Longterm anti-platelet therapy beyond 1 year after PCI or ACS

Hyo-Soo Kim, MD/PhD, FAHA, FACC, FESC

Cardiovascular Center,

Seoul National University Hospital, Korea

Aspirin for 1' and 2' prevention

Aspirin in the primary and secondary prevention of vascular disease: collaborative meta-analysis of individual participant data from randomised trials

*Antithrombotic Trialists' (ATT) Collaboration**

Summary

Background Low-dose aspirin is of definite and substantial net benefit for many people who already have occlusive vascular disease. We have assessed the benefits and risks in primary prevention.

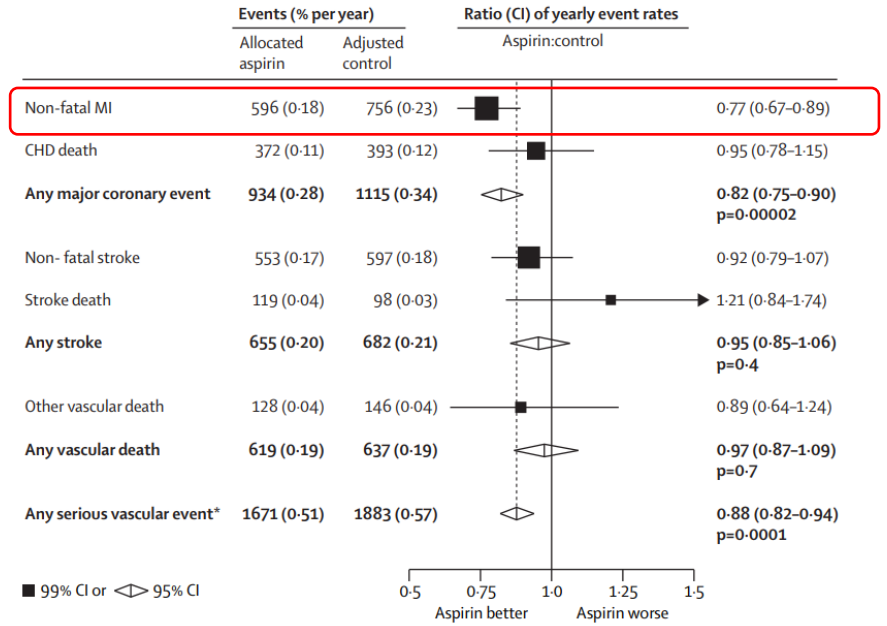
Methods We undertook meta-analyses of serious vascular events (myocardial infarction, stroke, or vascular death and major bleeds in six primary prevention trials (95 000 individuals at low average risk, 660 000 person-years 3554 serious vascular events) and 16 secondary prevention trials (17 000 individuals at high average risk 43 000 person-years, 3306 serious vascular events) that compared long-term aspirin versus control. We repor intention-to-treat analyses of first events during the scheduled treatment period.

Findings In the primary prevention trials, aspirin allocation yielded a 12% proportional reduction in serious vascular events (0·51% aspirin *vs* 0·57% control per year, p=0·0001), due mainly to a reduction of about a fifth in non-fatal myocardial infarction (0·18% *vs* 0·23% per year, p<0·0001). The net effect on stroke was not significant (0·20% *vs* 0·21% per year, p=0·4: haemorrhagic stroke 0·04% *vs* 0·03%, p=0·05; other stroke 0·16% *vs* 0·18% per year, p=0·08). Vascular mortality did not differ significantly (0·19% *vs* 0·19% per year, p=0·7). Aspirin allocation increased major gastrointestinal and extracranial bleeds (0·10% *vs* 0·07% per year, p<0·0001), and the main risk factors for coronary disease were also risk factors for bleeding. In the secondary prevention trials, aspirin allocation yielded a greater absolute reduction in serious vascular events (6·7% *vs* 8·2% per year, p<0.0001), with a non-significant increase in haemorrhagic stroke but reductions of about a fifth in total stroke (2·08% *vs* 2·54% per year, p=0·002) and in coronary events (4·3% *vs* 5·3% per year, p<0·0001). In both primary and secondary prevention trials, the proportional reductions in the aggregate of all serious vascular events seemed similar for men and women.

	Dates of recruitment	Participating countries	Year of main publication	Number of participants	Mean duration of follow-up (years)	Target population	Eligible age range (years) at entry	Aspirin regimen	Randomised factorial comparison	Placebo control
British Doctors' Study[10]	Nov 1978–Nov 1979	UK	1988	5139	5·6	Male doctors	19–90	500 mg daily	None	No
US Physicians' Health Study[11]	Aug 1981–Apr 1984	USA	1988	22071	5·0	Male doctors	45–73	325 mg alternate days	β carotene *vs* placebo	Yes
Thrombosis Prevention Trial[9]	Feb 1989–May 1994	UK	1998	5085	6·7	Men with risk factors for CHD	45–69	75 mg daily	Warfarin *vs* placebo	Yes
Hypertension Optimal Treatment Trial[12]	Oct 1992–May 1994	Europe, North and South America, Asia	1998	18790	3·8	Men and women with DBP 100–115 mm Hg	50–80	75 mg daily	Three blood pressure regimens	Yes
Primary Prevention Project[13]	June 1993–Apr 1998	Italy	2001	4495	3·7	Men and women with one or more risk factors for CHD	45–94	100 mg daily	Vitamin E *vs* open control	No
Women's Health Study[14]	Sep 1992–May 1995	USA	2005	39876	10·0	Female health professionals	≥45	100 mg alternate days	Vitamin E *vs* placebo	Yes

CHD=coronary heart disease. DBP=diastolic blood pressure.

Table 1: **Design and eligibility criteria of primary prevention trials**



Lancet 2009;373:1849

THE CAPRIE rct

Lancet 1996;348:1329–1339

A randomised, blinded, trial of clopidogrel versus aspirin in patients at risk of ischaemic events (CAPRIE)

*CAPRIE Steering Committee**

Summary

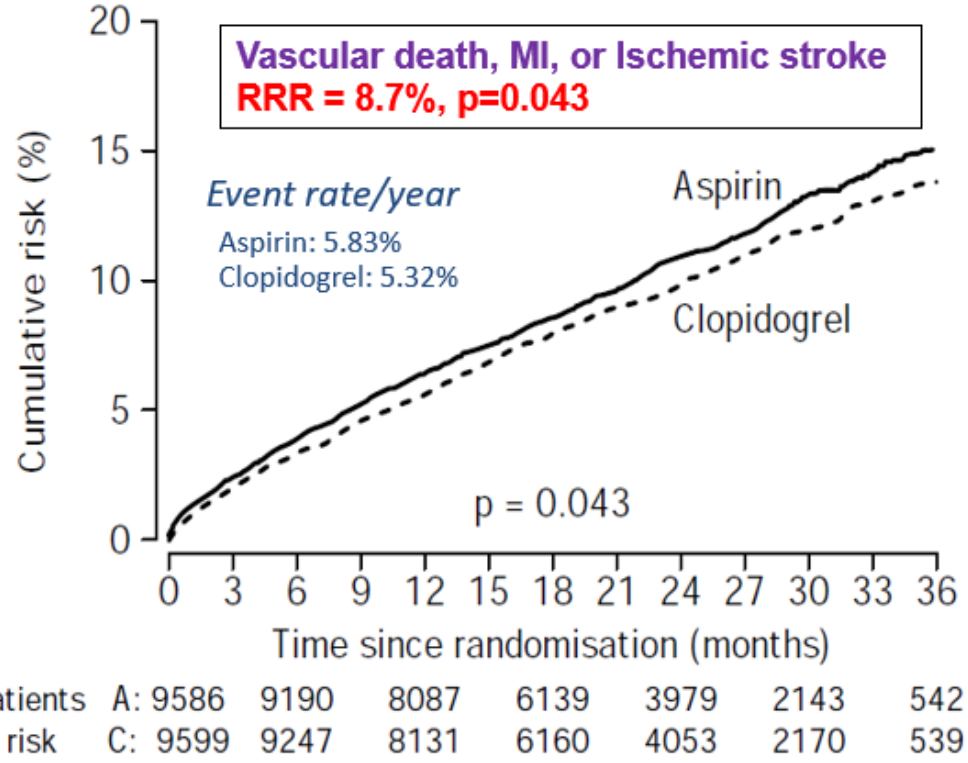
Background Many clinical trials have evaluated the benefit of long-term use of antiplatelet drugs in reducing the risk of clinical thrombotic events. Aspirin and ticlopidine have been shown to be effective, but both have potentially serious adverse effects. Clopidogrel, a new thienopyridine derivative similar to ticlopidine, is an inhibitor of platelet aggregation induced by adenosine diphosphate.

