



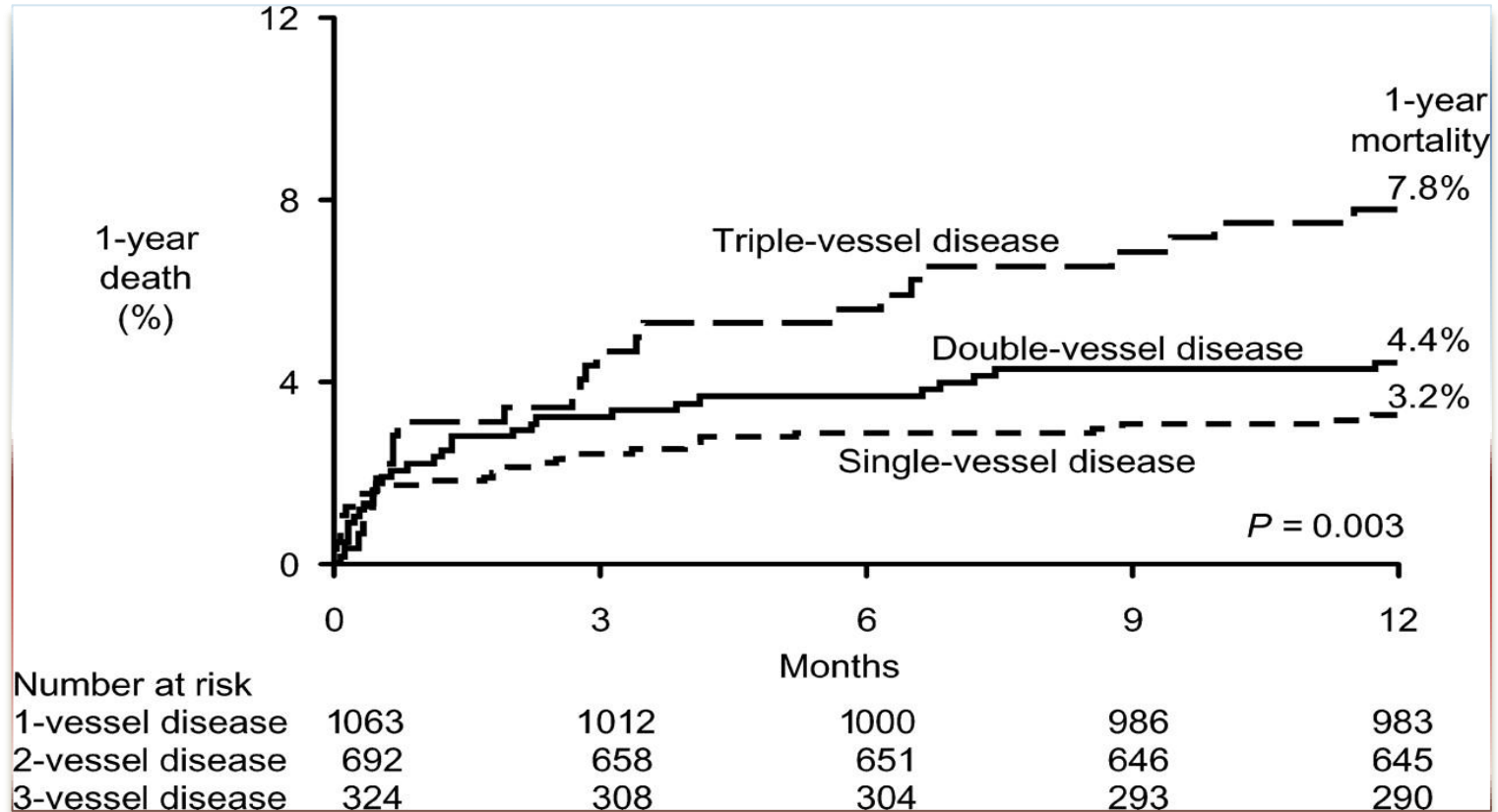
***The Optimal Time of PCI
for Non-Culprit Vessel
in Acute STEMI Patients with
Multivessel Disease***

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1-year incidence of death according to 1-2-3- vessel disease



2013 ACCF/AHA and ESC guideline for the management of STEMI

ACCF/AHA

I IIa IIb III

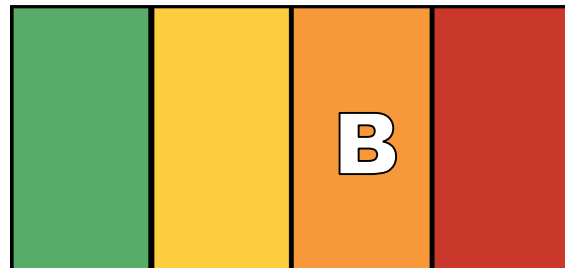


PCI should not be performed in a non infarct artery at the time of primary PCI in patients with STEMI without hemodynamic compromise.



