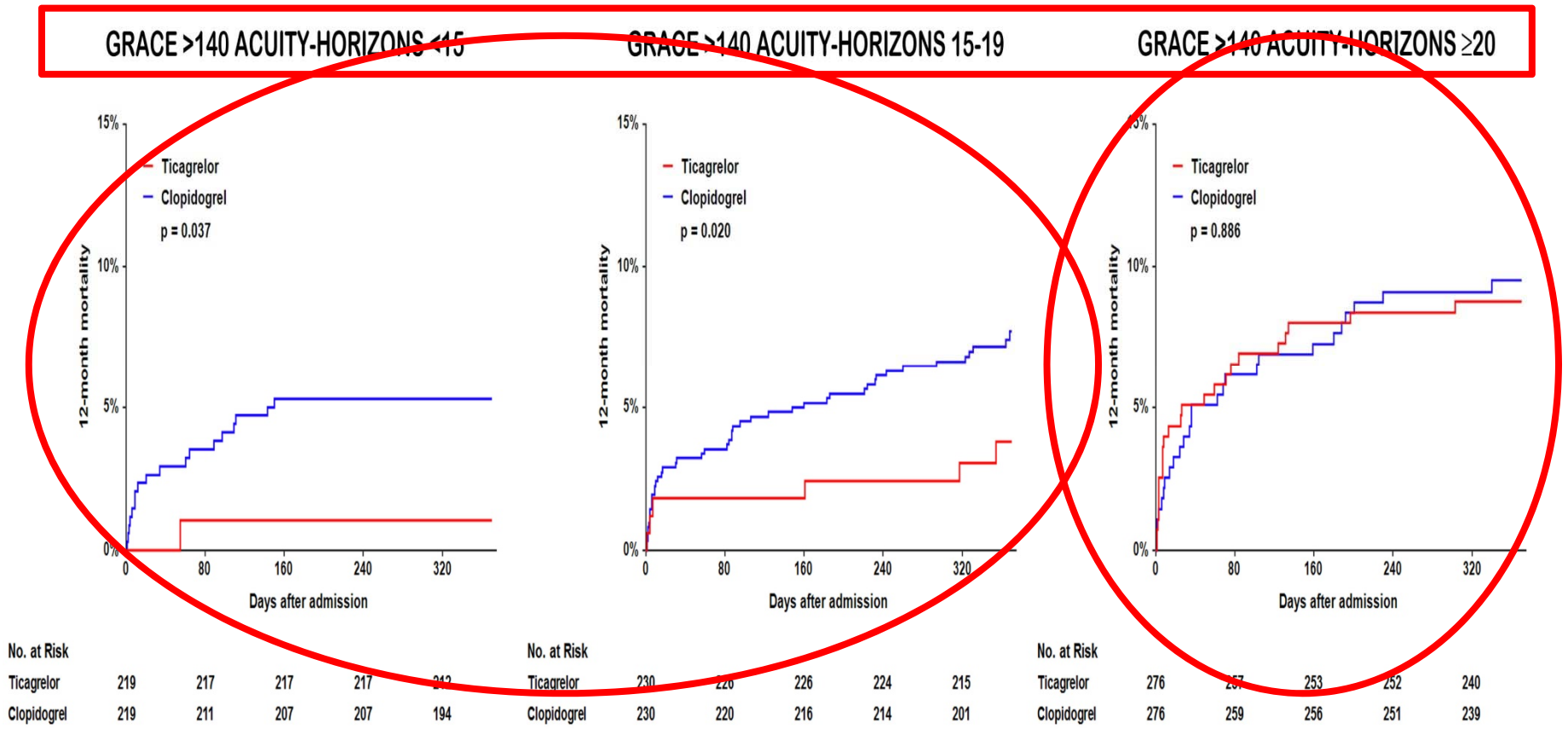
KAMIR Investigators, J Cardiol 2018;72:411-9

Utility of GRACE and ACUITY-HORIZONS Risk Scores to Guide Dual Antiplatelet Therapy



KAMIR Investigators, J Cardiol 2018;72:411-9

Utility of GRACE and ACUITY-HORIZONS Risk Scores to Guide Dual Antiplatelet Therapy



KAMIR Investigators, J Cardiol 2018;72:411-9

Journal of Cardiology 73 (2019) 142–150

Contents lists available at ScienceDirect

Journal of Cardiology

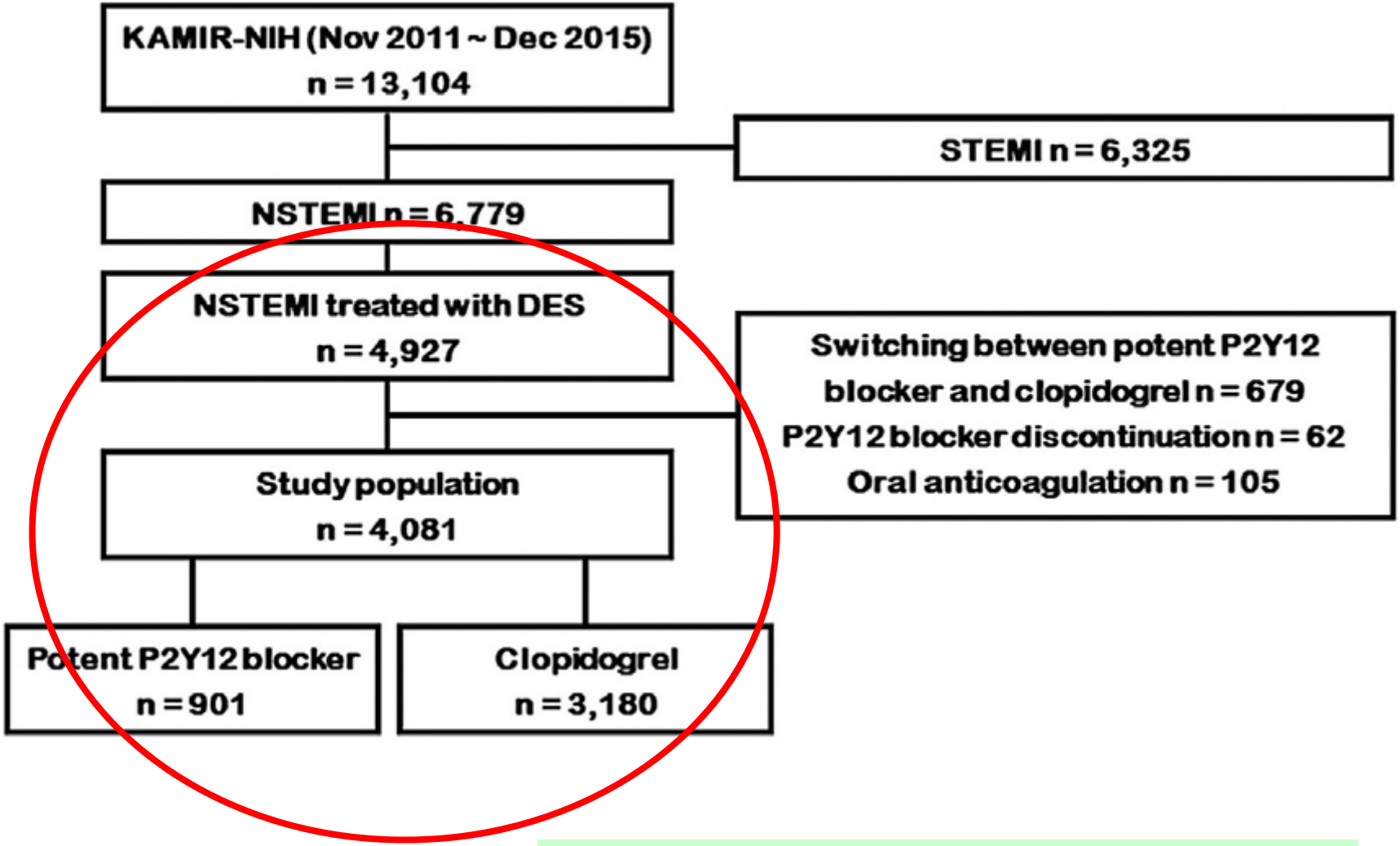
journal homepage: www.elsevier.com/locate/jjcc

Original article

Association of potent P2Y12 blockers with ischemic and bleeding outcomes in non-ST-segment elevation myocardial infarction

Doo Sun Sim (MD, PhD)[a], Myung Ho Jeong (MD, PhD)[a,*], Hyo Soo Kim (MD, PhD)[b], Hyeon Cheol Gwon (MD, PhD)[c], Ki Bae Seung (MD, PhD)[d], Seung Woon Rha (MD, PhD)[e], Shung Chull Chae (MD, PhD)[f], Chong Jin Kim (MD, PhD)[g], Kwang Soo Cha (MD, PhD)[h], Jong Sun Park (MD, PhD)[i], Jung Han Yoon (MD, PhD)[j], Jei Keon Chae (MD, PhD)[k], Seung Jae Joo (MD, PhD)[l], Dong Ju Choi (MD, PhD)[m], Seung Ho Hur (MD, PhD)[n], In Whan Seong (MD, PhD)[o], Myeong Chan Cho (MD, PhD)[p], Doo Il Kim (MD, PhD)[q], Seok Kyu Oh (MD, PhD)[r], Tae Hoon Ahn (MD, PhD)[s], Jin Yong Hwang (MD, PhD)[t] on behalf of the KAMIR-NIH Registry Investigators

KAMIR Investigators. J Cardiol 2019;73:142-50.



KAMIR Investigators. J Cardiol 2019;73:142-50.

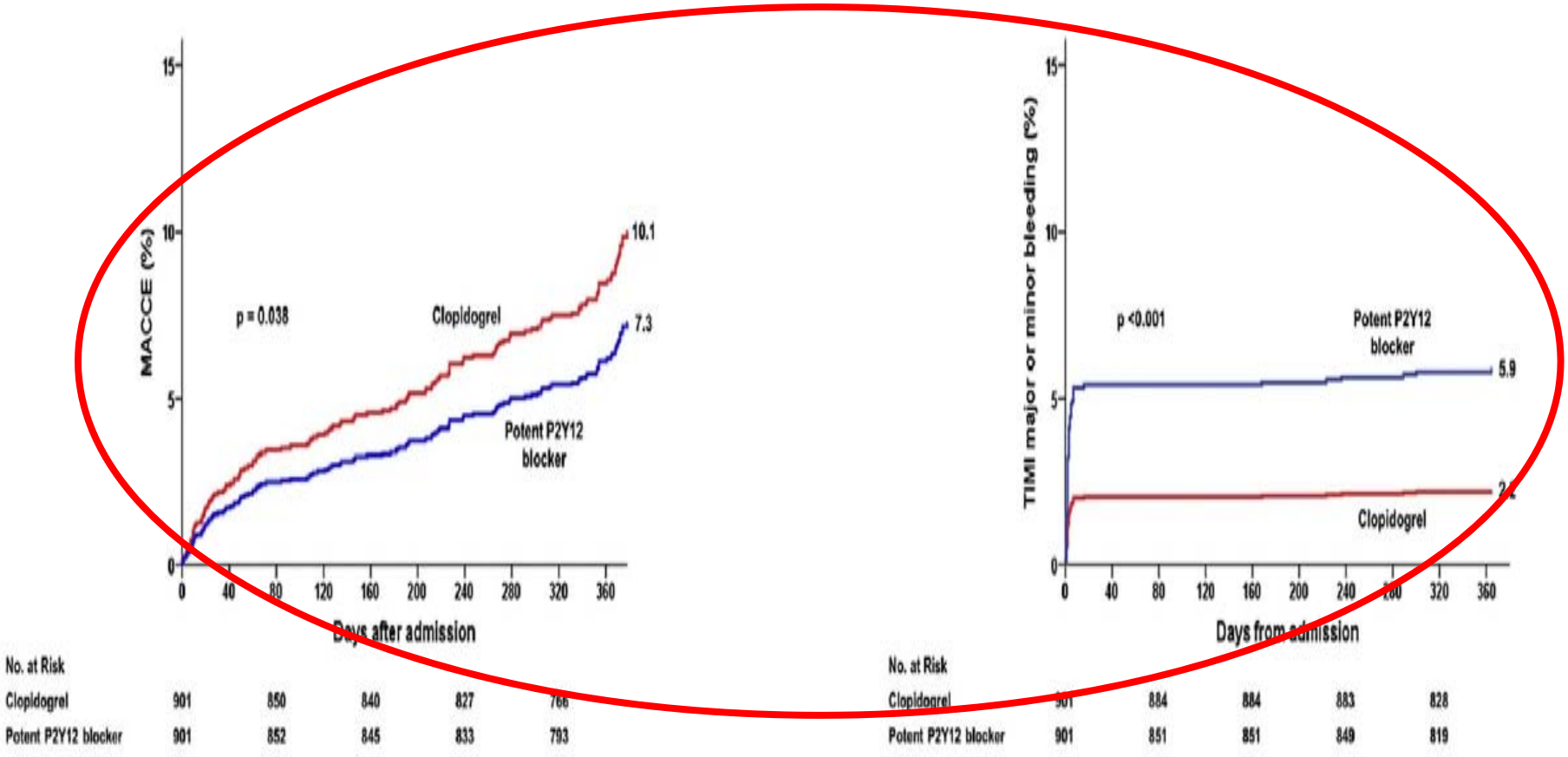


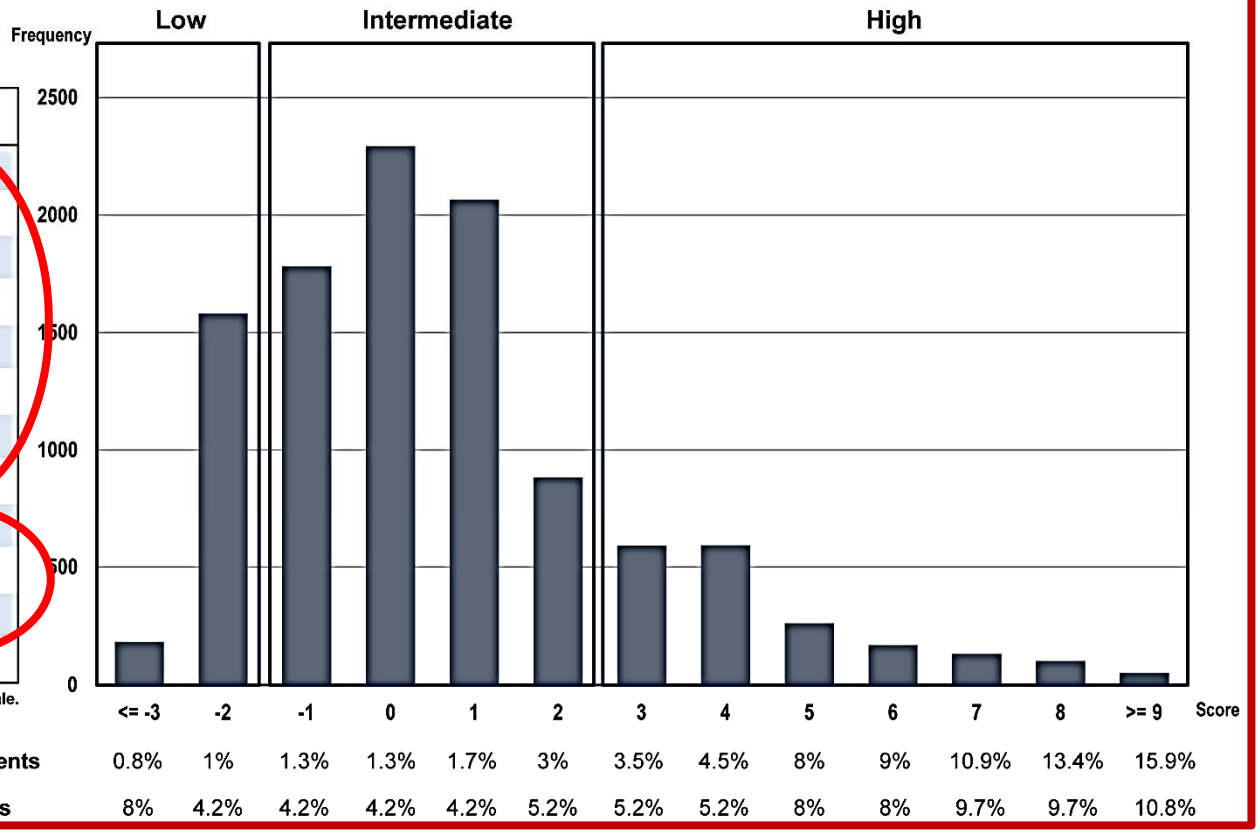
Fig. 2. Adjusted cumulative incidences of death from any cause (A), MI (B), stroke (C), MACCE (D), and TIMI major or minor bleeding (E) at 12 months in the propensity-score matched cohort. MACCE, major adverse cardiac and cerebrovascular events; MI, myocardial infarction; TIMI, Thrombolysis in Myocardial Infarction.