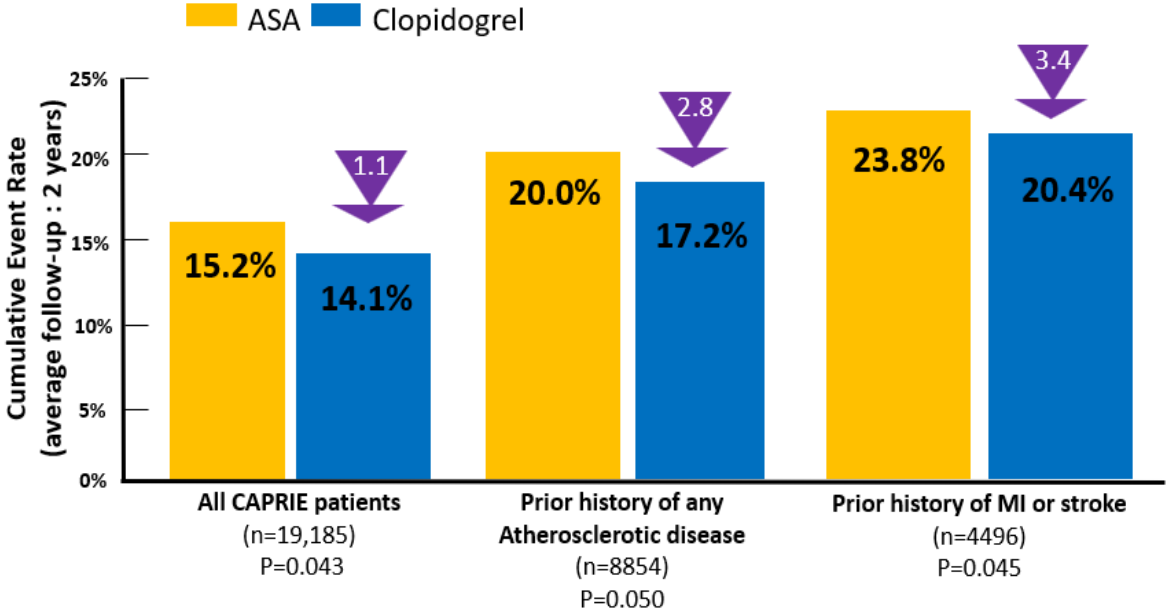
Methods CAPRIE was a randomised, blinded, international trial designed to assess the relative efficacy of clopidogrel (75 mg once daily) and aspirin (325 mg once daily) in reducing the risk of a composite outcome cluster of ischaemic stroke, myocardial infarction, or vascular death; their relative safety was also assessed. The population studied comprised subgroups of patients with atherosclerotic vascular disease manifested as either recent ischaemic stroke, recent myocardial infarction, or symptomatic peripheral arterial disease. Patients were followed for 1 to 3 years.

Introduction

There have been several randomised trials of antiplatelet drugs in patients with disorders in which platelet activation is involved.[1] Their purpose was to determine the extent of reduction in various subsequent risks; in particular, risks of ischaemic stroke, myocardial infarction, and death from vascular disease (vascular death). Patients at increased risk of such outcomes included those with atherothrombotic disease such as transient ischaemic attacks or mild stroke, moderate or severe stroke, unstable angina, acute and remote myocardial infarction, and atherosclerotic peripheral arterial disease.[2,3]

Interpretation of these studies has been inconsistent. Many investigators and practitioners apply the results from a particular subgroup of patients, such as those with transient ischaemic attacks or mild stroke, only to patients with that disorder and not to patients with different atherothrombotic manifestations, although it is both clinically and biologically plausible to assume that similar treatment benefits would extend to them. There is



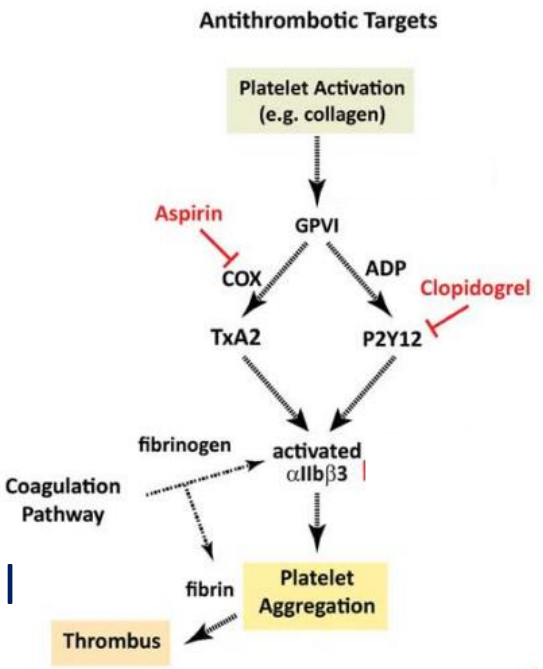


Long-term administration of ***clopidogrel to patients with atherosclerotic vascular disease is more effective than aspirin in*** reducing the combined risk of ischaemic stroke, myocardial infarction, or vascular death. The overall safety profile of clopidogrel is at least as good as that of medium-dose aspirin.

NOT (PCI, DES, high dose Statin), ASA 325mg

guidelines of monotherapy for 2nd prevention after PCI

- Post-percutaneous coronary intervention (PCI), guidelines recommend indefinite maintenance of single antiplatelet therapy after the initial 6- to 12-months of dual antiplatelet therapy (DAPT).
- ***Aspirin*** is the most widely used, standard therapy antiplatelet agent (LOE 1A).
- ***Clopidogrel*** is recommended as an alternative strategy.
  - Previous trials have shown that clopidogrel may have potential may have potential benefits in patients with atherosclerotic vascular disease.
- However, no trial has addressed which antiplatelet agent may be the optimal choice during the chronic maintenance period in the DES-PCI era.



Post-interventional and maintenance treatment		
Life-long single antiplatelet therapy, usually aspirin, is recommended.[681,683]	I	A
Instruction of patients about the importance of complying with antiplatelet therapy is recommended.	I	C
In patients with SCAD treated with coronary stent implantation, DAPT consisting of clopidogrel in addition to aspirin is generally recommended for 6 months, irrespective of the stent type.[c 690–694]	I	A
In patients with SCAD treated with BRS, DAPT should be considered for at least 12 months and up to the presumed full absorption of the BRS, based on an individual assessment of bleeding and ischaemic risk.	IIa	C

Aspirin vs. Clopidogrel for Chronic Maintenance Monotherapy after Percutaneous Coronary Intervention

The HOST-EXAM trial

Session of Late Breaking Clinical Trials Session III

ACC.21 Congress

Hyo-Soo Kim, MD/PhD
Cardiovascular Center,
Seoul National University Hospital, Korea

Trial Flow

Index PCI

Randomization

Primary outcome

All-cause death, nonfatal MI, stroke,
readmission due to ACS,
major bleeding (BARC type ≥3)

5530 patients enrolled

92 patients excluded from randomization

5438 patients successfully randomized

2,710 patients enrolled in the Clopidogrel monotherapy group

2,728 patients enrolled in the Aspirin monotherapy group

62 patients excluded for Per protocol analysis
8 withdrew consent
41 were lost to follow up
13 did not receive allocated antiplatelet agent

73 patients excluded for Per protocol analysis
1 withdrew consent
50 were lost to follow up
22 did not receive allocated antiplatelet agent