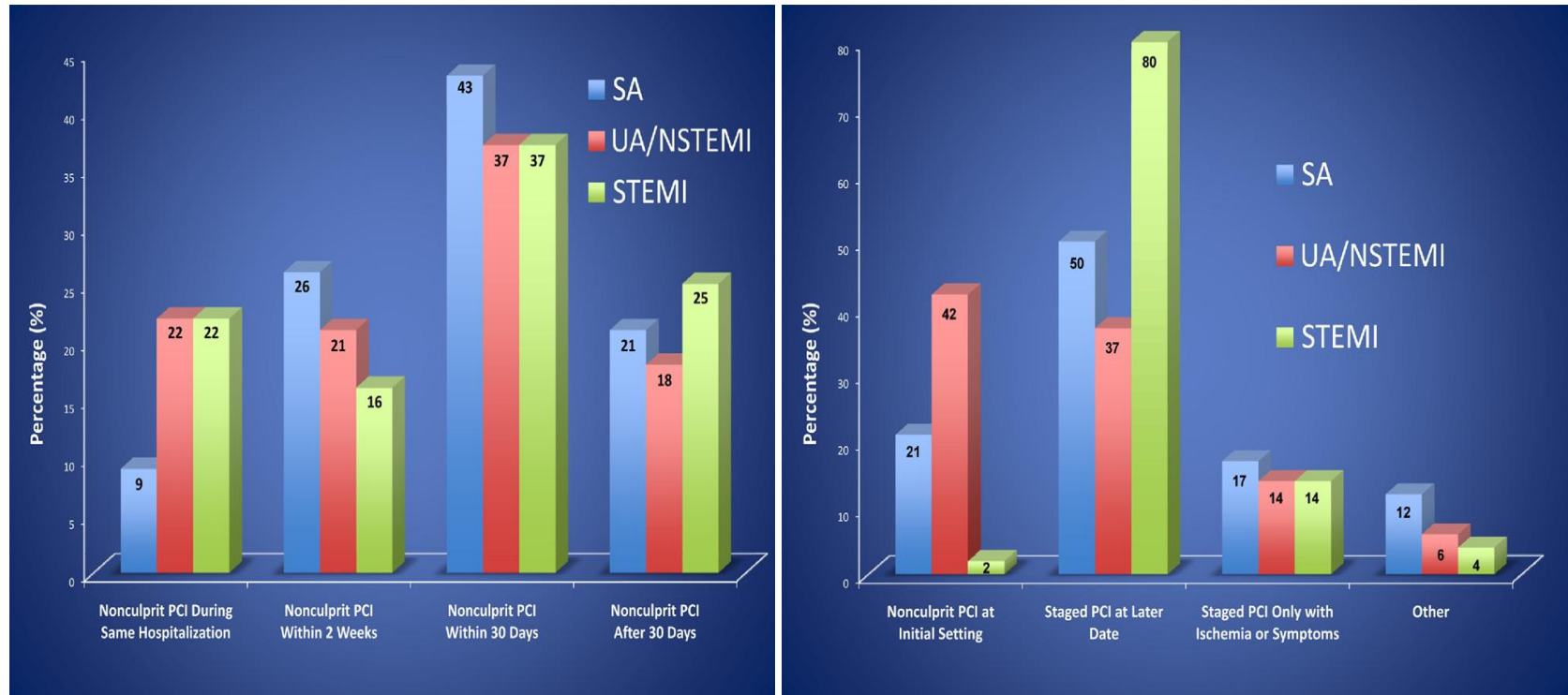
ESC

I IIa IIb III



Primary PCI should be limited to the culprit vessel with the exception of cardiogenic shock and persistent ischemia after PCI of the supposed culprit lesion.