KAMIR Investigators. J Cardiol 2019;73:142-50.

New KAMIR DAPT Score (Proposed)
For Dual Antiplatelet Therapy in Asian Patients

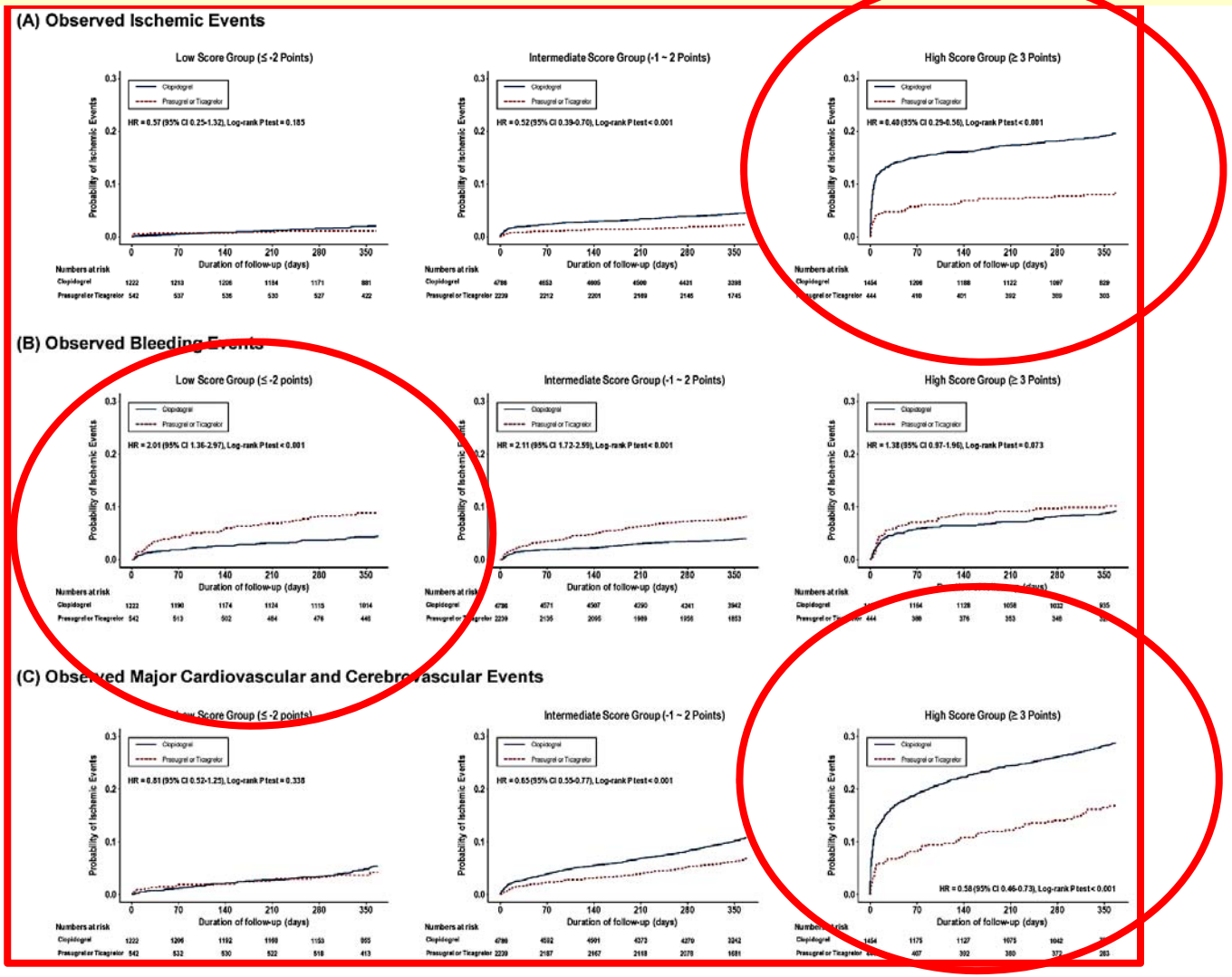
Variables of Prediction	Score
Killip class IV	4
LVEF <30%	3
Anemia at presentation*	3
Killip class III	2
STEMI	2
Atrial fibrillation	2
Previous MI	1
Multi-vessel disease	1
Successful PCI	-2
Cr >2.0 mg/dL	-2
Oral anticoagulants	-4
Total score:	-6 to 12

* Anemia defined as hemoglobin <13 g/dL for male and <12 g/dL for female.



KAMIR Investigators. Eur Heart J 2019 (under revision)

New KAMIR DAPT Score (Proposed)
For Dual Antiplatelet Therapy in Asian Patients



KAMIR Investigators. Eur Heart J 2019 (under revision)

Korean Circ J. 2019 Dec;49(12):e137
https://doi.org/10.4070/kcj.2019.0301
pISSN 1738-5520·eISSN 1738-5555

kcj
Korean Circulation Journal

Letter to the Editor

Potent $P2Y_{12}$ Receptor Inhibition in Korean Patients with Acute Myocardial Infarction

Yongcheol Kim, MD[1], Thomas W. Johnson, BSc, MBBS, MD[2], and Myung Ho Jeong, MD, PhD, FACC, FAHA, FESC, FSCAI[1]

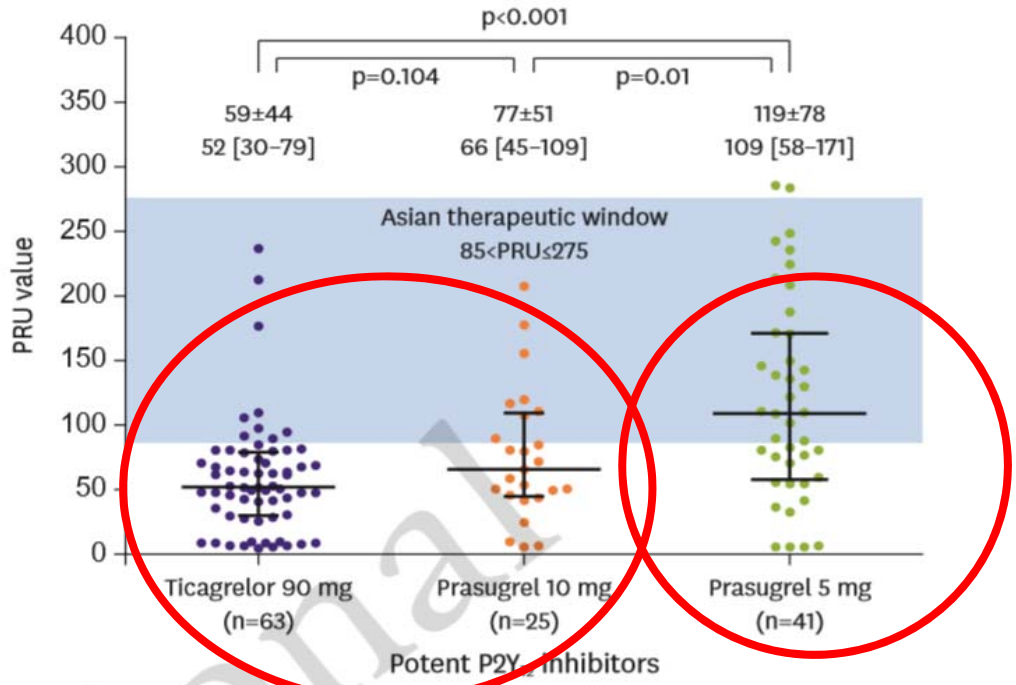


Figure 1. Result of platelet reactivity assessed by the VerifyNow $P2Y_{12}$ assay from a retrospective analysis of single-center data of Korean patients with acute myocardial infarction.
PRU values are presented as mean±standard deviation and median (interquartile range).
PRU = $P2Y_{12}$ reaction unit.

CNUH data. Korean Circ J 2019;49:1199-1200

G Model
JJCC-1877; No. of Pages 8
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Journal of Cardiology xxx (2019) xxx–xxx

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Original article

Dual antiplatelet therapy beyond 12 months versus for 12 months after drug-eluting stents for acute myocardial infarction

Doo Sun Sim (MD, PhD)[a], Myung Ho Jeong (MD, PhD, FACC, FAHA, FESC, FSCAI, FAPSIC)[a,*], Hyo Soo Kim (MD, PhD)[b], Hyeon Cheol Gwon (MD, PhD)[c], Ki Bae Seung (MD, PhD)[d], Seung Woon Rha (MD, PhD)[e], Shung Chull Chae (MD, PhD)[f], Chong Jin Kim (MD, PhD)[g], Kwang Soo Cha (MD, PhD)[h], Jong Seon Park (MD, PhD)[i], Jung Han Yoon (MD, PhD)[j], Jei Keon Chae (MD, PhD)[k], Seung Jae Joo (MD, PhD)[l], Dong Ju Choi (MD, PhD)[m], Seung Ho Hur (MD, PhD)[n], In Whan Seong (MD, PhD)[o], Myeong Chan Cho (MD, PhD)[p], Doo Il Kim (MD, PhD)[q], Seok Kyu Oh (MD, PhD)[r], Tae Hoon Ahn (MD, PhD)[s], Jin Yong Hwang (MD, PhD)[t], on behalf of the KAMIR-NIH Registry Investigators

Background: The optimal duration of dual antiplatelet therapy (DAPT) after acute coronary syndrome remains uncertain. This study investigated the benefit of DAPT beyond 12 months after drug-eluting stents (DES) for acute myocardial infarction (MI).

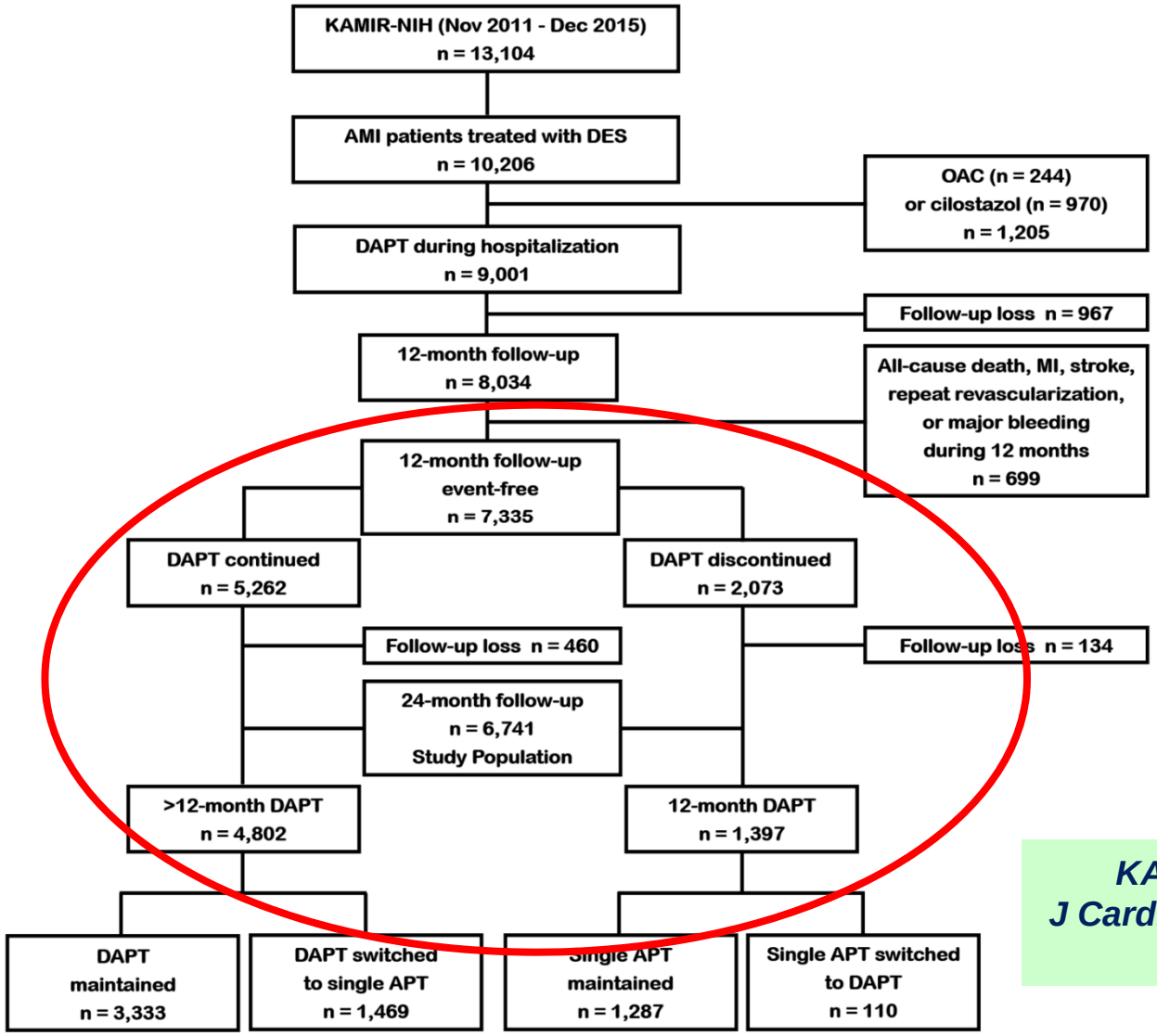
Methods: From Korea Acute Myocardial Infarction Registry-National Institute of Health database, 6199 patients treated with DAPT for 12 months after DES (second-generation DES 98%) without ischemic or bleeding events were analyzed. The primary endpoint was major adverse cardiovascular and cerebrovascular events (MACCE), a composite of death from any cause, MI, or ischemic stroke during the period from 12 to 24 months.

Results: After adjustment using inverse probability of treatment weighting, patients who received DAPT beyond 12 months (n = 4795), compared to patients treated with 12-month DAPT (n = 1404), had a similar incidence of MACCE (1.3% vs. 1.0%, HR: 1.32, 95% CI: 0.71–2.45, p = 0.378). The 2 groups did not differ significantly in the rates of death (0.1% vs. 0.1%), MI (0.8% vs.0.6%), stent thrombosis (0.1% vs. 0.2%), ischemic stroke (0.4% vs. 0.2%), and major bleeding (0.1% vs. 0.1%). The rate of net adverse clinical events was 1.4% with DAPT beyond 12 months and 1.1% with 12-month DAPT (p = 0.466).

Conclusions: DAPT beyond 12 months, as compared with 12-month DAPT, in real-world patients with acute MI treated predominantly with second-generation DES did not reduce the risk of MACCE. The rates of major bleeding and net adverse clinical events did not differ significantly between the 2 treatments.