2,661 (98.2%) patients completed 24-month follow-up

2,677 (98.1%) patients completed 24-month follow-up

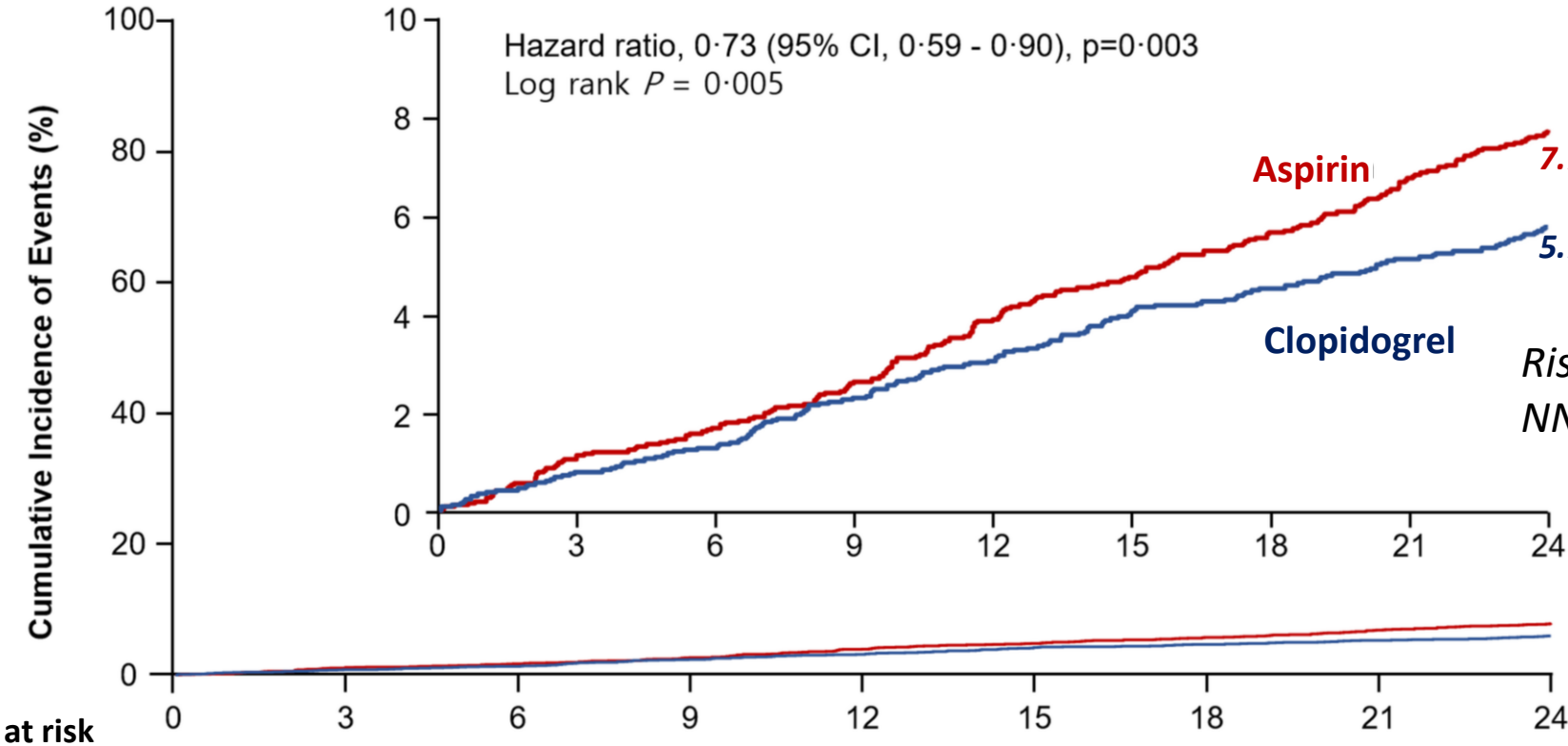
ACC.21

Lancet, 2021

Primary Outcome

HOST EXAM
EXtended Antiplatelet Monotherapy

All-cause death, nonfatal MI, stroke, readmission due to ACS, major bleeding (BARC type ≥3)



7.7% (207 patients)

5.7% (152 patients)

Risk difference : -2.0% (-3.3% - 0.6%)

NNT : 50.6 (30.0 – 161.9)

Number at risk

Clopidogrel	2710	2667	2654	2626	2597	2565	2549	2521	2500
Aspirin	2728	2667	2657	2629	2585	2555	2531	2493	2456

ACC.21

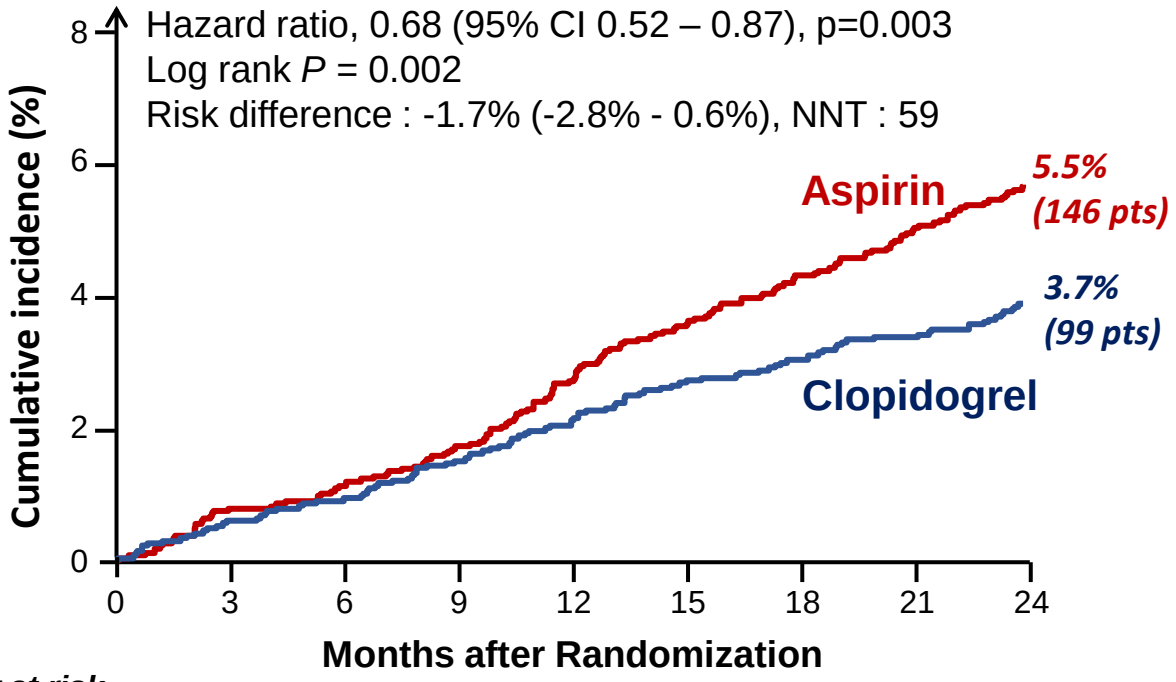
Lancet, 2021

Secondary Outcomes

HOST EXAM
EXtended Antiplatelet Monotherapy

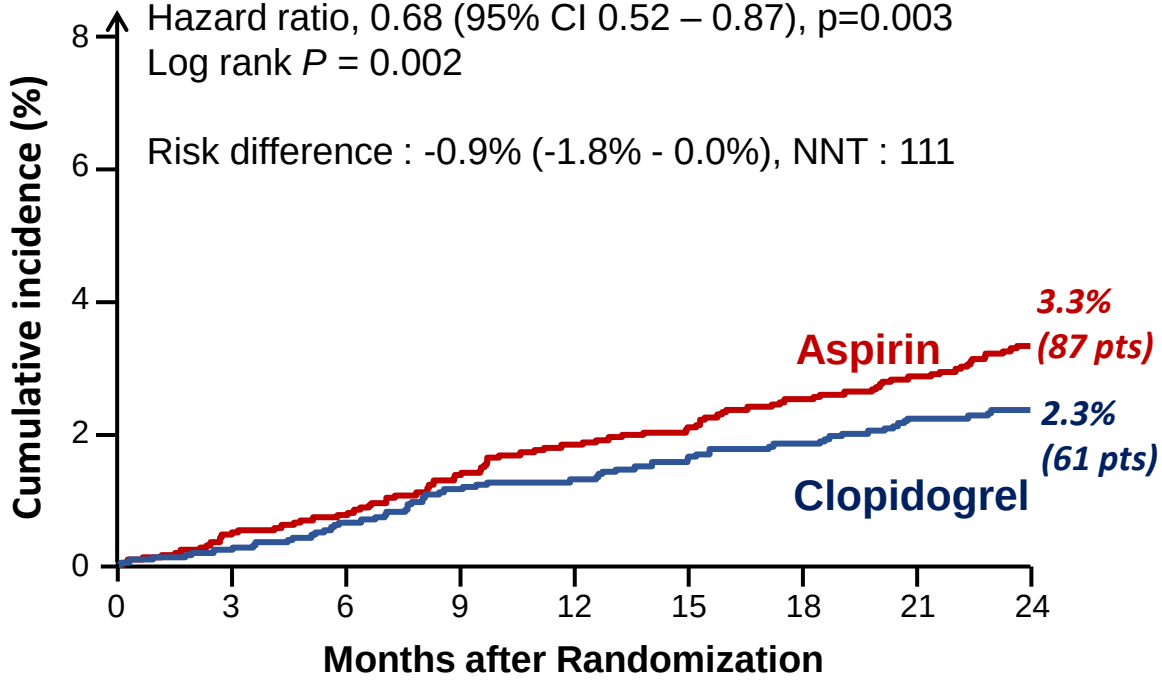
Thrombotic composite outcome

(cardiac death, non-fatal MI, ischemic stroke, readmission due to ACS, and definite or probable stent thrombosis)



Any bleeding

(BARC type ≥2 bleeding)