Timing of Staging in Patient Subsets



George D. Dangas et.al. J Am Coll Cardiol Interv. 2010

Methods:

CNU November 2005- December 2012
4,149 patients were diagnosed with acute myocardial infarction

2,124 patients with STEMI

2,078 patients treated by primary percutaneous coronary intervention (PCI)

2000 STEMI patients who had significant coronary stenosis

1946 STEMI patients who treated successfully by PCI

899 STEMI patients with multivessel disease

581 patients treated by multivessel PCI

Group I, 0 day
(n=173)

Group II 1-7 days
(n=336)

Group III
>8 days (n=72)

2,025 patients with NSTEMI

46 patients who treated by thrombolytic therapy were excluded

78 patients without coronary stenosis on angiography were excluded

54 patients who failed primary PCI

1047 patients with single vessel disease were excluded

318 patients treated by culprit only

Baseline clinical characteristics

Baseline clinical characteristics	Group I (0 day) (n = 173)	Group II (1-7 days) (n = 336)	Group III (≥ 8 days) (n = 72)	p value
Age, year	65.8 ± 11.3	65.3 ± 13.0	68.7 ± 10.9	0.102
Male, n (%)	128 (74.0)	249 (74.1)	49 (68.1)	0.558
Killip class III-IV	45 (26.0)	35 (10.4)	9 (12.5)	<0.001
Hypertension	92 (54.8)	158 (49.4)	37 (51.4)	0.527
Diabetes mellitus	63 (37.5)	107 (33.4)	19 (26.4)	0.245
Smoking	105 (60.7)	211 (62.8)	45 (62.5)	0.896
Dyslipidemia	9 (5.4)	19 (5.9)	2 (2.8)	0.561
Left ventricular ejection fraction, %	54.5 ± 11.5	54.6 ± 13.2	54.6 ± 11.0	0.614

Result(2)

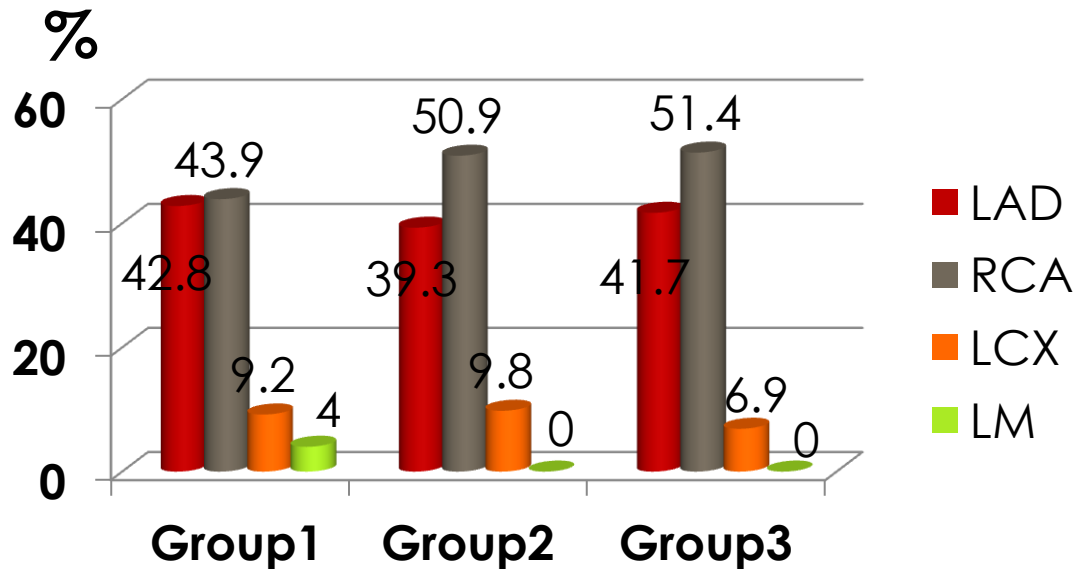
Laboratory findings	Group I (0 day) (n = 173)	Group II (1-7 days) (n = 336)	Group III (≥ 8 days) (n = 72)	p value
Toponin I, ng/L	6.7 ± 7.5	6.8 ± 10.1	7.5 ± 7.3	0.752
CK-MB, IU/L	11.4 ± 12.9	10.2 ± 11.7	9.7 ± 9.7	0.366
creatine mg/dL	1.0 ± 0.8	1.1 ± 0.7	1.2 ± 1.2	0.216
Hs-CRP, mg/L	1.8 ± 3.1	2.3 ± 3.3	2.4 ± 3.5	0.114
Total cholesterol, mg/dl	186.2 ± 42.3	182.7 ± 42.8	178.0 ± 45.5	0.295
Triglyceride, mg/dl	128.7 ± 109.9	128.9 ± 88.6	122.3 ± 76.8	0.431
LDL cholesterol, mg/dl	123.9 ± 36.2	120.8 ± 38.3	116.2 ± 40.4	0.249
HDL, mg/dl	44.1 ± 12.4	44.4 ± 11.8	43.1 ± 15.8	0.781
NT-pro BNP, pg/ml	1874.3 ± 3845.1	3554.7 ± 6696.4	2976.2 ± 4323.3	0.002