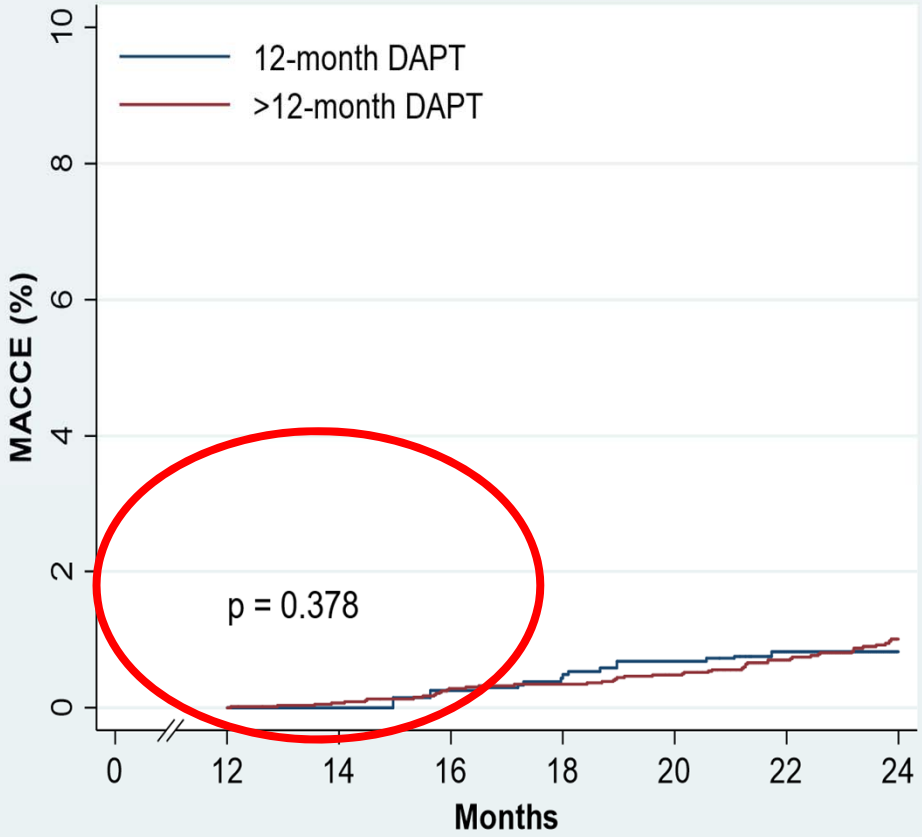
KAMIR Investigators
J Cardiol Sep 24 2019 [Epub ahead of print]

Dual Antiplatelet Therapy Beyond 12 Months vs. For 12 Months after DES for AMI Patients



KAMIR Investigators
J Cardiol Sep 24 2019 [Epub ahead of print]

Dual Antiplatelet Therapy Beyond 12 Months vs. For 12 Months after DES for AMI Patients



Number at risk

12-month DAPT	1,404	1,404	1,401	1,398	1,395	1,371	967
>12-month DAPT	4,795	4,783	4,772	4,769	4,761	4,656	3,271

KAMIR Investigators
J Cardiol Sep 24 2019 [Epub ahead of print]

Korean Circ J. 2019 Feb;50(2):e5
https://doi.org/10.4070/kcj.2019.0166
pISSN 1738-5520·eISSN 1738-5555

kcj
Korean Circulation Journal

Original Article

Check for updates

Clopidogrel versus Aspirin after Dual Antiplatelet Therapy in Acute Myocardial Infarction Patients Undergoing Drug-Eluting Stenting

Doo Sun Sim, MD, PhD[1], Myung Ho Jeong, MD, PhD, FACC, FAHA, FESC, FSCAI, FAPSIC[1], Hyo Soo Kim, MD, PhD[2], Hyeon Cheol Gwon, MD, PhD[3], Ki Bae Seung, MD, PhD[4], Seung Woon Rha, MD, PhD[5], Shung Chull Chae, MD, PhD[6], Chong Jin Kim, MD, PhD[7], Kwang Soo Cha, MD, PhD[8], Jong Seon Park, MD, PhD[9], Jung Han Yoon, MD, PhD[10], Jei Keon Chae, MD, PhD[11], Seung Jae Joo, MD, PhD[12], Dong Ju Choi, MD, PhD[13], Seung Ho Hur, MD, PhD[14], In Whan Seong, MD, PhD[15], Myeong Chan Cho, MD, PhD[16], Doo Il Kim, MD, PhD[17], Seok Kyu Oh, MD, PhD[18], Tae Hoon Ahn, MD, PhD[19], Jin Yong Hwang, MD, PhD[20], and on behalf of the KAMIR-NIH registry investigators

[1]Department of Cardiovascular Medicine, Chonnam National University Hospital, Gwangju, Korea

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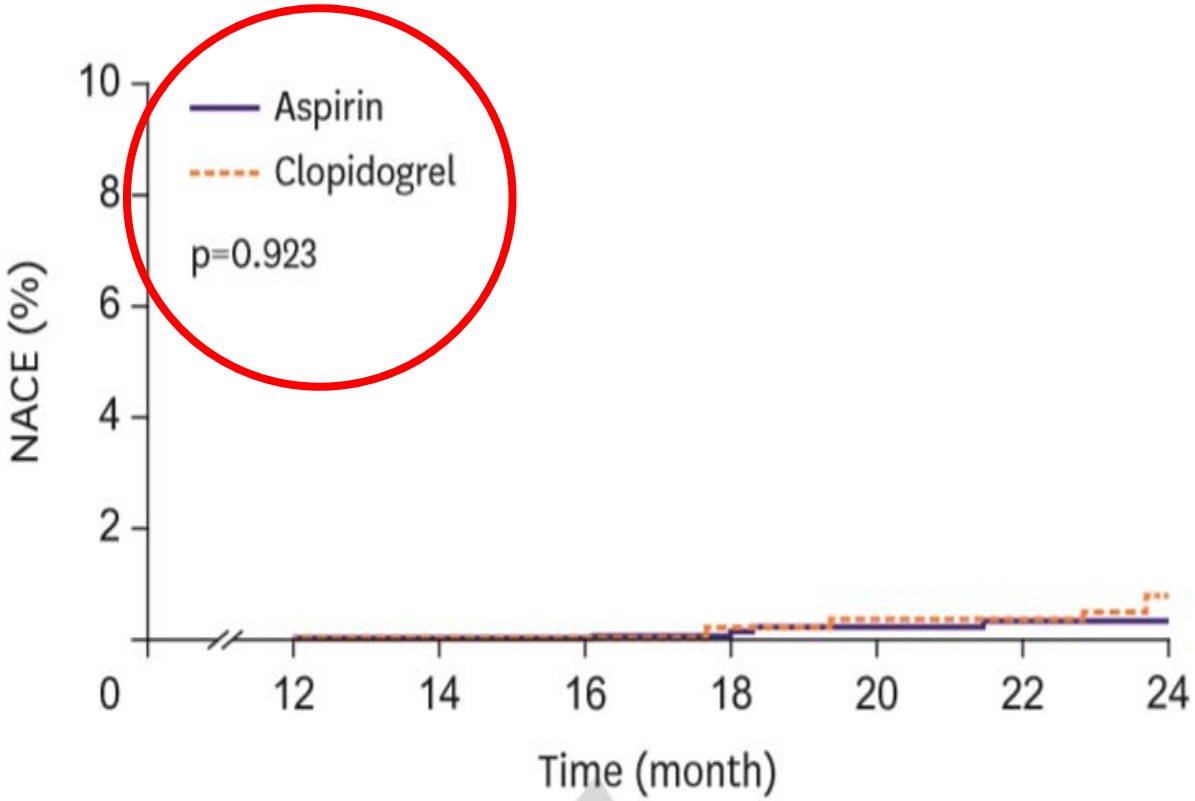
Correspondence to
Myung Ho Jeong, MD, PhD, FACC, FAHA, FESC, FSCAI, FAPSIC



Number at risk							
Aspirin	1,286	1,286	1,286	1,285	1,283	1,261	887
Clopidogrel	533	533	533	532	531	522	372

Figure 2. IPTW-adjusted cumulative incidence of NACE during the period from 12 to 24 months according to study group.
IPTW = inverse probability of treatment weighting; NACE = net adverse clinical events.

KAMIR Investigators . Korean Circ J 2019 Feb 50 (2):e5

Clinical Experience of KAMIR

1. General Trend
2. Risk Factor
3. Risk Stratification
4. Medical Treatment
5. Interventional Treatment

G Model
JJCC-1388; No. of Pages 6

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Journal of Cardiology xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Journal of Cardiology

journal homepage: www.elsevier.com/locate/jjcc

Original article

Relationship between time to treatment and mortality among patients undergoing primary percutaneous coronary intervention according to Korea Acute Myocardial Infarction Registry

Hyun Kuk Kim (MD)[a], Myung Ho Jeong (MD, PhD, FACC, FAHA, FESC, FSCAI)[b,*], Youngkeun Ahn (MD)[b], Shung Chull Chae (MD)[c], Young Jo Kim (MD)[d], Seung Ho Hur (MD)[e], In Whan Seong (MD)[f], Taek Jong Hong (MD)[g], Dong Hoon Choi (MD)[h], Myeong Chan Cho (MD)[i], Chong Jin Kim (MD)[j], Ki Bae Seung (MD)[k], Yang Soo Jang (MD)[h], Seung Woon Rha (MD)[l], Jang Ho Bae (MD)[m], Sung Soo Kim (MD)[n], Seung Jung Park (MD)[o] other Korea Acute Myocardial Infarction Registry Investigators[1]

KAMIR Investigators, J Cardiol 2017;377-82

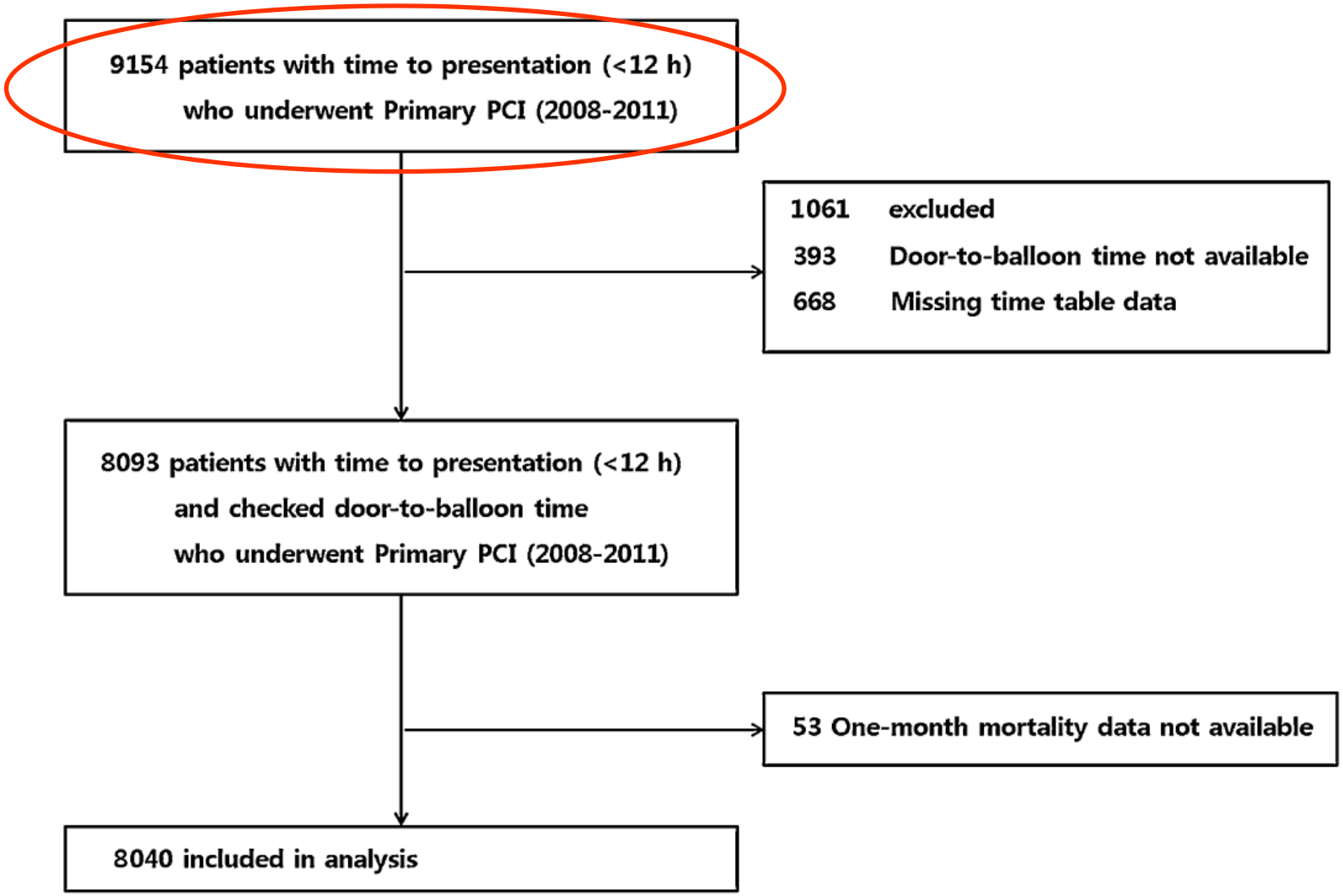


Fig. 1. Study population diagram. PCI, percutaneous coronary intervention.

KAMIR Investigators, J Cardiol 2017;377-82

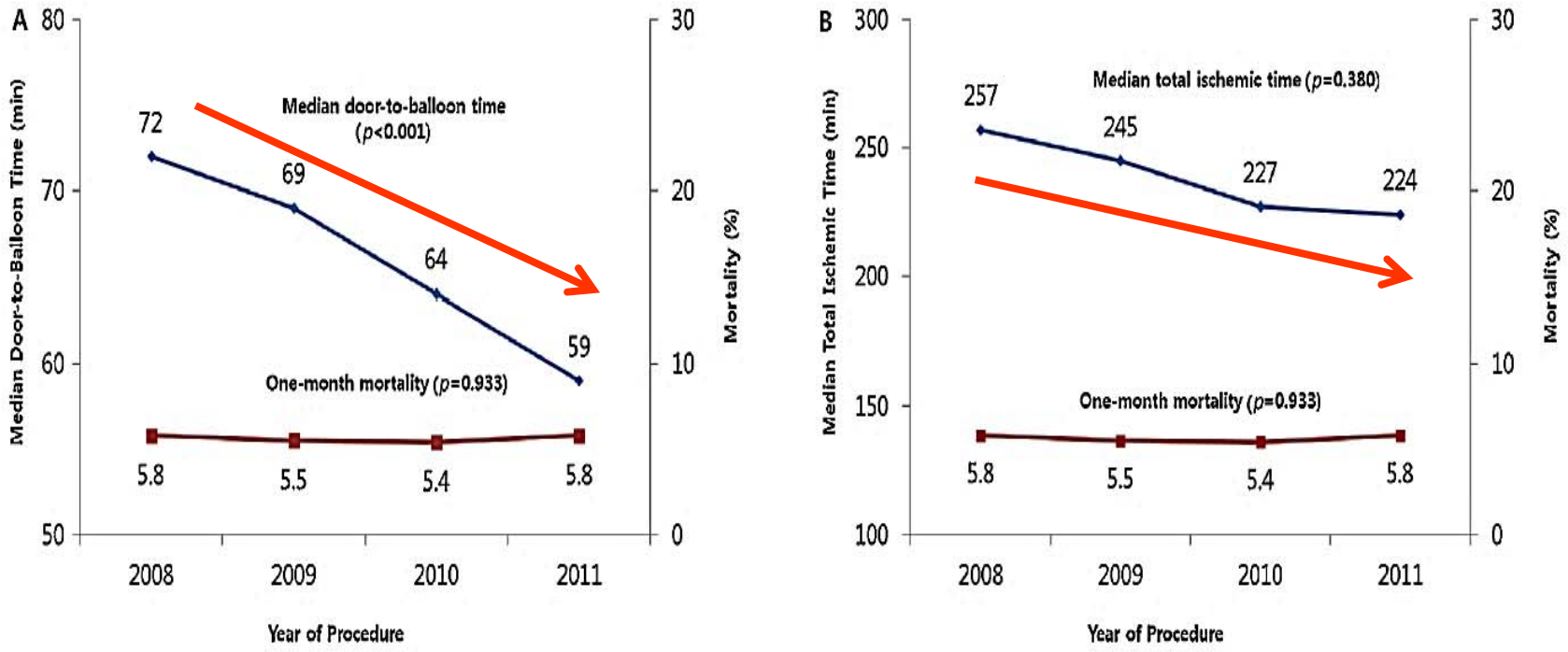


Fig. 2. Mortality rates according to the time to treatment, 2008–2011. The median time to treatment and 1-month mortality among patients with ST-segment elevation myocardial infarction who underwent primary percutaneous coronary intervention are shown between January 2008 and December 2011. Results between door-to-balloon time and 1-month mortality (A), and between total ischemic time and 1-month mortality (B).