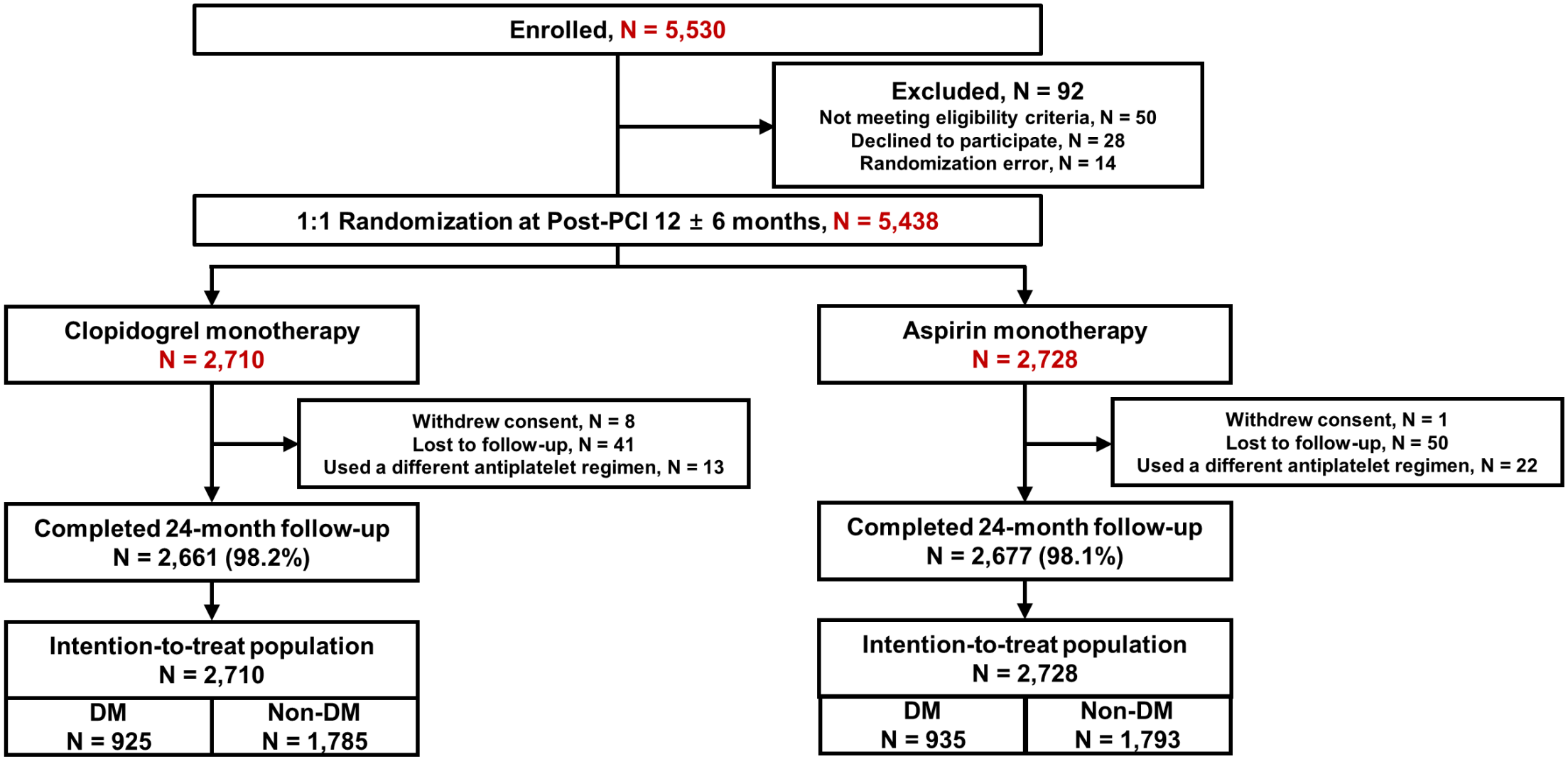
Number at risk

Clopidogrel	2710	2661	2612	2569	2524	2710	2664	2621	2585	2542
Aspirin	2728	2670	2608	2557	2495	2728	2677	2626	2595	2547

ACC.21

Lancet, 2021

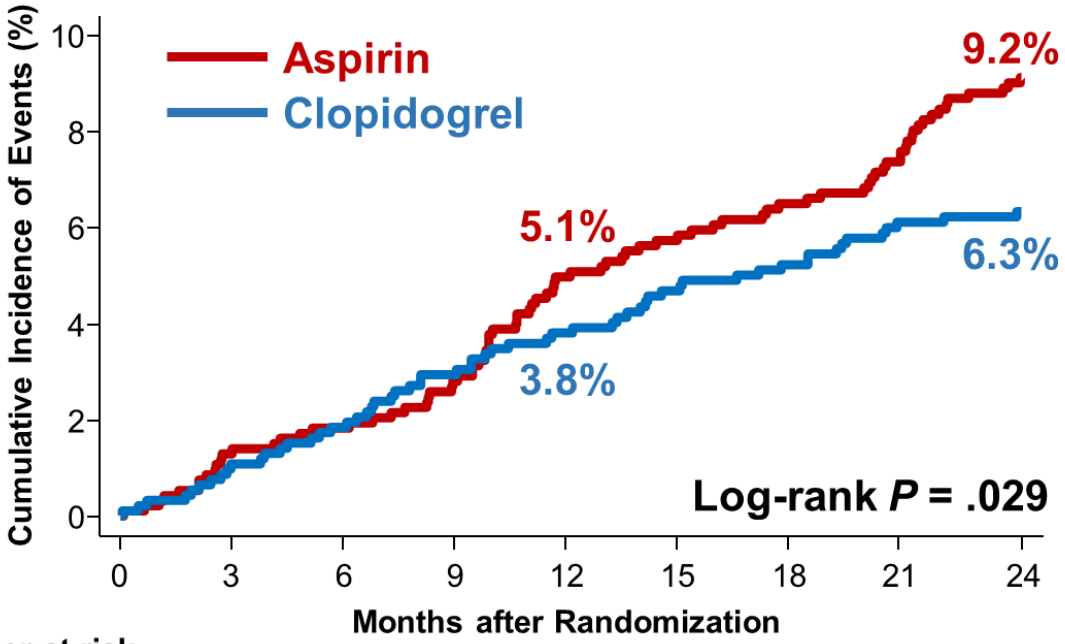
HOST EXAM: DM Subgroup Analysis



Rhee TM, Bae JW, Rha SW, Park KW,,, Kim HS. JAMA Cardiol 2023

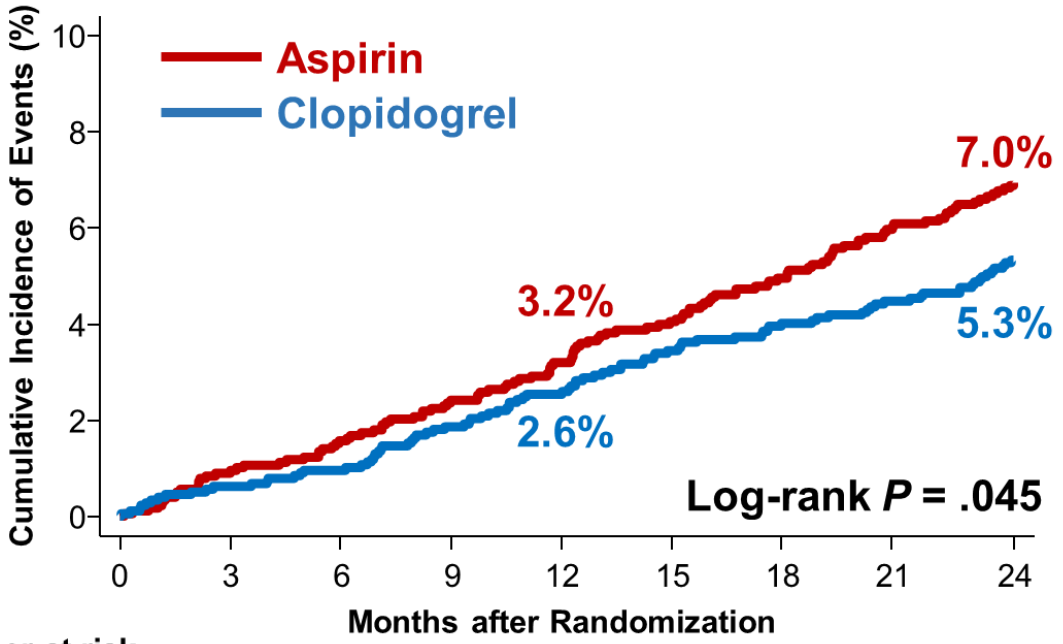
HOST EXAM: DM Subgroup Analysis

(A) Primary Composite Endpoint : DM Group



Number at risk									
Aspirin	935	913	908	897	871	862	855	845	827
Clopidogrel	925	907	900	889	879	869	863	849	845

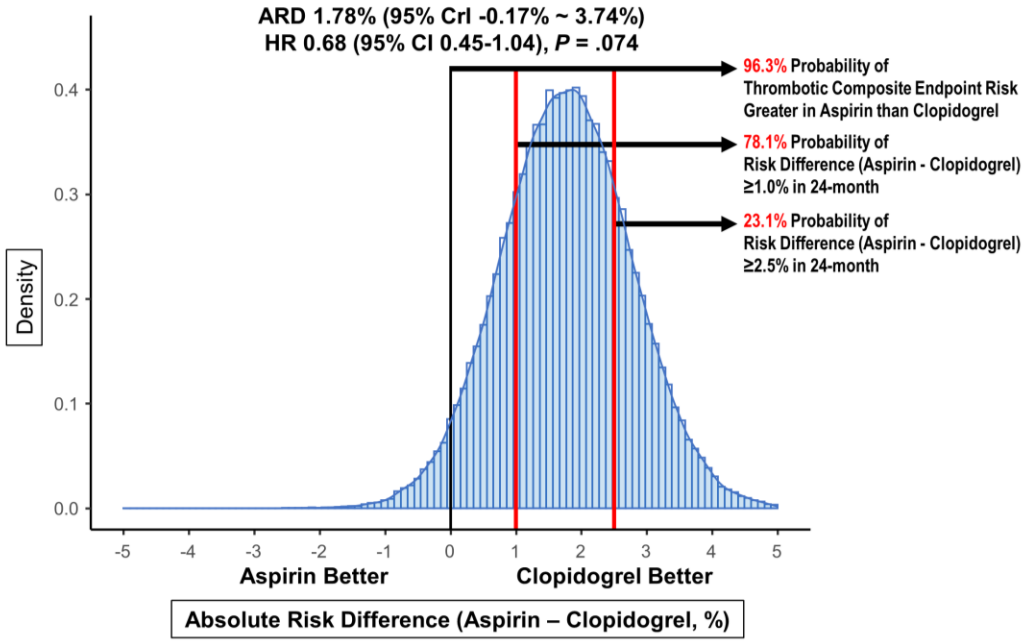
(B) Primary Composite Endpoint : Non-DM Group