Result(3)

Medical treatment, n(%)	Group I (0 day) (n = 173)	Group II (1-7 days) (n = 336)	Group III (≥ 8 days) (n = 72)	p value
Aspirin	170 (98.3)	336 (100.0)	72 (100.0)	0.148
Clopidogrel	167 (96.5)	331 (98.5)	72 (100.0)	0.136
β-Blocker	139 (80.3)	271 (80.7)	60 (83.3)	0.147
RAS blocker	160 (92.7)	319 (94.9)	68 (94.4)	0.789
Statin	134 (77.5)	266 (79.2)	57 (79.2)	0.847

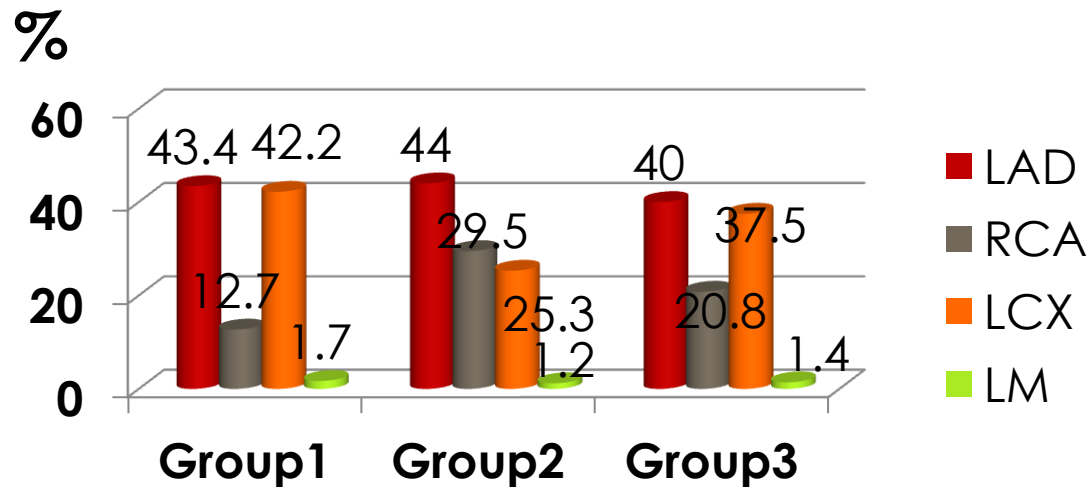
Result(4)