KAMIR Investigators, J Cardiol 2017;377-82

Table 3

Door-to-balloon time, total ischemic time, and 1-month mortality.

	One-month mortality (%)		Unadjusted OR (95% CI)	*p*-Value	[a]Adjusted OR (95% CI)	*p*-Value
	Achieved goal	Not achieved goal				
Door-to-balloon time <90 min	5.1	7.6	0.65 (0.53–0.81)	<0.001	0.86 (0.66–1.12)	0.258
Symptom-to-door time <90 min	4.7	6.6	0.69 (0.57–0.84)	<0.001	0.82 (0.63–1.06)	0.136
Total ischemic time <180 min	4.2	6.3	0.64 (0.53–0.78)	<0.001	0.78 (0.62–0.99)	0.040

Total ischemic time = symptom-to-balloon time.

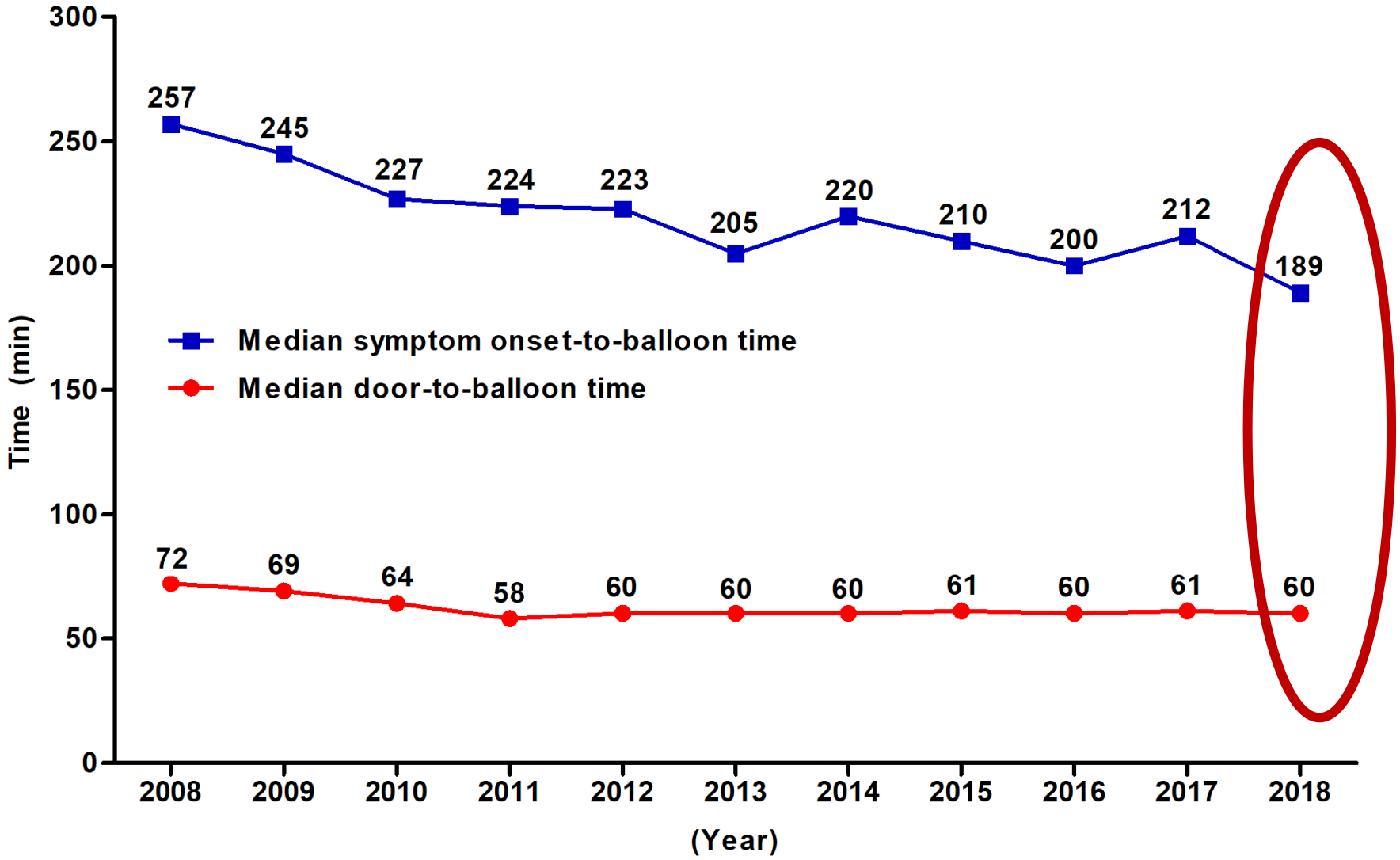
OR, odds ratio; CI, confidence interval.

[a] Adjusted by GRACE (Global Registry of Acute Coronary Events) risk score.

Conclusion: Despite improvements in door-to-balloon time, no parallel reductions in mortality rate and total ischemic time were observed. Total ischemic time was associated with mortality. The present study suggests that additional efforts are needed to shorten total ischemic time including patient and pre-hospital systemic delay for better prognosis after primary PCI.

KAMIR Investigators, J Cardiol 2017;377-82

Changing Trend in Total Ischemic Time and Door-to-Balloon Time in patients with AMI between 2008 and 2018



KAMIR Investigators. *Kor J Int Med 2019;34:1-10*

Multivessel Percutaneous Coronary Intervention in Patients With ST-Segment Elevation Myocardial Infarction With Cardiogenic Shock

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ABSTRACT

BACKGROUND Recent trials demonstrated a benefit of multivessel percutaneous coronary intervention (PCI) for noninfarct-related artery (non-IRA) stenosis over IRA-only PCI in patients with ST-segment elevation myocardial infarction (STEMI) multivessel disease. However, evidence is limited in patients with cardiogenic shock.

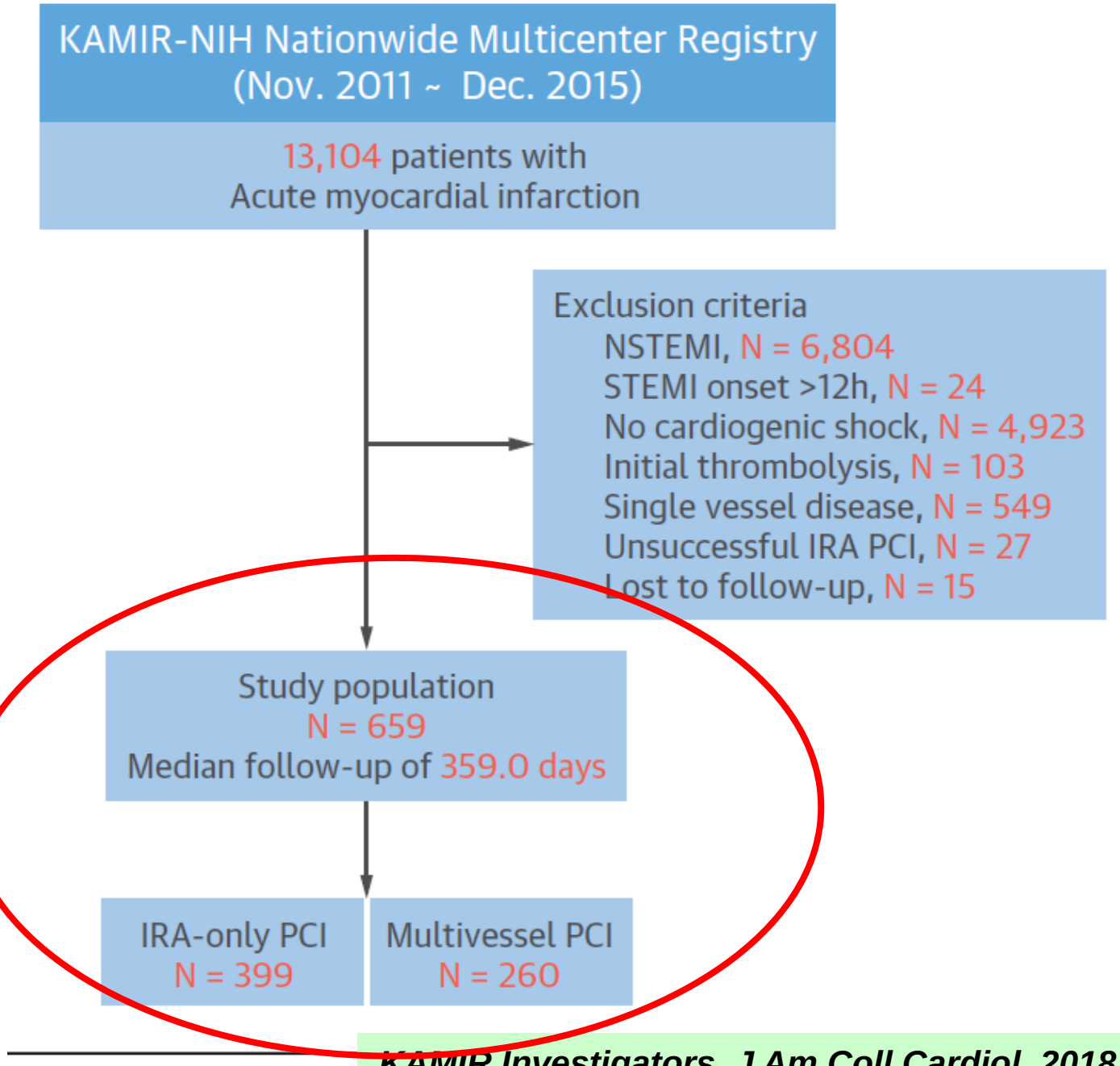
OBJECTIVES This study investigated the prognostic impact of multivessel PCI in patients with STEMI multivessel disease presenting with cardiogenic shock, using the nationwide, multicenter, prospective KAMIR-NIH (Korea Acute Myocardial Infarction-National Institutes of Health) registry.

METHODS Among 13,104 consecutive patients enrolled in the KAMIR-NIH registry, we selected patients with STEMI with multivessel disease presenting with cardiogenic shock and who underwent primary PCI. Primary outcome was 1-year all-cause death, and secondary outcomes included patient-oriented composite outcome (a composite of all-cause death, any myocardial infarction, and any repeat revascularization) and its individual components.

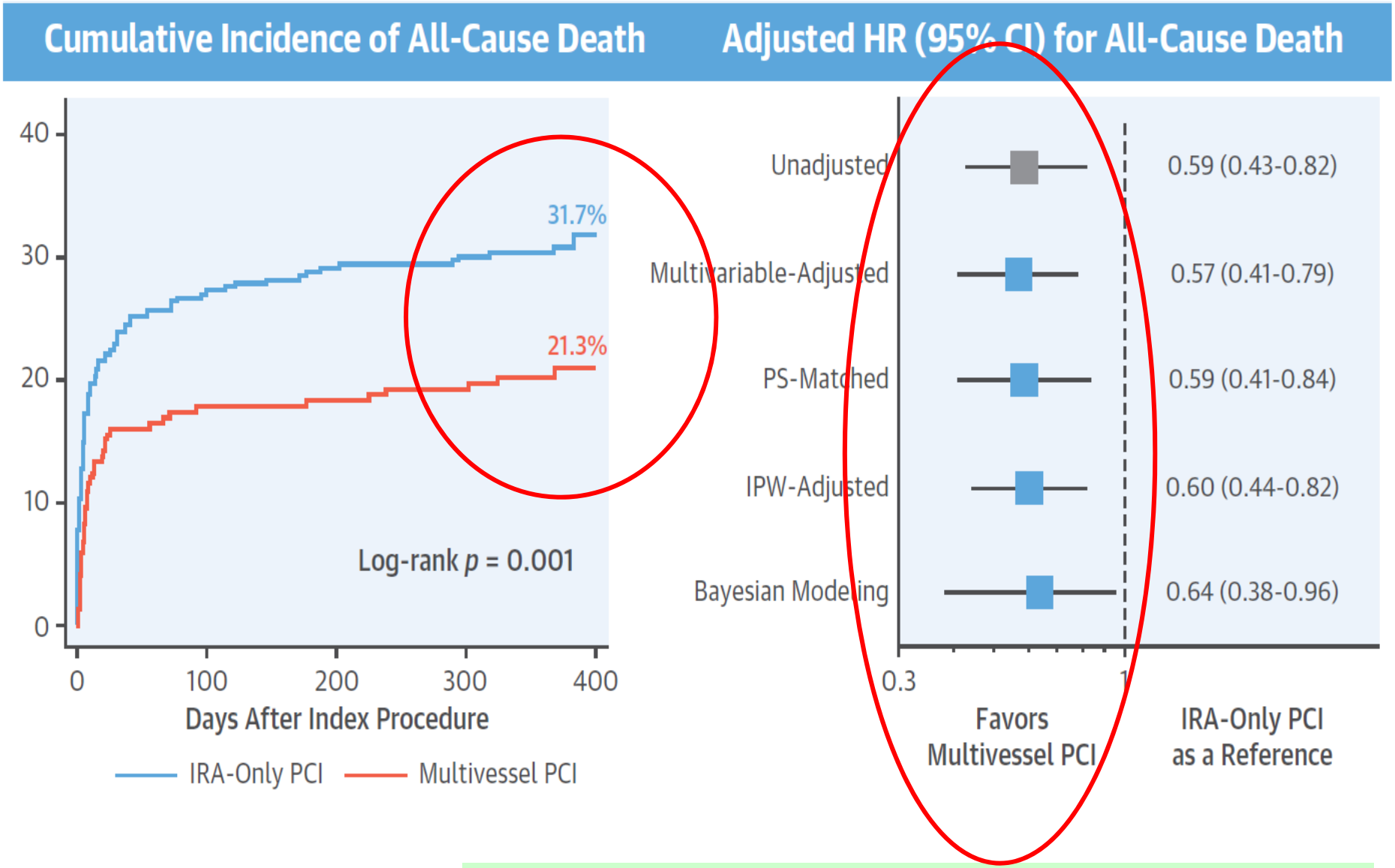
RESULTS A total of 659 patients were treated by multivessel PCI (n = 260) or IRA-only PCI (n = 399) strategy. The risk of all-cause death and non-IRA repeat revascularization was significantly lower in the multivessel PCI group than in the IRA-only PCI group (21.3% vs. 31.7%; hazard ratio: 0.59; 95% confidence interval: 0.43 to 0.82; p = 0.001; and 6.7% vs. 8.2%; hazard ratio: 0.39; 95% confidence interval: 0.17 to 0.90; p = 0.028, respectively). Results were consistent after multivariable regression, propensity-score matching, and inverse probability weighting to adjust for baseline differences. In a multivariable model, multivessel PCI was independently associated with reduced risk of 1-year all-cause death and patient-oriented composite outcome.