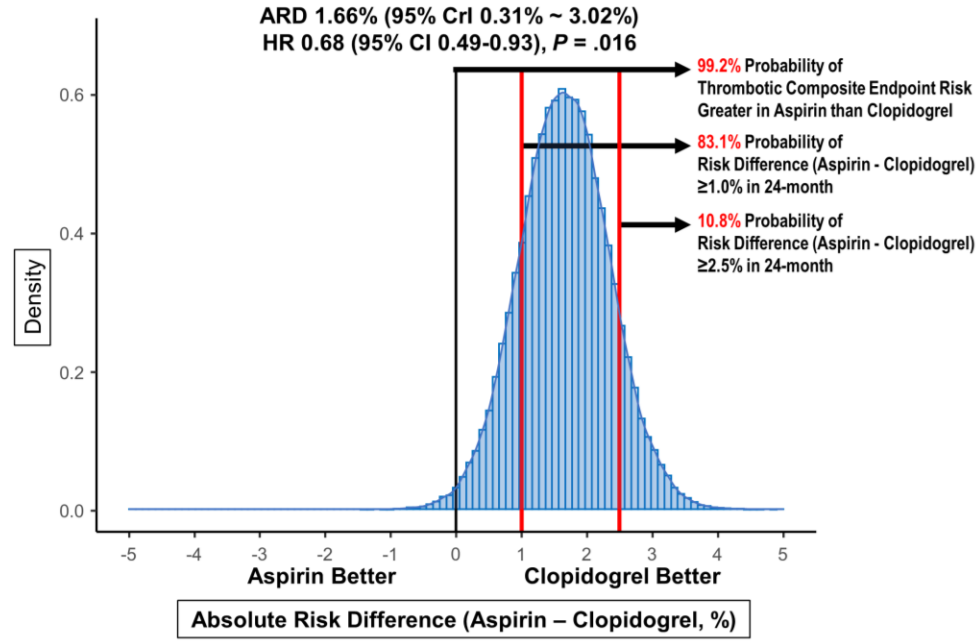
Number at risk									
Aspirin	1793	1764	1749	1732	1714	1693	1676	1648	1629
Clopidogrel	1785	1760	1754	1737	1718	1696	1686	1672	1655

Rhee TM, Bae JW, Rha SW, Park KW,,, Kim HS. JAMA Cardiol 2023

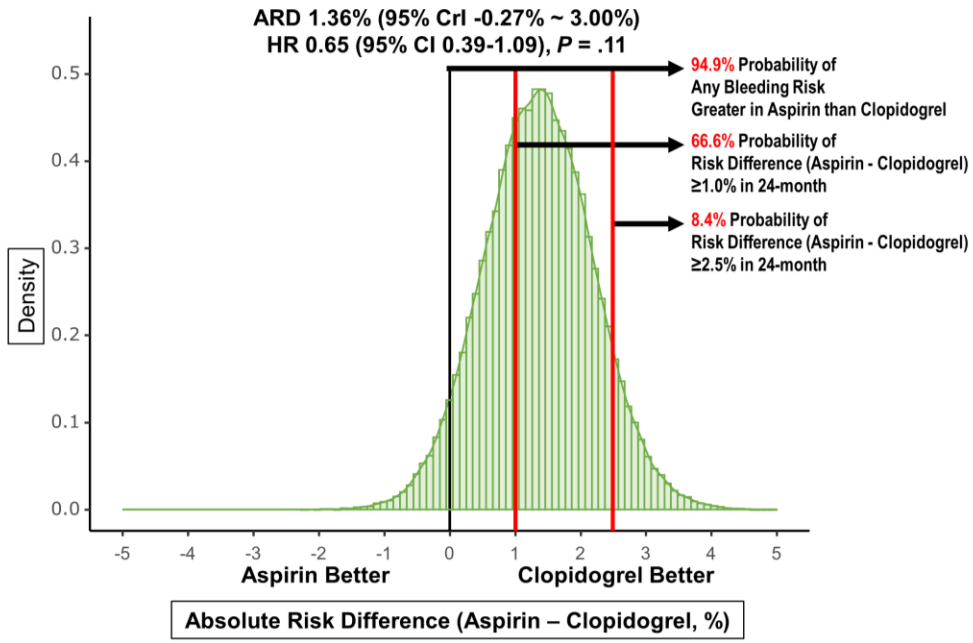
(A) Thrombotic Composite Endpoint : DM Group



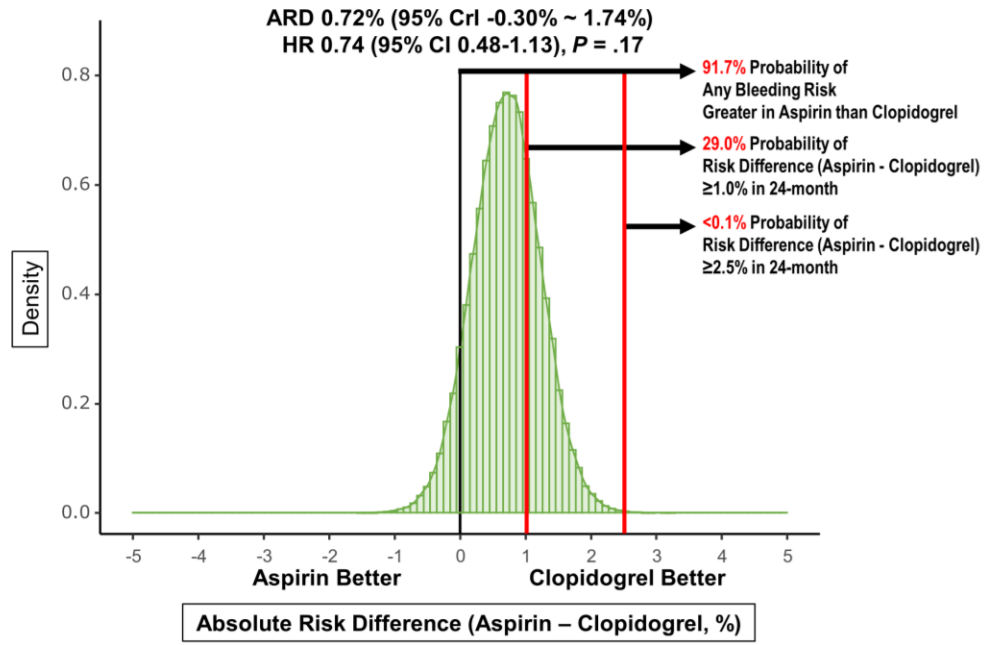
(B) Thrombotic Composite Endpoint : Non-DM Group



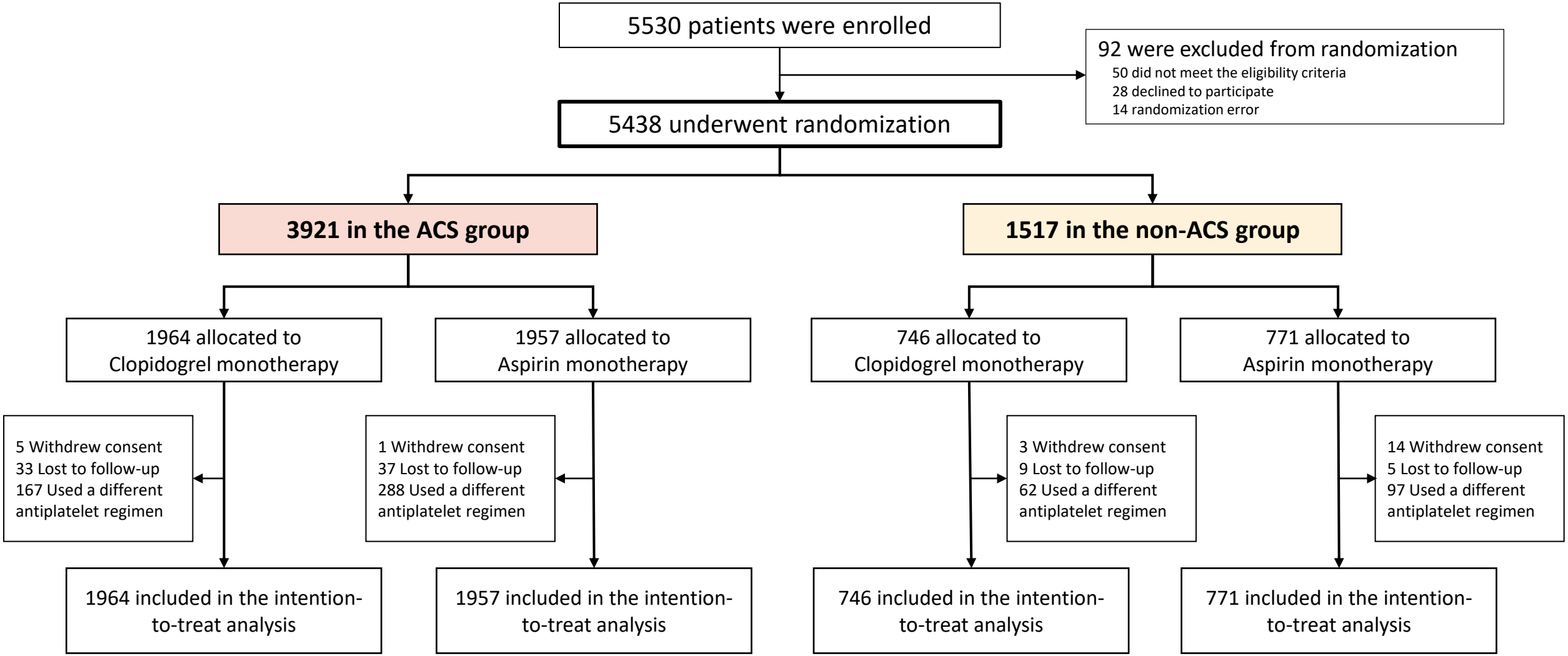
(C) Any Bleeding (BARC type 2, 3, or 5) : DM Group