Distribution of coronary artery



**Infarct-related
coronary artery**

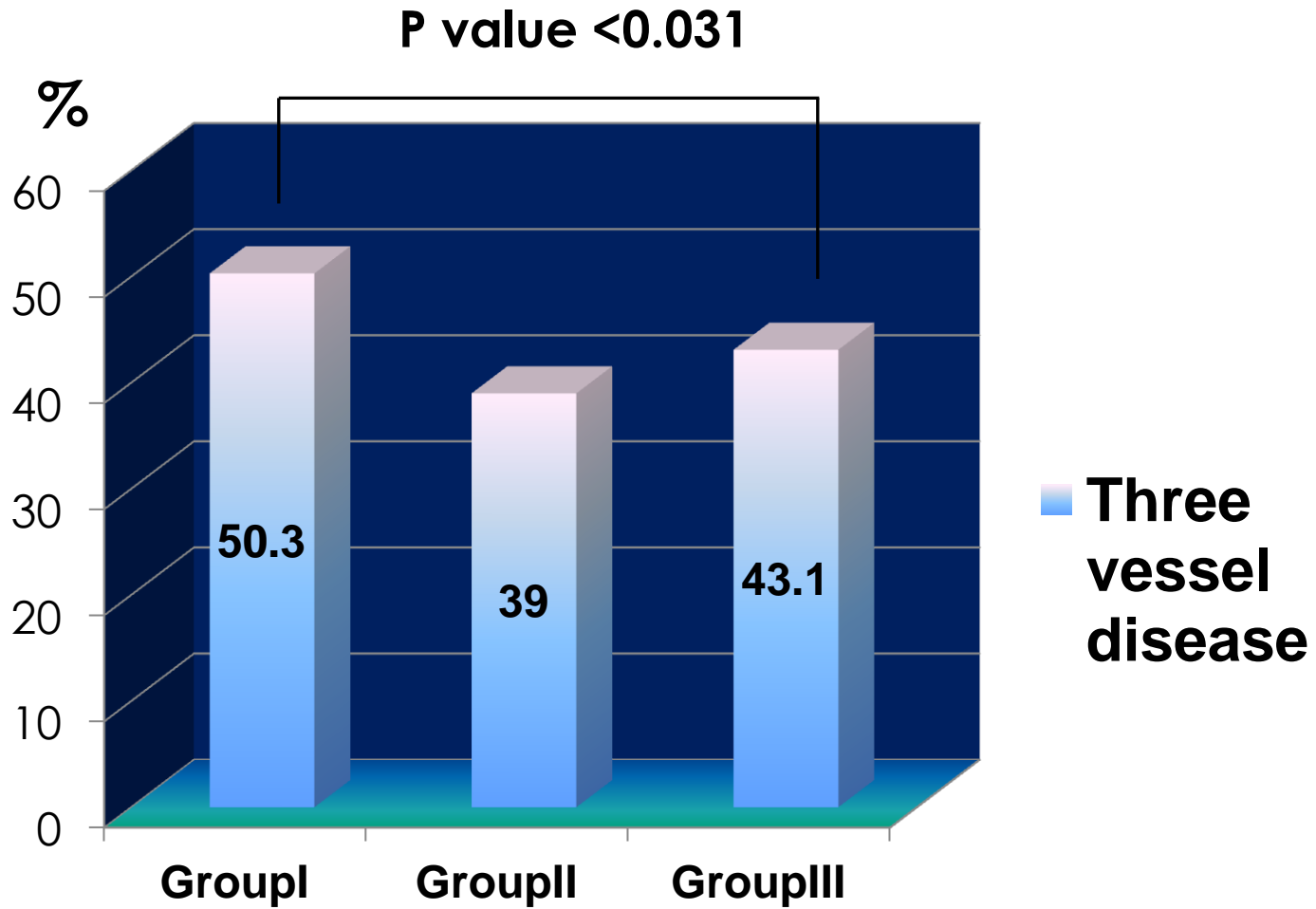