CONCLUSIONS Of patients with STEMI and multivessel disease with cardiogenic shock, multivessel PCI was associated with a significantly lower risk of all-cause death and non-IRA repeat revascularization. Our data suggest that multivessel PCI for complete revascularization is a reasonable strategy to improve outcomes in patients with STEMI with cardiogenic shock. (J Am Coll Cardiol 2018;71:844–56)

KAMIR Investigators, J Am Coll Cardiol 2018;71:844-56-7



KAMIR Investigators, J Am Coll Cardiol 2018;71:844-56-7



KAMIR Investigators, J Am Coll Cardiol 2018;71:844-56-7

ORIGINAL RESEARCH

Comparison of Long-Term Clinical Outcome Between Multivessel Percutaneous Coronary Intervention Versus Infarct-Related Artery–Only Revascularization for Patients With ST-Segment–Elevation Myocardial Infarction With Cardiogenic Shock

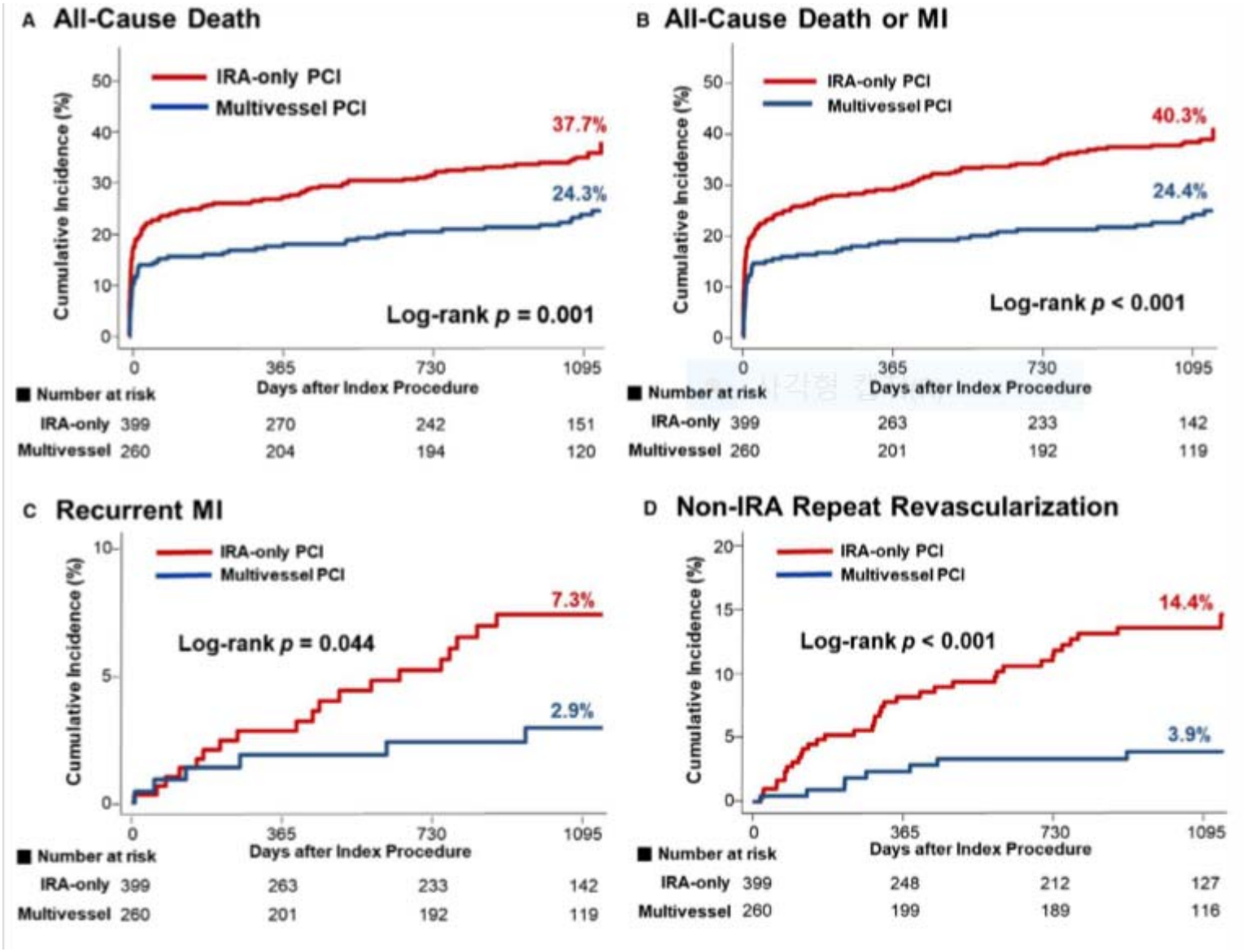
Joo Myung Lee, MD, MPH, PhD;* Tae-Min Rhee, MD;* Hyun Kuk Kim, MD, PhD; Doyeon Hwang, MD; Seung Hun Lee, MD; Ki Hong Choi, MD; Jihoon Kim, MD; Taek Kyu Park, MD; Jeong Hoon Yang, MD, PhD; Young Bin Song, MD, PhD; Jin-Ho Choi, MD, PhD; Seung-Hyuk Choi, MD, PhD; Bon-Kwon Koo, MD, PhD; Shung Chull Chae, MD, PhD; Myeong-Chan Cho, MD, PhD; Chong Jin Kim, MD, PhD; Ju Han Kim, MD, PhD; Hyo-Soo Kim, MD, PhD; Hyeon-Cheol Gwon, MD, PhD; Myung Ho Jeong, MD, PhD; Joo-Yong Hahn, MD, PhD; The KAMIR Investigators†

***Background*—**Data are limited regarding long-term outcomes in patients with ST-segment–elevation myocardial infarction and multivessel disease presenting with cardiogenic shock according to revascularization strategy. We sought to compare the 3-year clinical outcomes of patients with ST-segment–elevation myocardial infarction multivessel disease with cardiogenic shock and patients with multivessel percutaneous coronary intervention (PCI) and infarct-related artery (IRA)–only PCI.

***Methods and Results*—**Of 13 104 patients from the nationwide, multicenter, prospective KAMIR-NIH (Korea Acute Myocardial Infarction Registry—National Institutes of Health) registry, we selected 659 patients with ST-segment–elevation myocardial infarction who had concomitant non-IRA stenosis and presented with cardiogenic shock. The primary outcome was all-cause death. Multivessel PCI was performed in 260 patients and IRA-only PCI in 399 patients. At 3 years, patients in the multivessel PCI group had a lower risk of all-cause death (adjusted hazard ratio, 0.65; 95% CI, 0.45–0.94 [P=0.024]), all-cause death or MI (adjusted hazard ratio, 0.59; 95% CI, 0.41–0.84 [P=0.004]), and non-IRA repeat revascularization (adjusted hazard ratio, 0.23; 95% CI, 0.10–0.50 [P<0.001]) than those in the IRA-only PCI group. The results were consistent after confounder adjustment by propensity score matching and inverse probability weighting analysis. Landmark analysis at 1 year demonstrated that the multivessel PCI group had a lower risk of recurrent MI and non-IRA repeat revascularization beyond 1 year (log-rank P=0.030 and P=0.017, respectively) than the IRA-only PCI group.

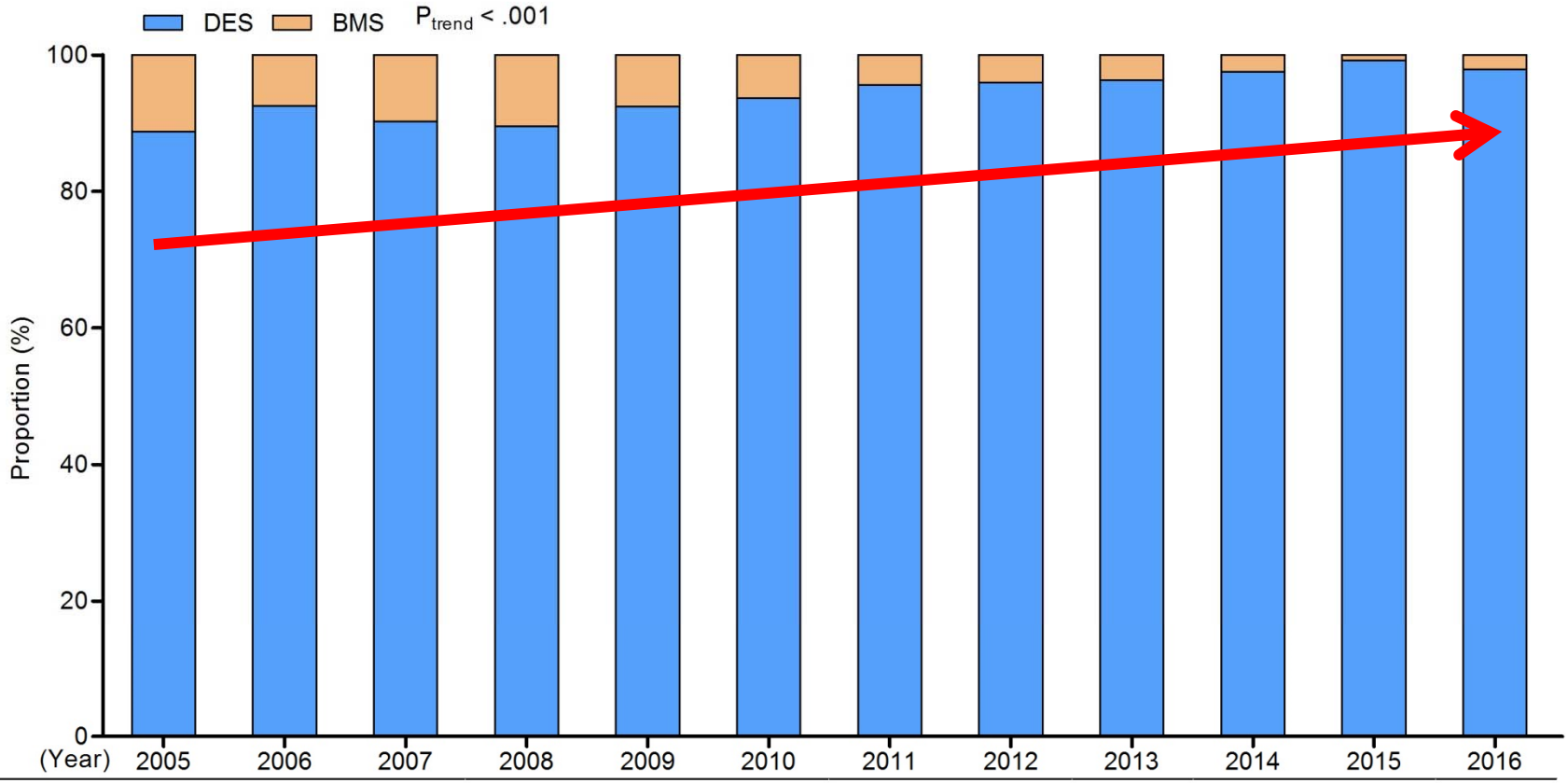
Conclusions*—**In patients with ST-segment–elevation myocardial infarction and cardiogenic shock, multivessel PCI was associated with a lower risk of all-cause death than IRA-only PCI at 3 years, suggesting potential benefit of non-IRA revascularization during the index hospitalization to improve long-term clinical outcomes. (J Am Heart Assoc*. 2019;8:e013870. DOI: 10.1161/JAHA.119.013870e013870.)**

KAMIR Investigators, J Am Heart Assoc 2019;8:e013870



KAMIR Investigators, J Am Heart Assoc 2019;8:e013870

The proportion of DES and BMS implantation in patient with STEMI from 2005 to 2016



(Year)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
DES, %	88.8	92.5	90.3	89.6	92.4	93.7	95.6	95.9	96.3	97.5	99.2	97.9
No. (22,592)	587	2,966	2,429	2,636	2,286	1,963	2,057	1,973	1,626	1,595	1,101	1,373
BMS, %	11.2	7.5	9.7	10.4	7.6	6.3	4.4	4.1	3.7	2.5	0.8	2.1
No. (1,527)	74	242	261	307	188	132	95	85	63	41	9	30
Total no. (24,119)	661	3,208	2,690	2,943	2,474	2,095	2,152	2,058	1,689	1,636	1,110	1,403

KAMIR Investigators. Am J Cardiol 2018;122:365-73

ONLINE FIRST

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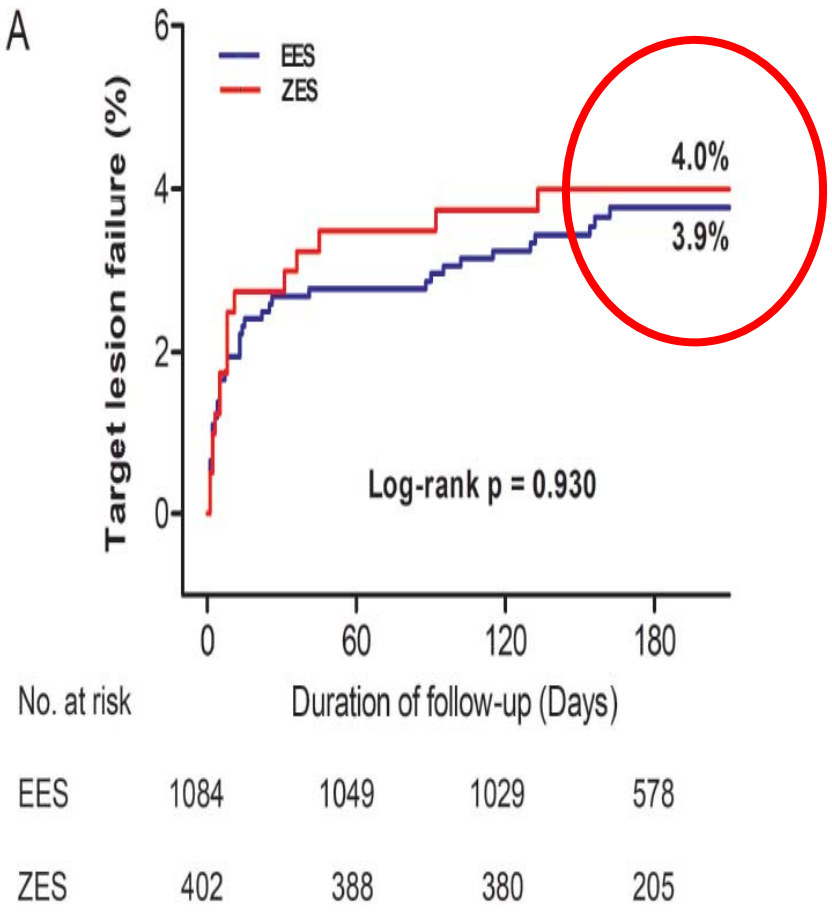
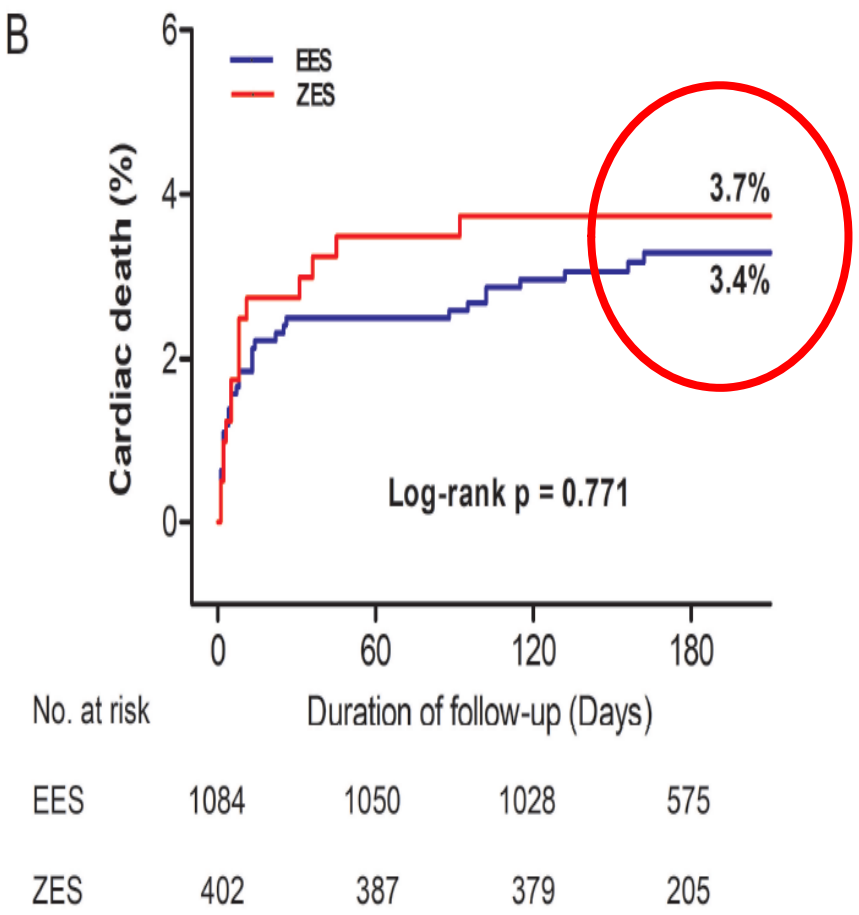
CARDIOLOGY JOURNAL