(D) Any Bleeding (BARC type 2, 3, or 5) : Non-DM Group



HOST EXAM: ACS Subgroup Analysis

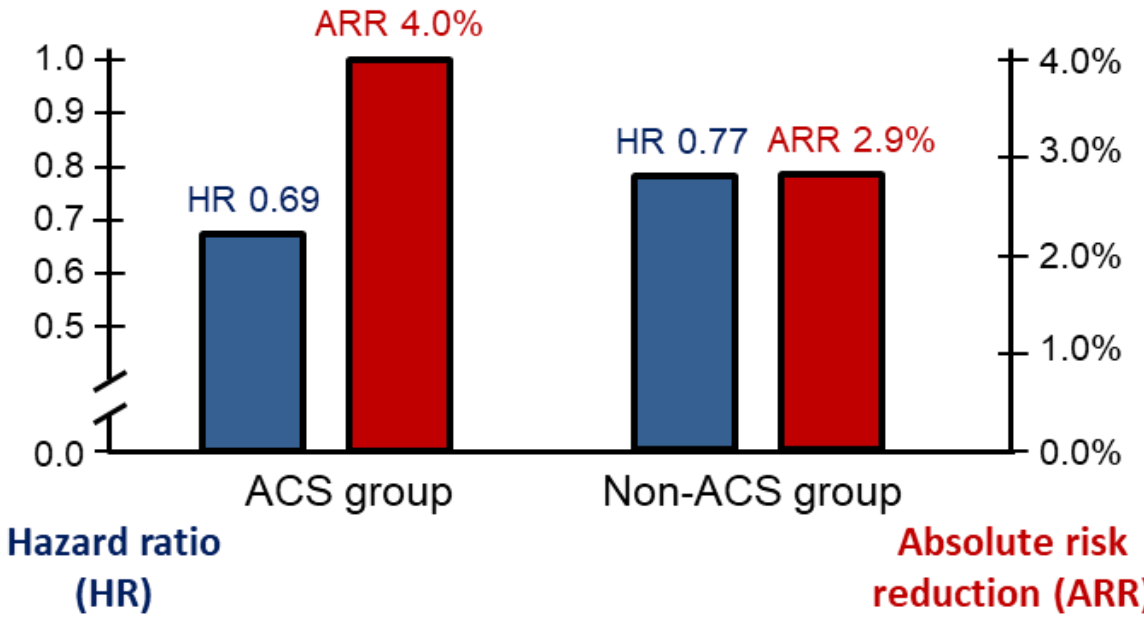


Kang J, Chung J, Kim HS, Park KW, Kim HS. JACC Int 2023

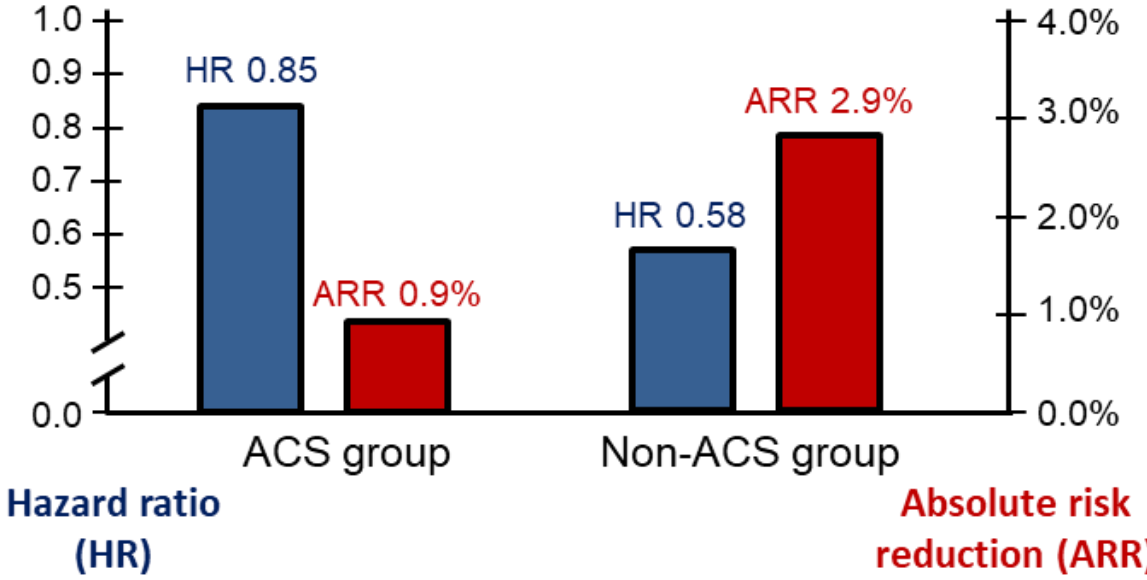
HOST EXAM: ACS Subgroup Analysis

- Absolute risk reduction and Number with clopidogrel compared with aspirin

< Thrombotic composite endpoint >



< Bleeding endpoint >



The risk reduction observed in the clopidogrel monotherapy arm tended to be greater for the thrombotic endpoint in the ACS group and greater for bleeding endpoint in the non-ACS group.

Kang J, Chung J, Kim HS, Park KW, Kim HS. JACC Int 2023

HOST EXAM: Risk Score Analysis

HOST-EXAM trial
5,530 Patients who underwent PCI with DES and maintained DAPT without any clinical events within 6–18 months after PCI

- 50 did not meet eligibility criteria
- 28 refused to participate
- 14 randomization error

5,438 randomly assigned to Aspirin or Clopidogrel monotherapy were included in the intention-to-treat analysis