P value= 0.467



**Non infarct-
related coronary
artery**

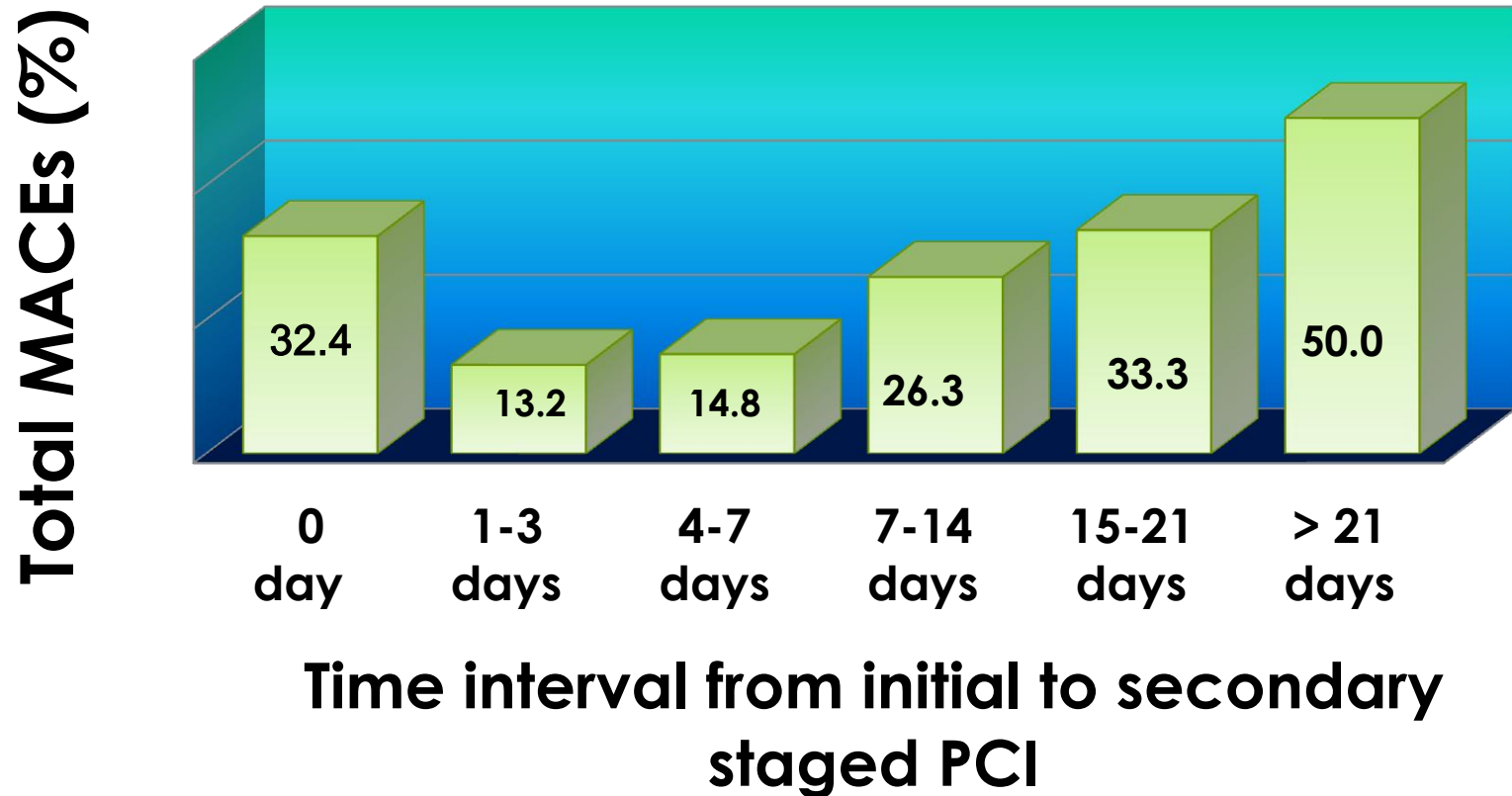
P value <0.001

Result(5)