Comparison of short-term clinical outcomes between Resolute Onyx zotarolimus-eluting stents and everolimus-eluting stent in patients with acute myocardial infarction: Results from the Korea Acute Myocardial infarction Registry (KAMIR)

Authors: Yongcheol Kim, Sung Sik Oh, Myung Ho Jeong, Youngkeun Ahn, Ju han Kim, Young Joon Hong, Doo Sun Sim, Min Chul Kim, Hyo-Soo Kim, Kyeong Ho Yun, Seok Kyu Oh, Chong Jin Kim, Myeong Chan Cho

KAMIR Investigators. ***Cardiol J 2019;26:469-76***





KAMIR Investigators. ***Cardiol J 2019;26:469-76***

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Clinical impact of immediate invasive strategy in patients with non-ST-segment elevation myocardial infarction

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Myocardial infarction
Percutaneous coronary intervention
Bleeding

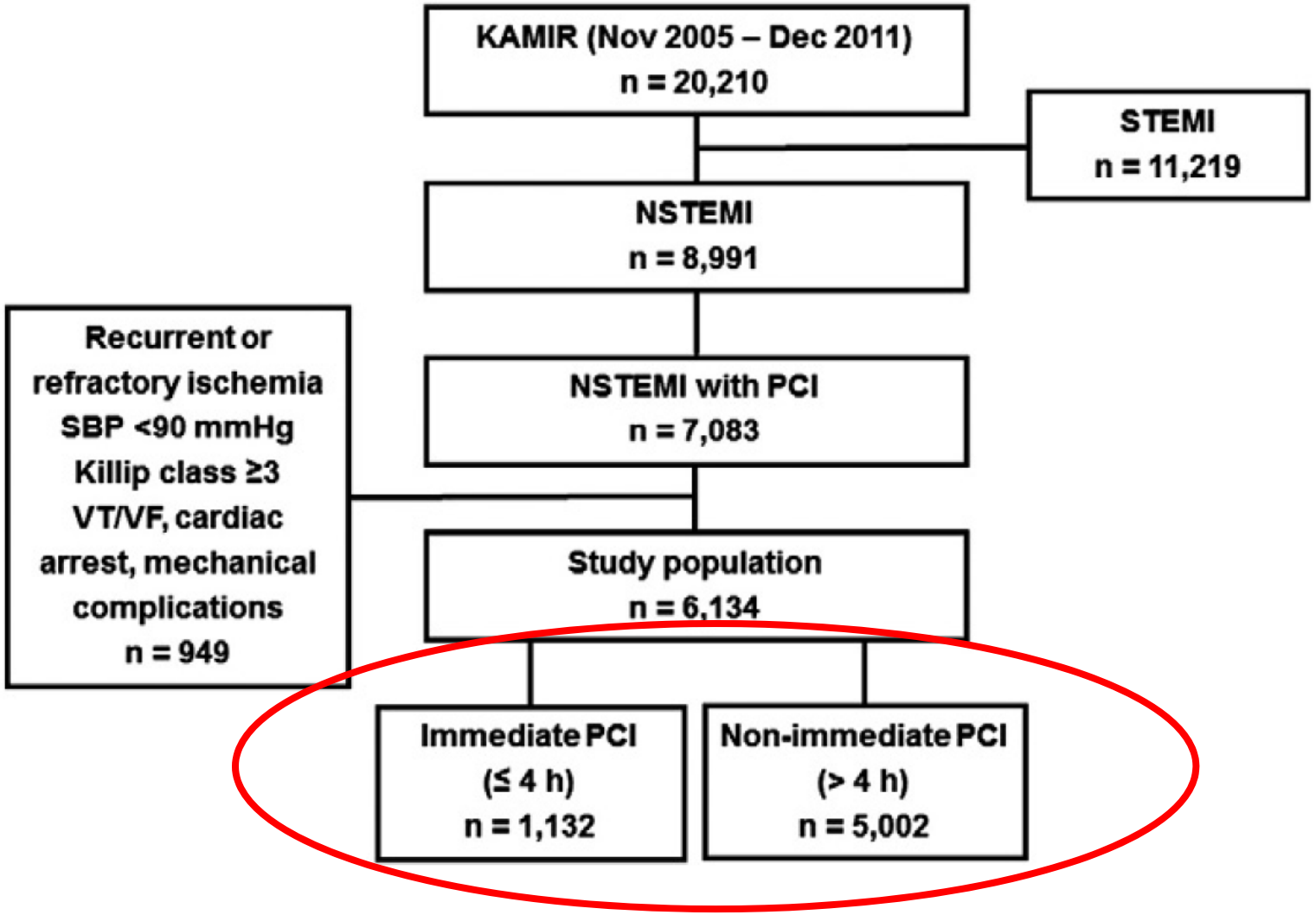
Background: Immediate invasive approach for non-ST-segment elevation myocardial infarction (NSTEMI) may permit treatment of the underlying plaque rupture as early as possible with subsequent reduction of death and myocardial infarction (MI). We sought to assess clinical impact of immediate percutaneous coronary intervention (PCI) for NSTEMI.

Methods: A total of 6134 NSTEMI patients undergoing PCI from the Korea Acute Myocardial Infarction Registry were divided into group 1 (immediate PCI within 4 h, n = 1132) and group 2 (non-immediate PCI after 4 h, n = 5002). Propensity-matched 12-month clinical outcome was compared.

Results: In all patients and propensity-matched cohort (n = 1131 in each group), group 1 had higher peak troponin level, higher rate of pre-PCI Thrombolysis In Myocardial Infarction (TIMI) grade 0 or 1, higher use of glycoprotein IIb/IIIa inhibitor, and lower use of unfractionated heparin and nitrates. In all patients, 12-month rates of MI and death/MI were higher in group 1. No differences were observed in 12-month death and major adverse cardiac events (MACE: composite of death, MI, target-vessel revascularization, and coronary artery bypass graft surgery). In propensity-matched cohort, no significant differences were observed in 12-month rates of death, MI, death/MI or MACE. However, group 1 had less major bleeding (0.8% vs. 3.0%, p = 0.024) and shorter hospital stay.

Conclusions: Immediate PCI for patients with NSTEMI was associated with lower pre-PCI culprit vessel patency and not with improved 12-month clinical outcome.

KAMIR Investigators. *Int J Cardiol 2016;221:937-43*



KAMIR Investigators. *Int J Cardiol 2016;221:937-43*

Table 3
Unadjusted and adjusted clinical outcomes between immediate and non-immediate PCI groups before and after propensity score matching.

	All Patients				Propensity-matched patients			
	Immediate PCI (n = 1132)	Non-immediate PCI (n = 5002)	Unadjusted HR (95% CI)	p value	Immediate PCI (n = 1131)	Non-immediate PCI (n = 1131)	Adjusted HR (95% CI)	p value
In-hospital								
Death from any cause	14 (1.2%)	58 (1.2%)	1.13 (0.63–2.02)	0.688	14 (1.2%)	19 (1.7%)	0.67 (0.23–1.91)	0.449
MI	4 (0.4%)	20 (0.4%)	0.95 (0.19–4.74)	0.954	4 (0.4%)	3 (0.3%)	1.42 (0.13–15.69)	0.776
Stroke	15 (1.3%)	50 (1.0%)	1.34 (0.54–3.31)	0.524	15 (1.3%)	12 (1.1%)	1.24 (0.36–4.27)	0.731
Major bleeding	9 (0.8%)	105 (2.1%)	0.37 (0.13–1.04)	0.059	9 (0.8%)	34 (3.0%)	0.26 (0.08–0.84)	0.024
Hospital stay (days)	4.5 (3.0–7.0)	5.0 (3.3–7.0)		<0.001	4.5 (3.0–7.0)	5.0 (3.3–7.3)		<0.001
12 months								
Death from any cause	47 (4.2%)	166 (3.3%)	1.27 (0.92–1.75)	0.151	47 (4.2%)	36 (3.2%)	1.38 (0.75–2.55)	0.304
MI	30 (2.7%)	77 (1.5%)	1.78 (1.17–2.72)	0.007	30 (2.7%)	14 (1.2%)	1.47 (0.64–3.39)	0.369
Death from any cause or MI	74 (6.5%)	234 (4.7%)	1.43 (1.10–1.86)	0.007	74 (6.5%)	48 (4.2%)	1.27 (0.79–2.06)	0.326
TVR	48 (4.2%)	188 (3.8%)	1.15 (0.84–1.59)	0.375	48 (4.2%)	46 (4.1%)	0.94 (0.56–1.58)	0.821
CABG	5 (0.4%)	10 (0.2%)	2.28 (0.78–6.67)	0.133	5 (0.4%)	2 (0.2%)	2.00 (0.37–10.92)	0.423
MACE	110 (9.7%)	421 (8.4%)	1.19 (0.96–1.46)	0.113	110 (9.7%)	98 (8.7%)	1.11 (0.78–1.59)	0.570

KAMIR Investigators. ***Int J Cardiol 2016;221:937-43***

Optimal Timing of Percutaneous Coronary Intervention in Patients With Non–ST-Segment Elevation Myocardial Infarction Complicated by Acute Decompensated Heart Failure (from the Korea Acute Myocardial Infarction Registry-National Institutes of Health [KAMIR-NIH])

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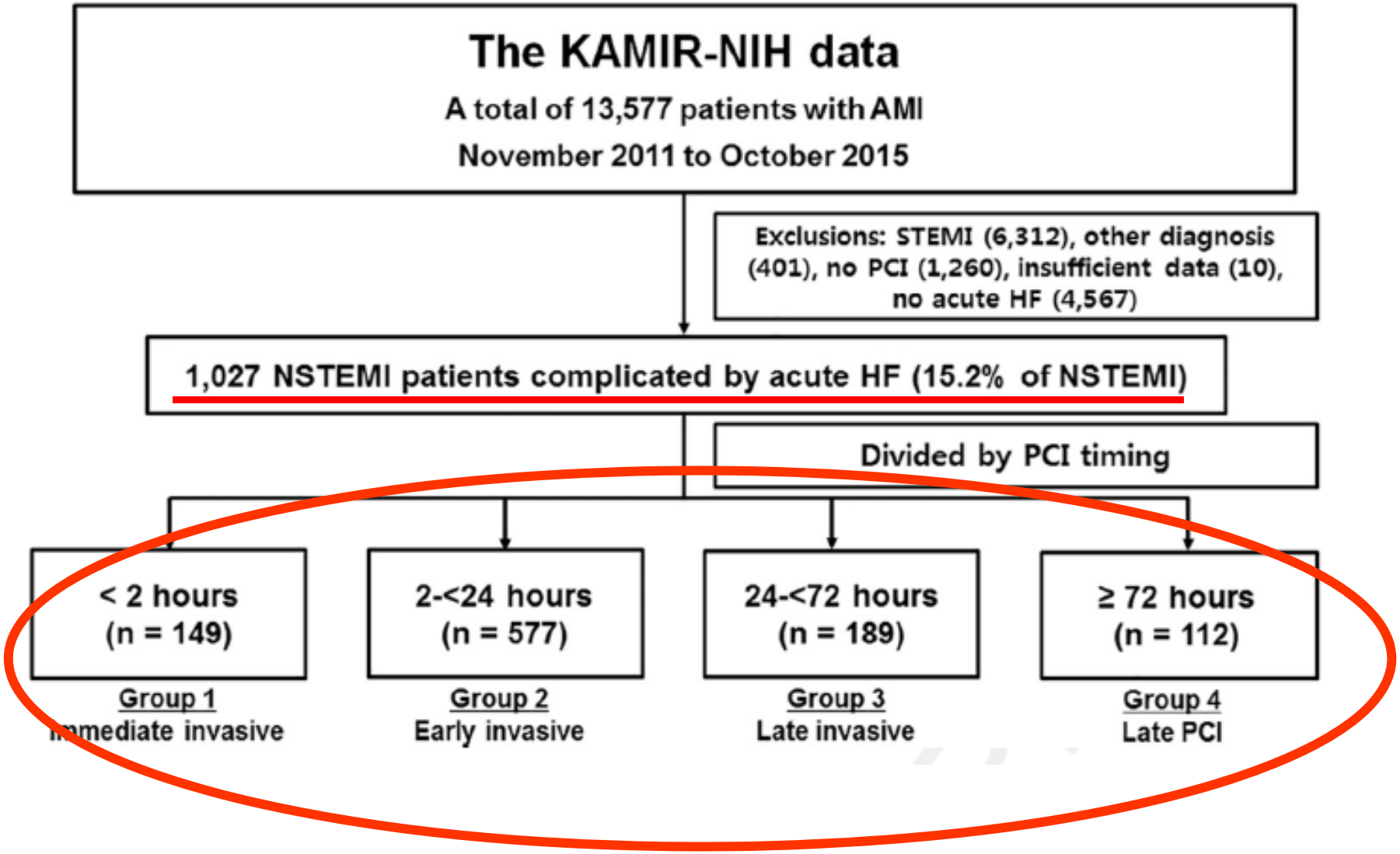
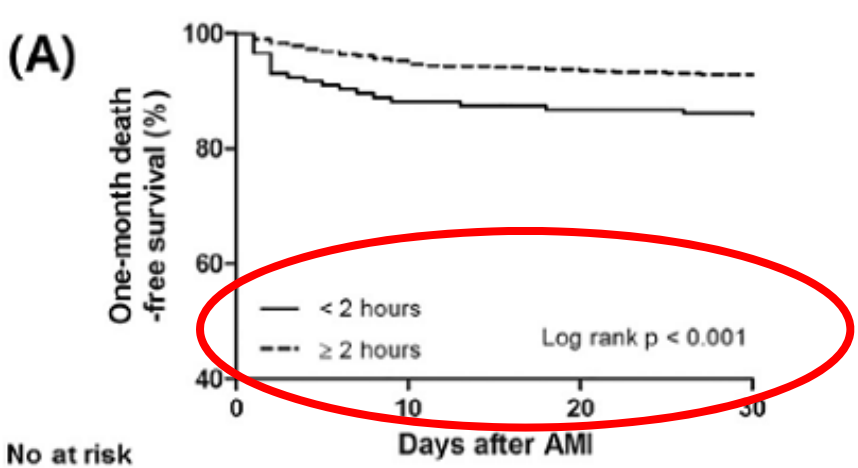
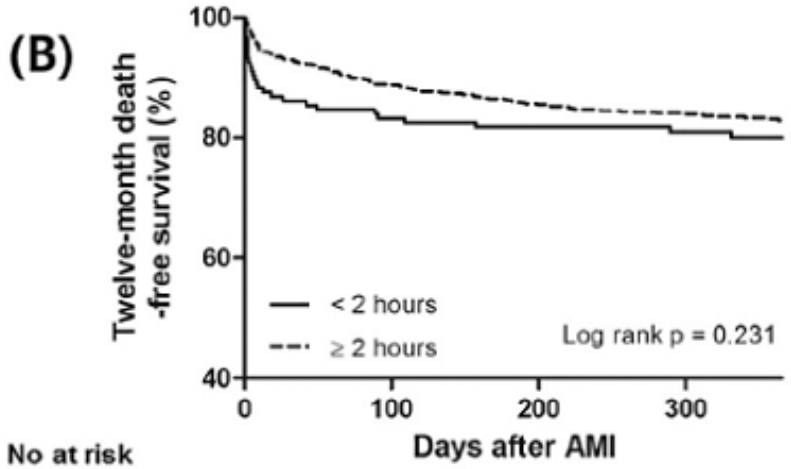
The optimal timing of percutaneous coronary intervention (PCI) in patients with non–ST-segment elevation myocardial infarction (NSTEMI), complicated by acute decompensated heart failure (ADHF), is unclear. A total of 1,027 patients with NSTEMI complicated by ADHF who underwent successful PCI were analyzed using a Korean multicenter registry. All patients were divided into 4 groups by the timing of PCI: group 1 (PCI < 2 hour after admission, n = 149), group 2 (2 to 24 hours, n = 577), group 3 (24 to 72 hours, n = 189), and group 4 (≥72 hours, n = 112). We analyzed the incidences of 12-month mortality, nonfatal myocardial infarction (MI), target-vessel revascularization, and rehospitalization because of HF. The prevalence of ADHF in patients with NSTEMI was 15.2% at initial presentation, and in-hospital mortality was higher in group 1 than in the other groups. There were no significant differences in mortality, nonfatal MI, target-vessel revascularization, or rehospitalization for HF during the 12-month follow-up between groups, regardless of initial PCI timing, except for a higher 12-month mortality in patients who received PCI within 24 hours (vs ≥24 hours) (hazard ratio 1.52, 95% confidence interval 1.09 to 2.29, p = 0.046). Early PCI did not reduce adverse clinical outcomes in patients with NSTEMI complicated by ADHF. Delayed PCI after stabilization may be reasonable in such high-risk patients. (Am J Cardiol 2018;■■:■■–■■)