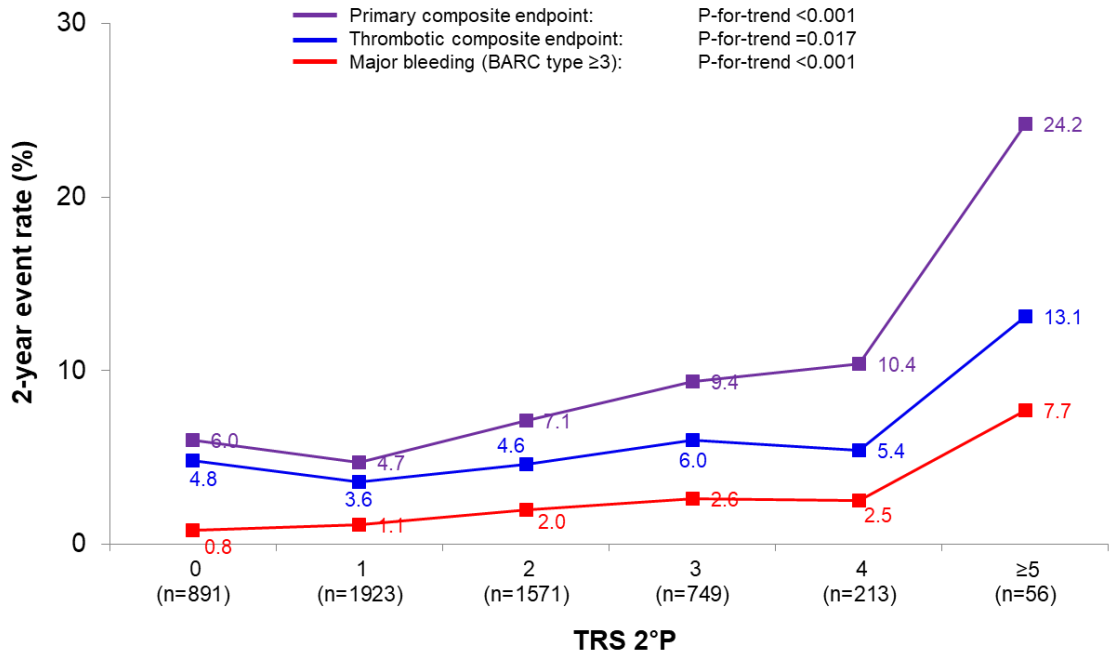
- 11 absence of clinical risk factors

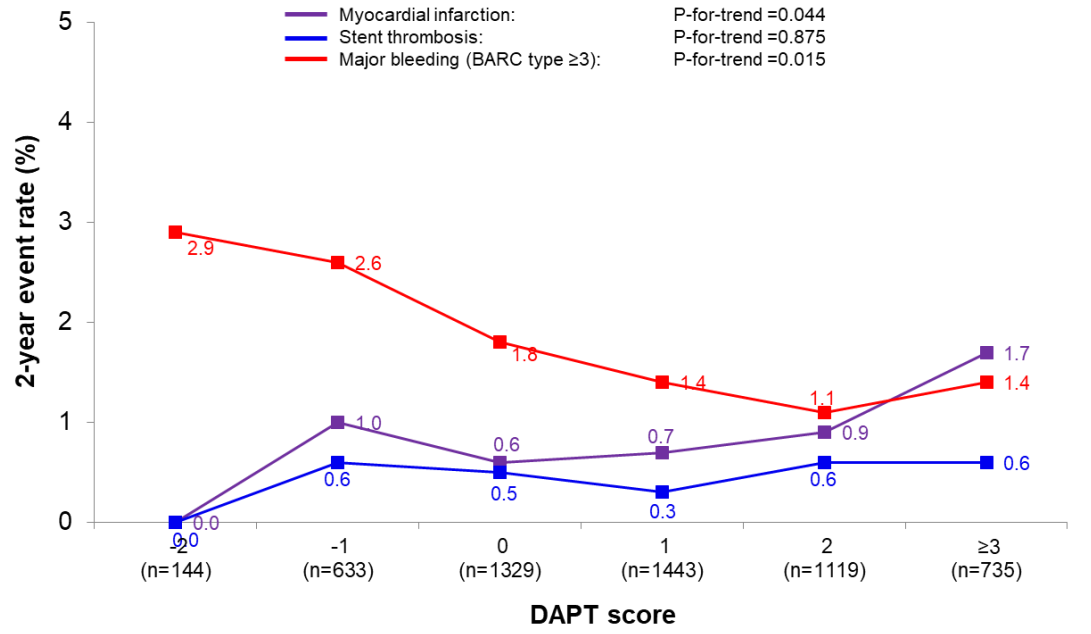
5,427 patients with available TIMI Risk Score for 2ndary Prevention (TRS 2°P)

- 24 absence of DAPT score

5,403 patients with available DAPT score

Assessed for clinical risk using the TRS 2°P and DAPT score





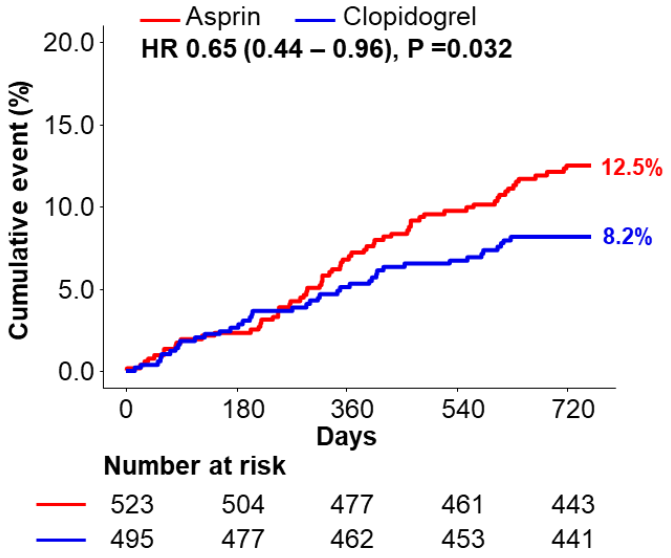
Yang SH, Kang J, Park KW, Kim HS. JACC 2023

HOST EXAM:

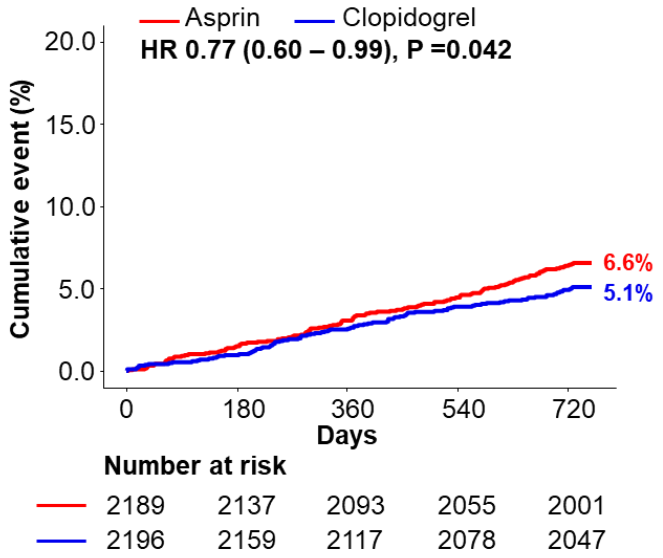
Risk Score

Analysis

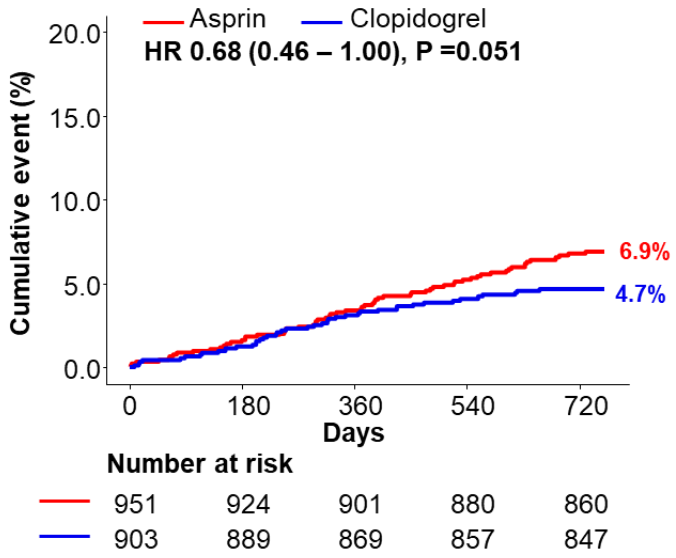
A. High TRS 2°P (≥3) group



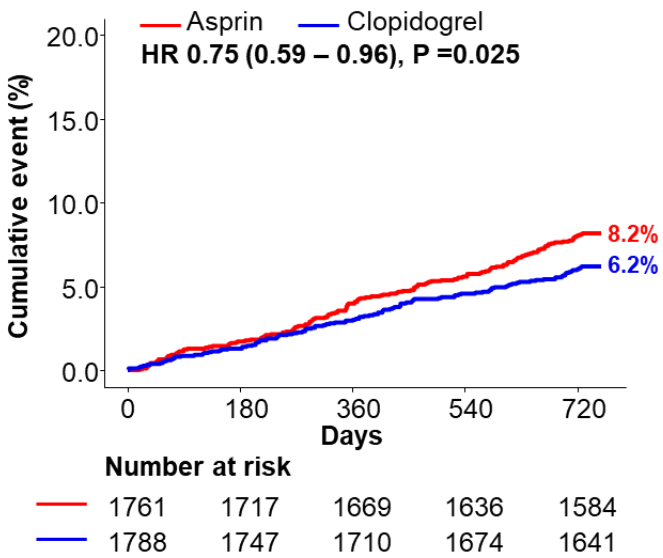
B. Low TRS 2°P (<3) group



A. High DAPT score (≥2) group



B. Low DAPT score (<2) group



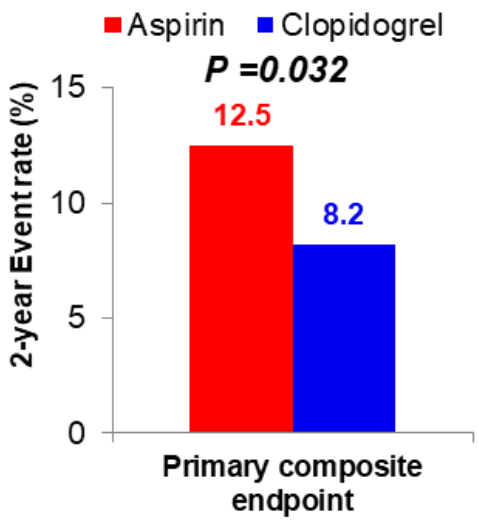
Yang SH, Kang J, Park KW, Kim HS. JACC 2023

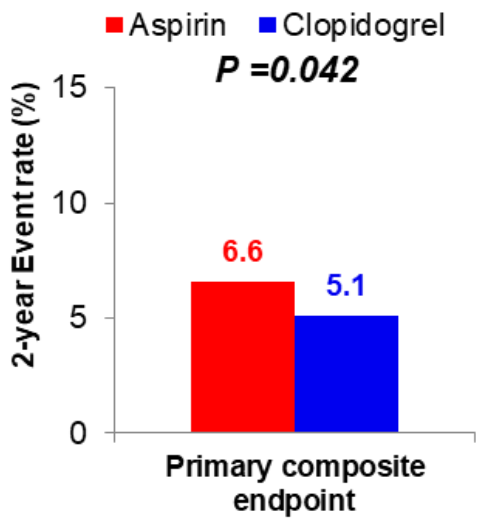
HOST-EXAM

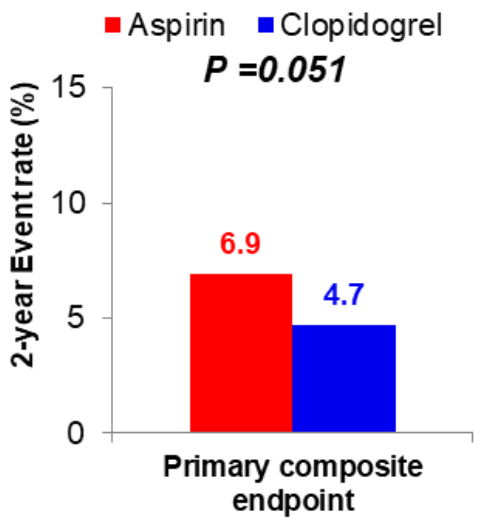
1:1 Randomly Assigned Patients Undergoing PCI with DES and Maintained DAPT without Clinical Events within 6–18 months after PCI into Aspirin Monotherapy and Clopidogrel Monotherapy