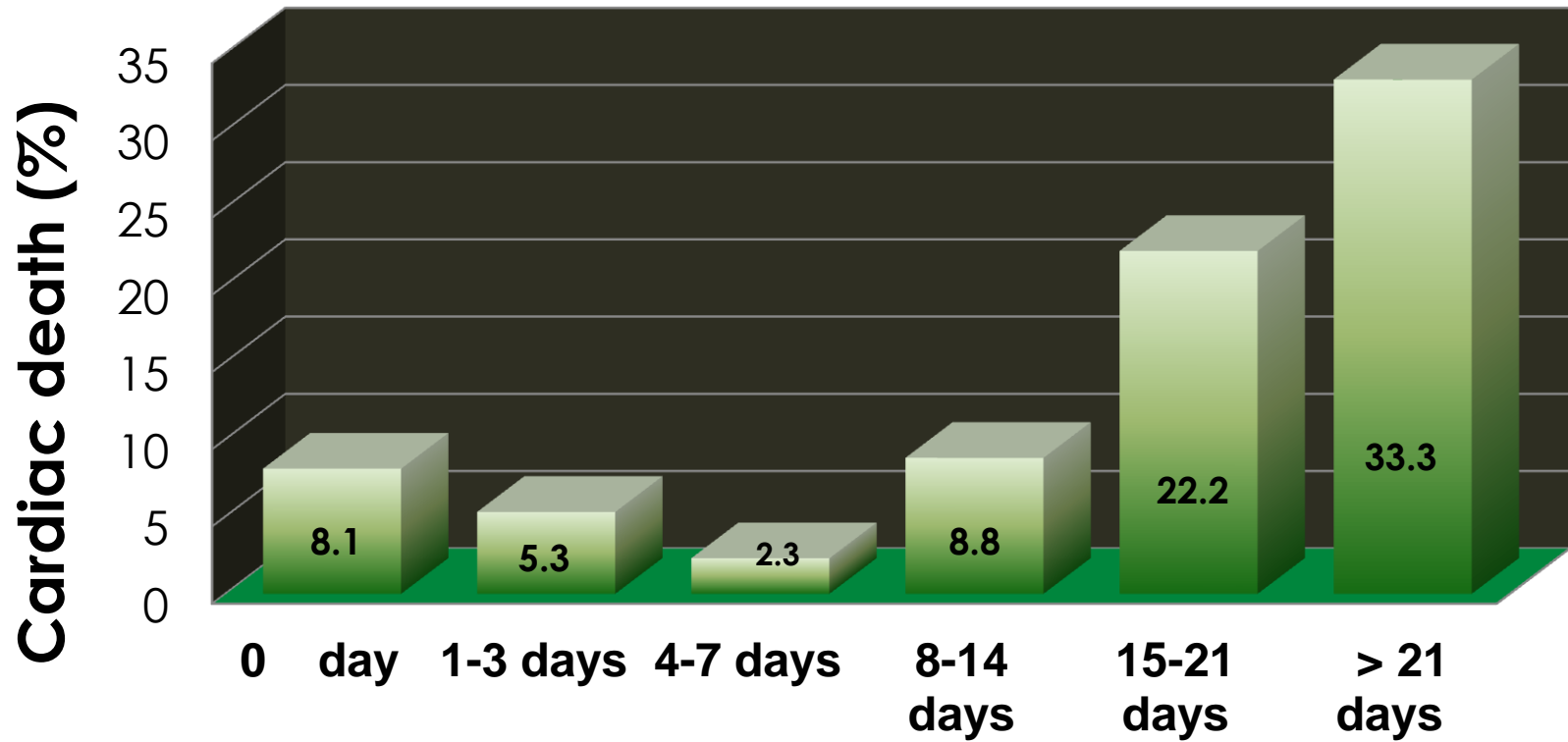
Result(6)

Composites of MACEs during 1-year of clinical follow-up



Result (7)

P=0.001



Time interval from initial to secondary staged PCI

Result(8):

Clinical outcomes at 1 year of follow-up

Clinical outcomes	Group I (0 day) (n = 173)	Group II (1-7 days) (n = 336)	Group III (≥ 8 days) (n = 72)	p value
<u>Composite</u>				
<u>MACE</u>	56 (32.4)	49 (14.6)	21 (29.2)	<0.001
<u>at 1 year, n (%)</u>				
<u>Cardiac death,</u>				
<u>n (%)</u>	14 (8.1)	9 (2.7)	9 (12.5)	0.001
Myocardial				
infarction, n (%)	2 (1.2)	3 (0.9)	1 (1.4)	0.914
Re-PCI, n (%)	19 (11.0)	34 (10.1)	10 (13.9)	0.645
TLR, n (%)	13 (7.5)	16 (4.8)	6 (8.3)	0.316
CABG, n (%)	2 (1.2)	0 (0.0)	0 (0.0)	0.094
Stent thrombosis,				
n (%)	2 (1.2)	5 (1.5)	1 (1.4)	0.204

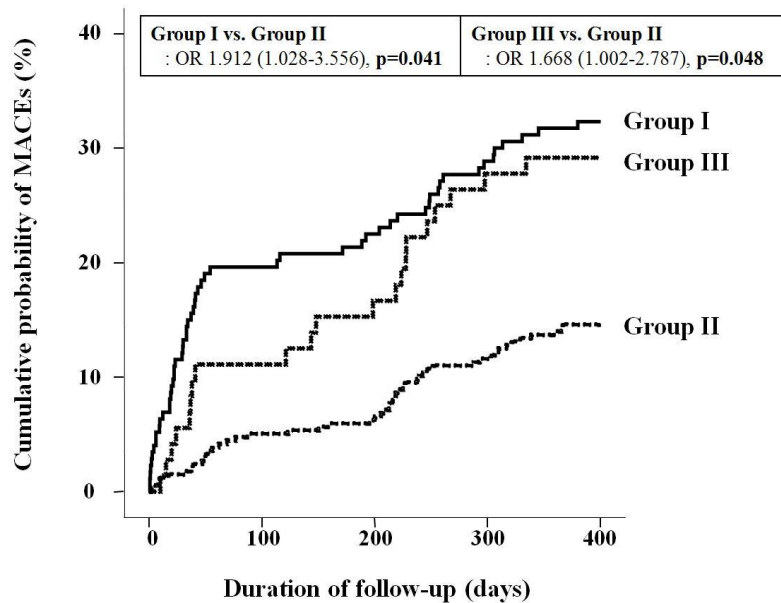
Result(9)