KAMIR Investigators. *Am J Cardiol 2018;121:1285-92*



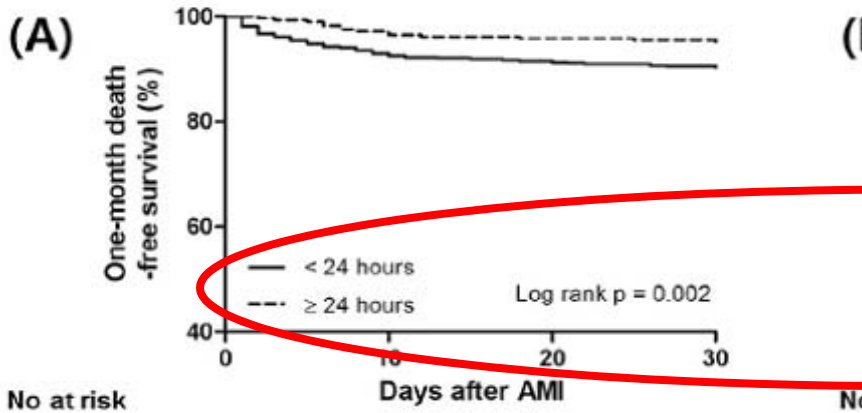
KAMIR Investigators. *Am J Cardiol 2018;121:1285-92*

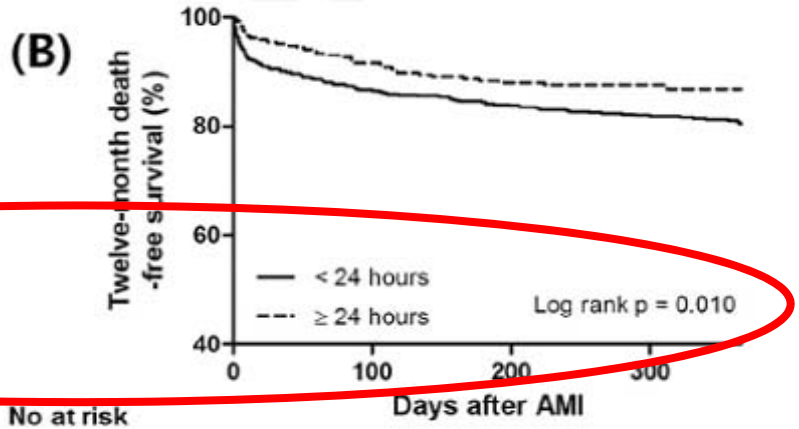




No at risk				
< 2 hours	145	126	122	120
≥ 2 hours	874	805	780	771

No at risk				
< 2 hours	145	116	101	63
≥ 2 hours	874	725	616	376

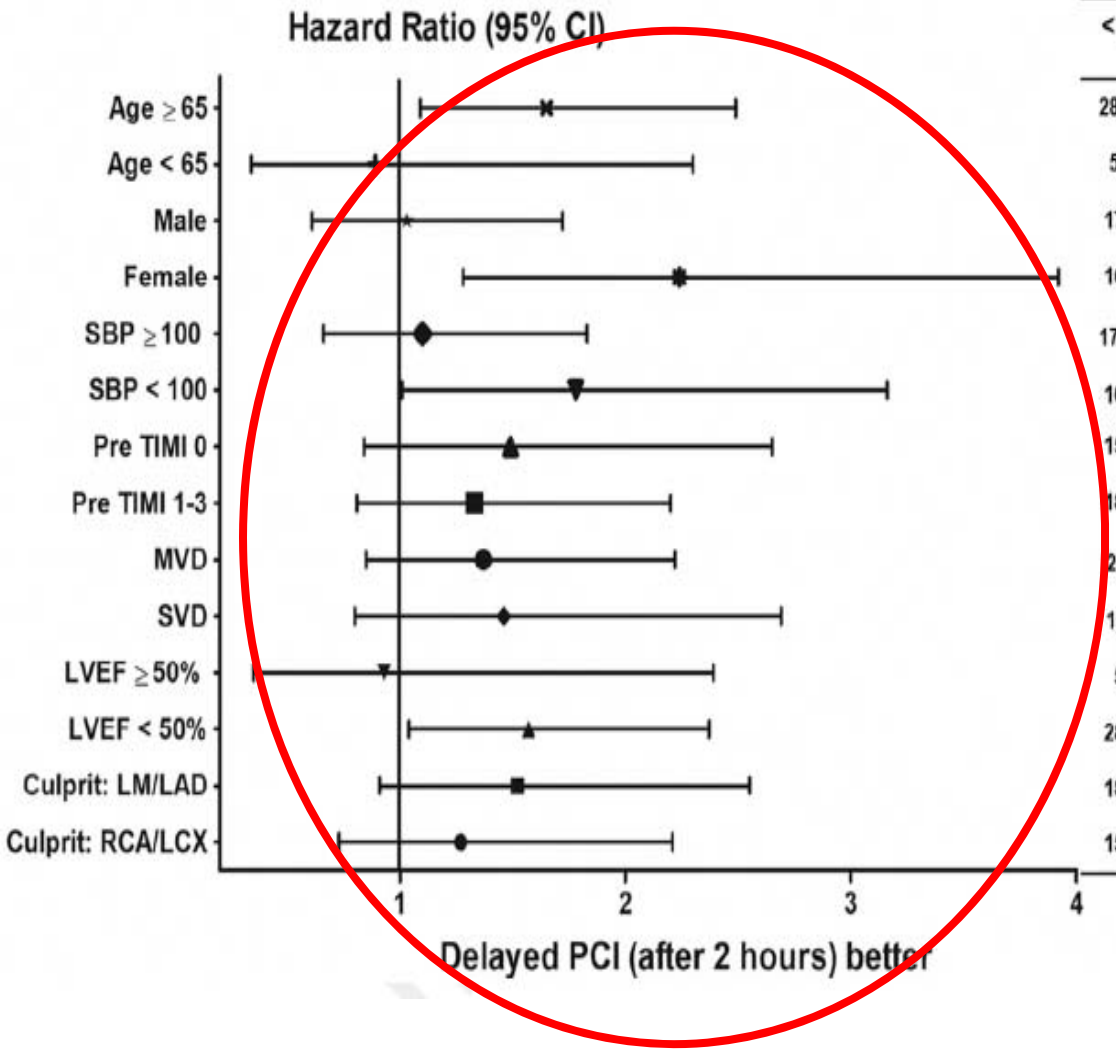




No at risk				
< 24 hours	718	652	630	624
≥ 24 hours	301	279	272	270

No at risk				
< 24 hours	718	589	497	310
≥ 24 hours	301	252	220	133

KAMIR Investigators. *Am J Cardiol 2018;121:1285-92*



< 2 hours	≥ 2 hours	Hazard Ratio (95% CI)	P value for interaction
28/100 (28.0%)	120/632 (19.0%)	1.65 (1.09-2.49)	0.157
5/49 (10.2%)	28/246 (11.4%)	0.89 (0.34-2.30)	
17/94 (18.1%)	96/538 (17.8%)	1.03 (0.61-1.72)	0.052
16/55 (29.1%)	52/340 (15.3%)	2.24 (1.28-3.92)	
17/106 (16.0%)	105/704 (14.9%)	1.10 (0.66-1.83)	0.132
16/43 (37.2%)	43/174 (24.7%)	1.78 (1.01-3.16)	
15/59 (25.4%)	50/269 (18.6%)	1.49 (0.84-2.65)	0.674
18/90 (20.0%)	98/609 (16.1%)	1.33 (0.81-2.20)	
20/93 (21.5%)	96/567 (16.9%)	1.37 (0.85-2.22)	0.784
13/56 (23.2%)	52/311 (16.7%)	1.46 (0.80-2.69)	
5/56 (8.9%)	32/339 (9.4%)	0.93 (0.35-2.39)	0.185
28/93 (30.1%)	116/539 (21.5%)	1.57 (1.04-2.37)	
18/73 (24.7%)	76/421 (18.1%)	1.52 (0.91-2.55)	0.698
15/76 (19.7%)	72/457 (15.8%)	1.27 (0.73-2.21)	

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Review

The role of optical coherence tomography in the setting of acute myocardial infarction

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ABSTRACT

In recent years, intravascular imaging-guided percutaneous coronary intervention (PCI) has been increasing in patients with acute myocardial infarction (AMI). However, the role of optical coherence tomography (OCT) has not been established in the setting of AMI despite OCT providing superior resolution (10 μm axial resolution) and facilitating assessment of baseline lesion characteristics and post-intervention evaluation of the acute result of stent implantation, including visualization of procedural dissections, malapposition, tissue prolapse, and thrombus. We provide an overview of the potential benefits of OCT-guidance in various situations of AMI.

KAMIR Investigators. *J Cardiol 2018;72:186-92*

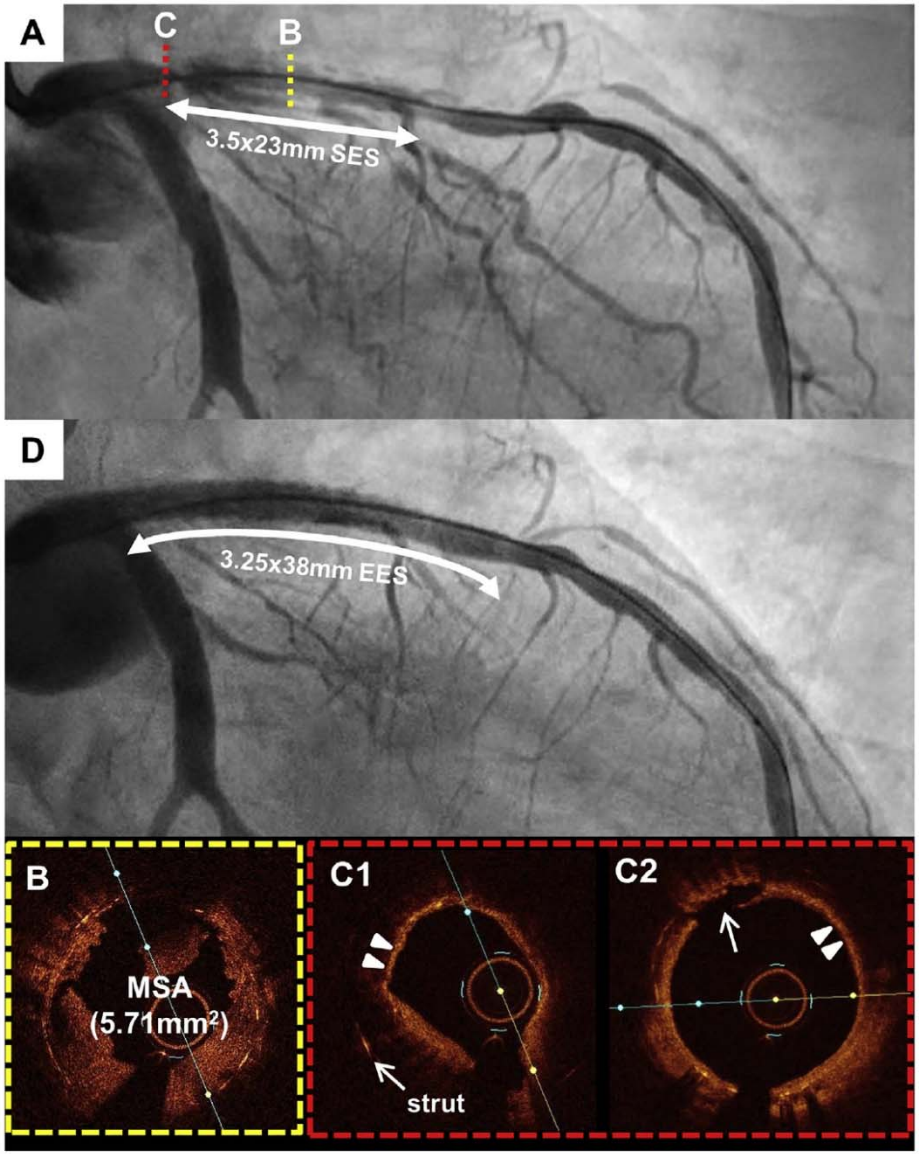

Fig. 2. Thin-cap neoatheroma in very late stent thrombosis assessed by OCT. (A) Angiographic assessment demonstrating stent failure in proximal LAD in a 49-year-old woman who underwent a 3.5 mm × 23 mm sirolimus-eluting stent (SES) implantation 10 years previously complaining of sudden onset chest pain with electrocardiographic evidence of anterior ST-segment elevation. (B) OCT demonstrating minimal stent area of 5.71 mm^2 and minimal stent diameter of 2.70 mm. (C) OCT demonstrating thin-cap neoatheroma (arrowheads in C1 and C2) and plaque rupture (arrow in C2). (D) Final coronary angiography demonstrating good distal flow without residual stenosis by treating with a 3.25 mm × 38 mm everolimus-eluting stent (EES) and pre- and post-dilation with a 3.5 mm × 10 mm noncompliance balloon. LAD, left anterior descending artery; OCT, optical coherence tomography; MSA, minimal stent area.