Multivariable analysis of predictors of 1-year MACE

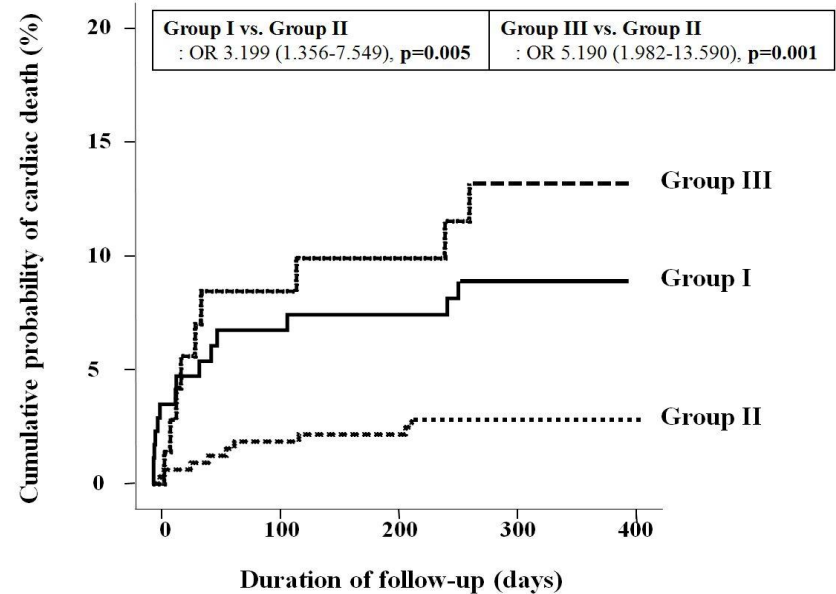
Variables	Unadjusted Model		Adjusted Model	
	OR (95% CI)	p	OR (95% CI)	p
Group I	2.412 (1.335-4.358)	0.017	1.912 (1.028-3.556)	0.041
Group III	1.163 (0.638-2.118)	0.623	1.668 (1.002-2.787)	0.048
Killip class \geq III	3.180 (1.874-5.393)	0.018	2.330 (1.264-4.297)	0.007
LVEF \leq 45%	1.471 (1.121-1.932)	0.021	1.116 (1.021-1.620)	0.012
Age \geq 65 years	1.406 (1.121-1.741)	0.034	1.028 (1.005-1.051)	0.014
Non RAS blocker treatment	1.434 (0.862-2.234)	0.246	1.353 (0.717-1.899)	0.184
Hypertension	1.158 (0.905-1.483)	0.243	1.334 (0.843-2.109)	0.218
Cr Cl \leq 60ml/min	1.152 (0.898-1.477)	0.267	1.214 (0.655-1.941)	0.424
Diabetes mellitus	1.226 (0.789-1.832)	0.261	1.176 (0.736-1.879)	0.497
Left main disease	1.612 (0.841-2.334)	0.468	1.451 (0.578-2.227)	0.512
Three vessel disease	1.002 (0.782-1.284)	0.986	1.129 (0.714-1.419)	0.741
Hs-CRP \geq 2mg/L	1.091 (0.430-1.935)	0.831	1.035 (0.821-1.405)	0.759

Cox regression analysis of predictors of 1-year MACE

A



B



Group I vs. Group II:
OR 1.912 (1.028-3.556),
p=0.041

Group II vs. Group III:
OR 1.668 (1.002-2.787),
p=0.048



Group I vs. Group II:
OR 3.199 (1.356-7.549),
p=0.005

Group II vs. Group III:
OR 5.190 (1.982-13.590),
p=0.001

- **The optimal timing of PCI for non-culprit vessel in acute STEMI patients with MVD is 1 to 7 days after initial PCI for culprit vessel.**
- **Delayed staged PCI more than 8 days after initial primary PCI and multivessel PCI during index procedure were significantly increased the risk of 1 year composite MACE in STEMI patients with MVD.**

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Thank you for attention!