KAMIR Investigators. ***J Cardiol 2018;72:186-92***

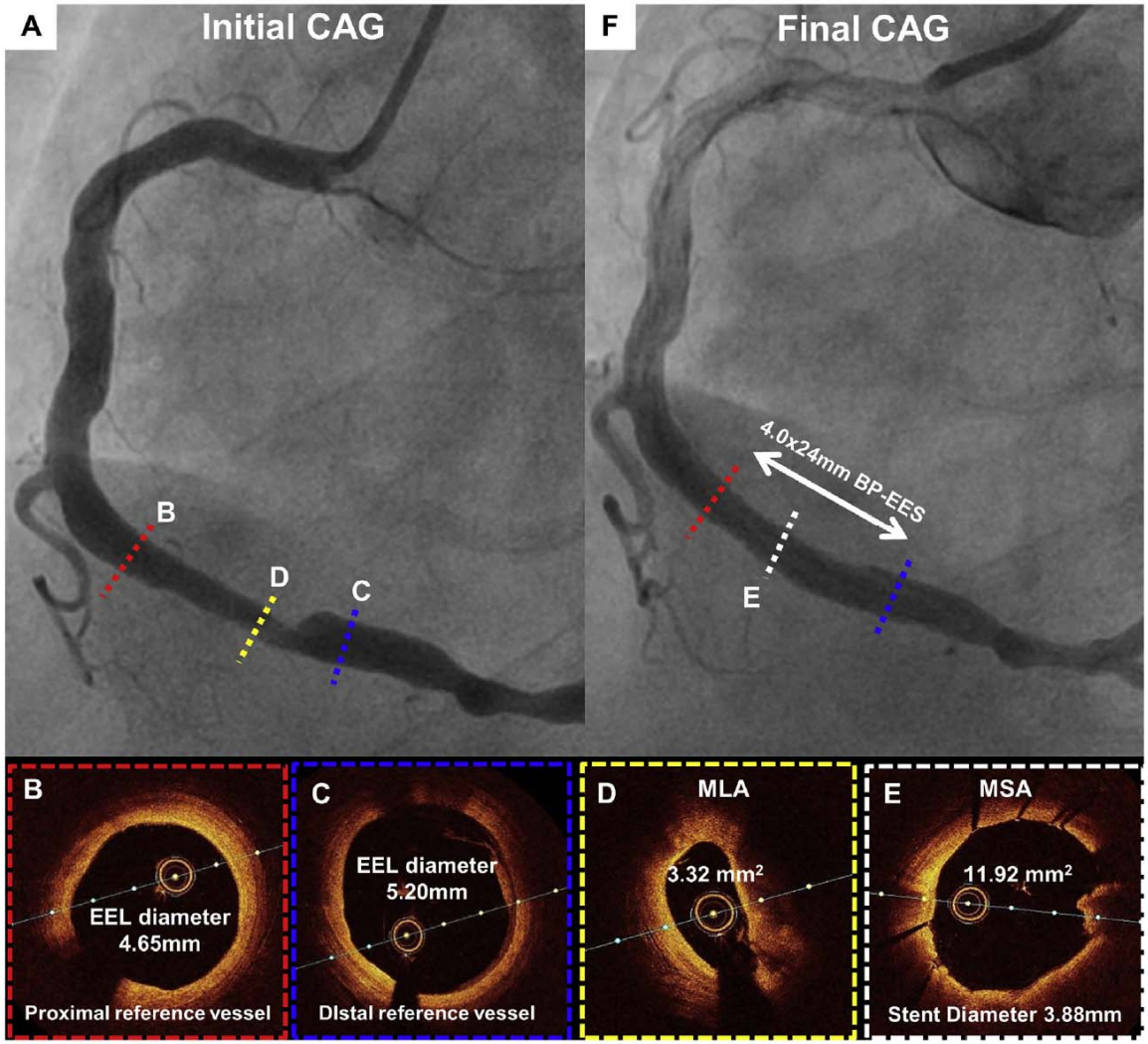

Fig. 3. OCT-guided PCI with DES optimization for the stenotic lesion in AMI patients with coronary artery ectasia. (A) Angiographic assessment demonstrating the severe stenosis in the ectatic distal RCA in a 59-year-old man presenting with NSTEMI. (B and C) OCT assessment demonstrating EEL diameter of 4.65 mm and 5.20 mm in the proximal and distal reference vessel, respectively. (D) OCT demonstrating MLA of 3.32 mm^2. (E) OCT cross-section demonstrating MSA of 11.92 mm^2 and excellent strut apposition (Video 1) after a 4.0 mm × 24 mm 2nd generation DES implantation and post-dilation using a 5.0 mm × 12 mm noncompliant balloon following EEL-guided stent sizing (F) Final CAG showing successful PCI result. BP-EES, bioresorbable polymer-everolimus eluting stent; OCT, optical coherence tomography; PCI, percutaneous coronary intervention; DES, drug-eluting stent; AMI, acute myocardial infarction; RCA, right coronary artery; NSTEMI, non-ST-elevation myocardial infarction; EEL, external elastic lamina; MLA, minimal lumen area; MSA, minimal stent area; CAG, coronary angiography.

KAMIR Investigators. ***J Cardiol 2018;72:186-92***

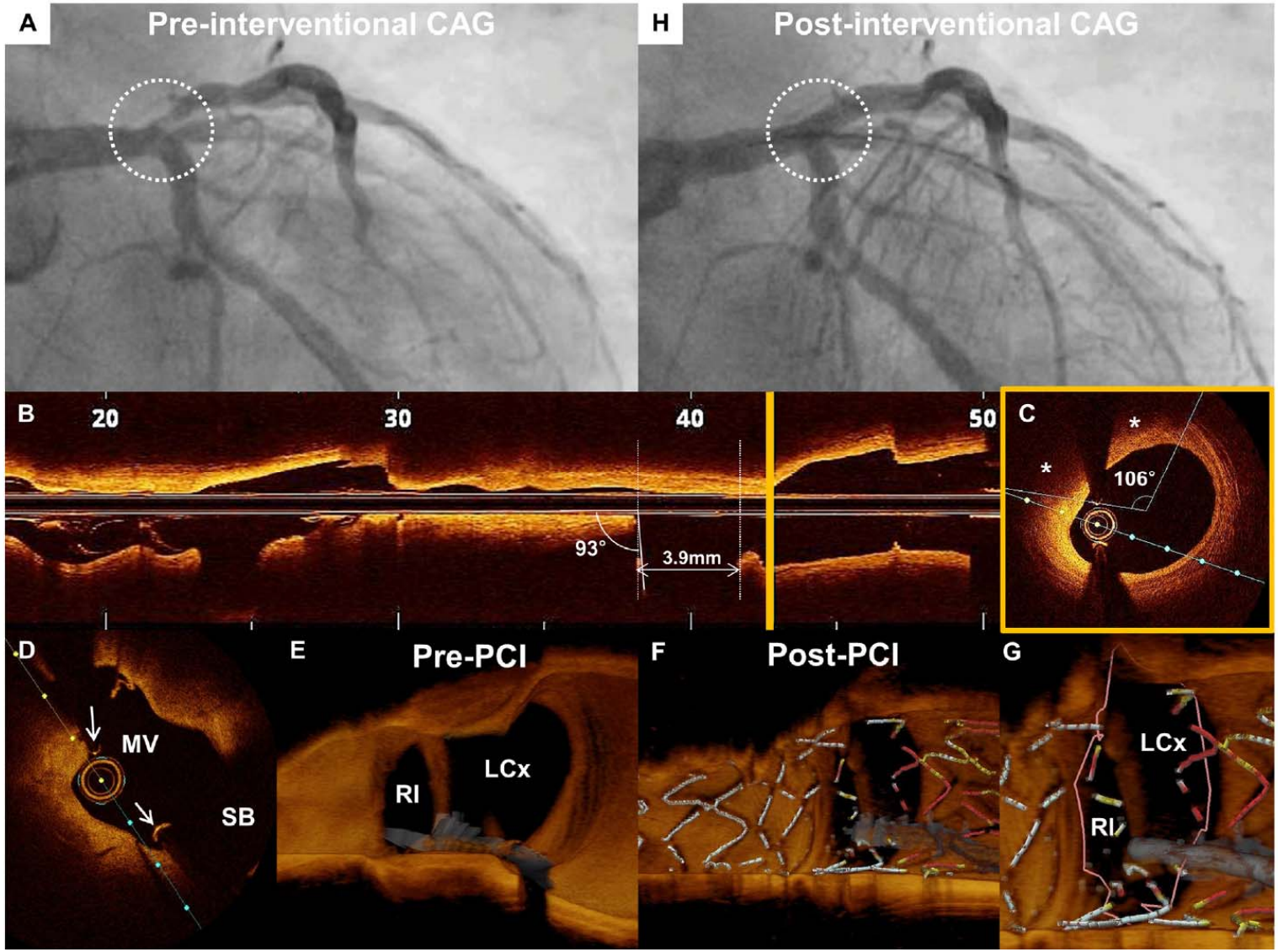

Fig. 4. Successful bifurcation stenting with the aid of OCT in patients with acute myocardial infarction. (A) Angiographic assessment demonstrating the severe stenosis in the ostium of LAD and intermediate stenosis in the RI branch in a 56-year-old man presenting with NSTEMI. (B) Pre-intervention OCT longitudinal image showing wide carina angle (93°) and wide length between proximal branching point to carina tip (3.90 mm) in bifurcation lesion. (C) Pre-intervention OCT cross-section showing a lipid-rich plaque (asterisks) with maximal lipid arc of 106° in the proximal main vessel segment. (D and E) Pre-intervention OCT cross-section image and 3D reconstruction image demonstrating intact ostium of both side branches (arrows in B: guide wires). (F and G) Post-intervention (3.0 mm × 18 mm zotarolimus-eluting stent) 3D images demonstrating no jailed side branches. (F) Final CAG demonstrating good distal flow in main vessel and side branches. OCT, optical coherence tomography; LAD, left anterior descending artery; RI, ramus intermedius; NSTEMI, non-ST-elevation myocardial infarction; CAG, coronary angiography; MV, main vessel; SB, side branch; LCx, left circumflex artery.

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Original article

Manual thrombus aspiration during primary percutaneous coronary intervention: Impact of total ischemic time

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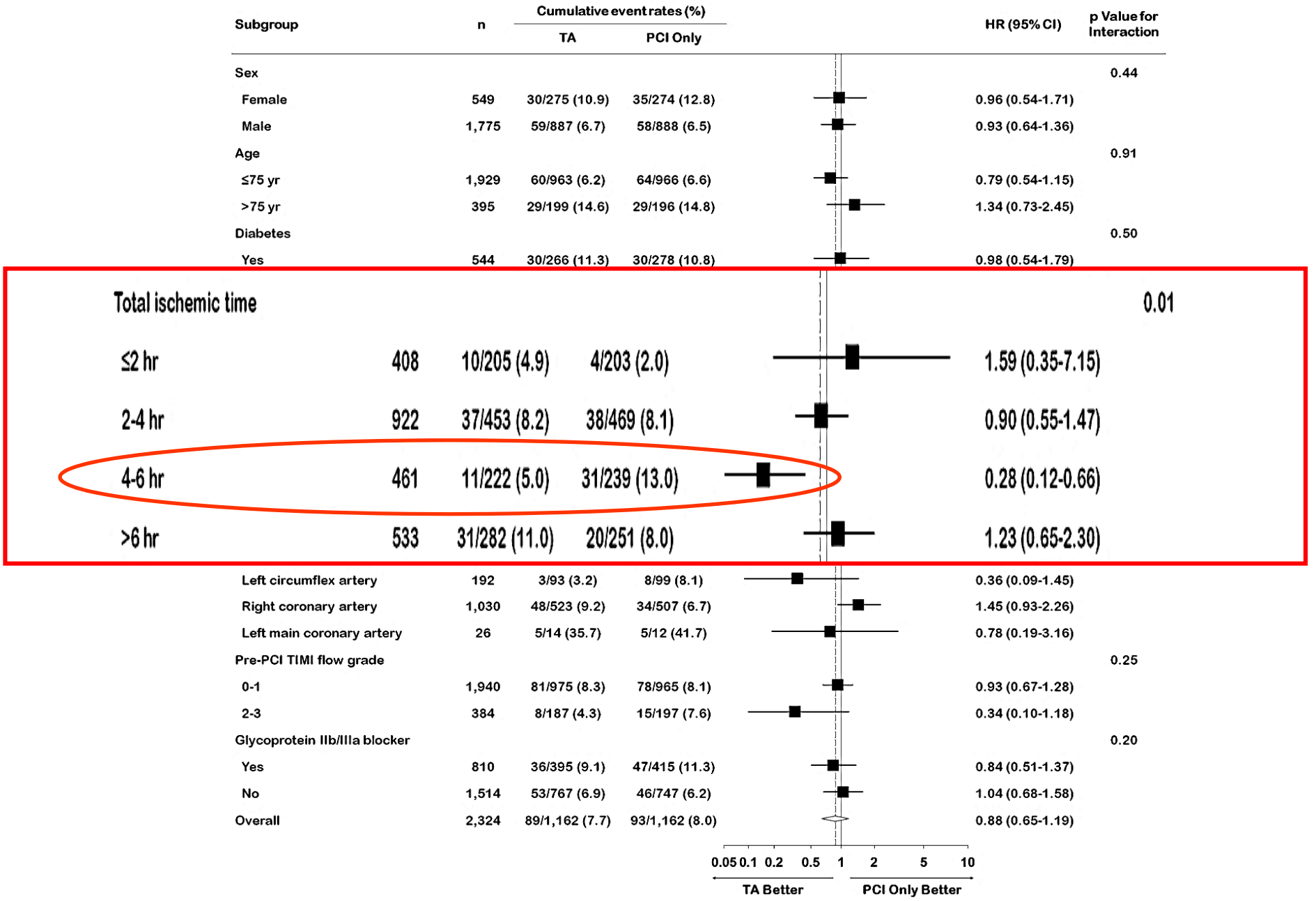

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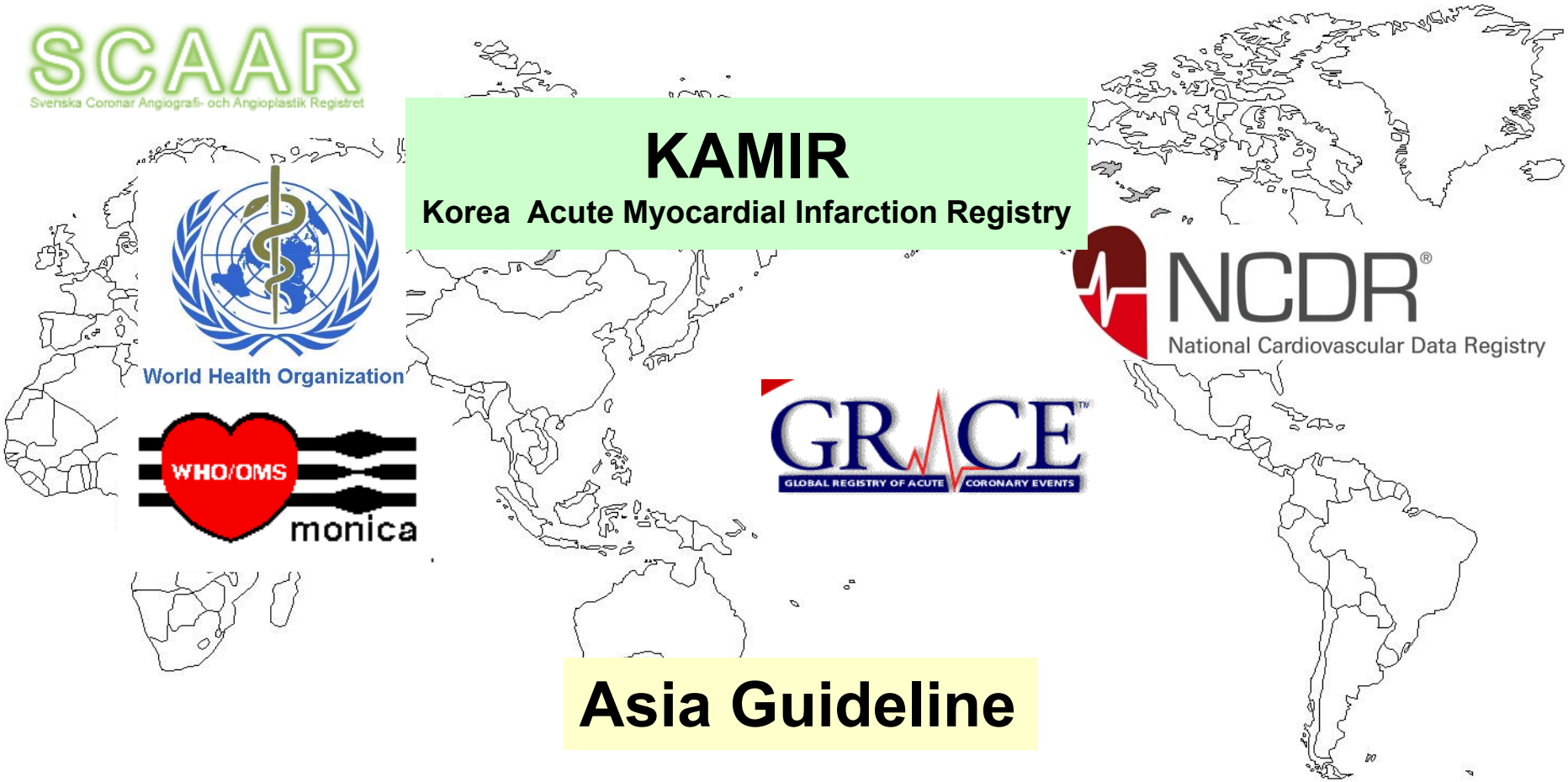
Final Goal of KAMIR Study



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