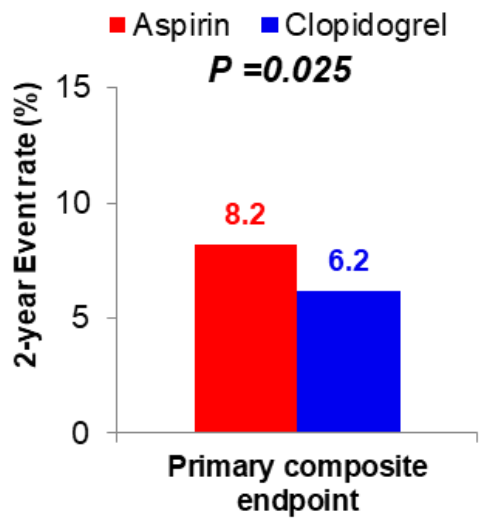
Clinical Risk Stratification by the TRS 2°P and DAPT score

High TRS 2°P	Low TRS 2°P	High DAPT score	Low DAPT score
Clinical risk ↑↑	*Clinical risk ↓↓*	*Ischemic risk ↑↑* *Bleeding risk ↓↓*	*Ischemic risk ↓↓* *Bleeding risk ↑↑*





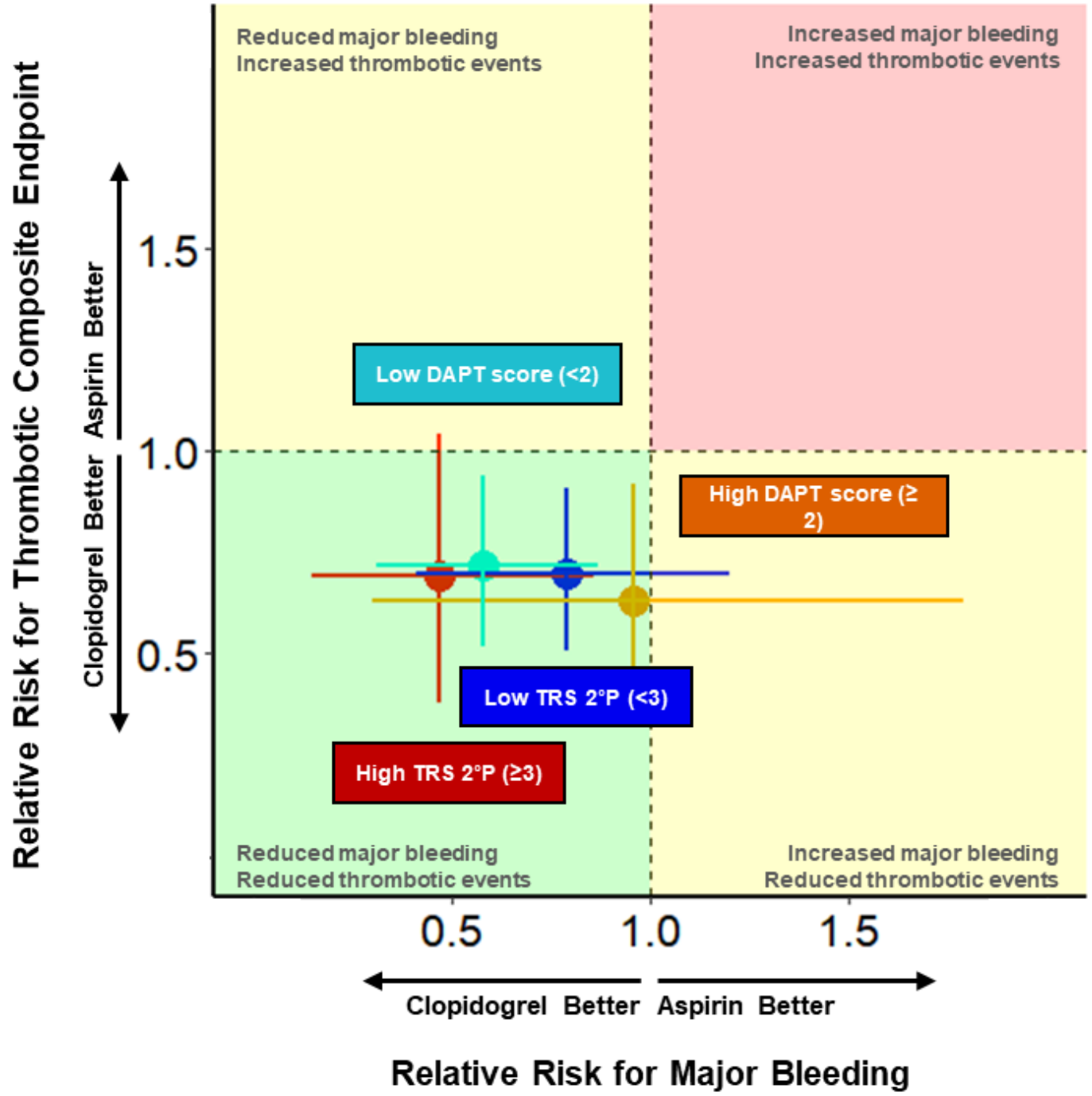




Yang SH, Kang J, Park KW, Kim HS. JACC 2023

Relative risk between Aspirin vs. Clopidogrel

Thrombotic and Bleeding Outcomes According to Risk Score



Yang SH, Kang J, Park KW, Kim HS. JACC 2023

Cause of Mortality for 2 years

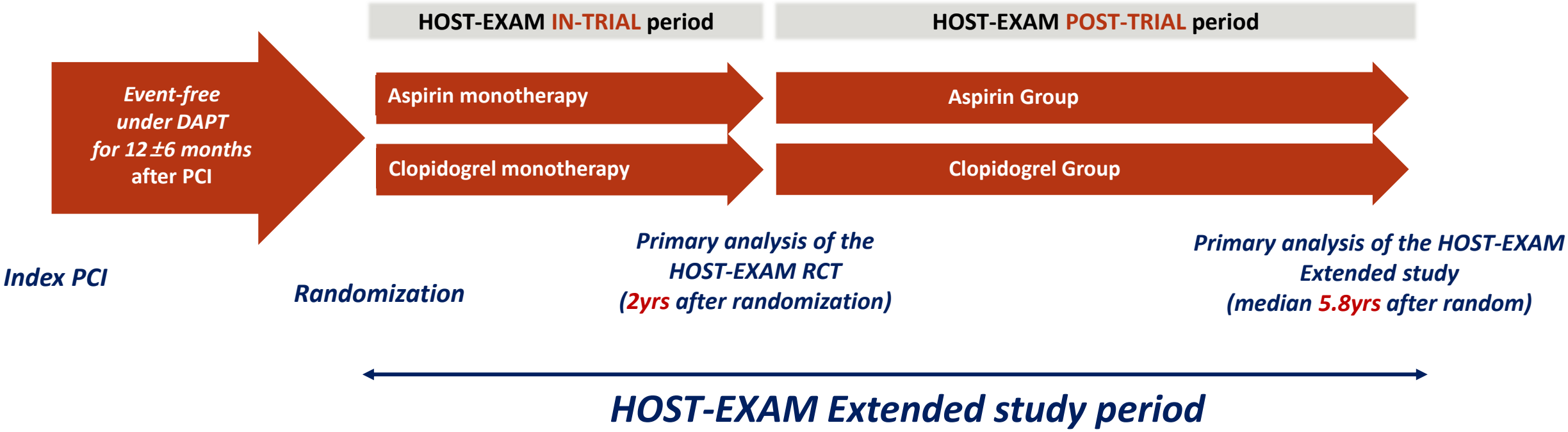
HOST EXAM
EXtended Antiplatelet Monotherapy

(No. of patients)	Total	Clopidogrel group	Aspirin group	P value
Cardiac cause	33	19	14	0.374
- Cardiac arrest	18	11	7	0.338
- Unknown origin of death	15	8	7	0.786
Non-cardiac cause	54	32	22	0.217
- Cerebrovascular accident	10	6	4	0.520
- Malignancy	**29**	**18**	**11**	**0.186**
Gastrointestinal origin	12	8	4	
Respiratory origin	8	4	4	
Endocrinology origin	2	1	1	
Genitourinary origin	4	2	2	
Other	3	3	0	
- Infectious disease	9	4	5	0.746
- Suicide or Trauma	3	2	1	0.560
- Others	3	2	1	0.560

Lancet, 2021

Study Design and Patient Population

- 5,530 eligible patients screened, from 37 centers in Korea

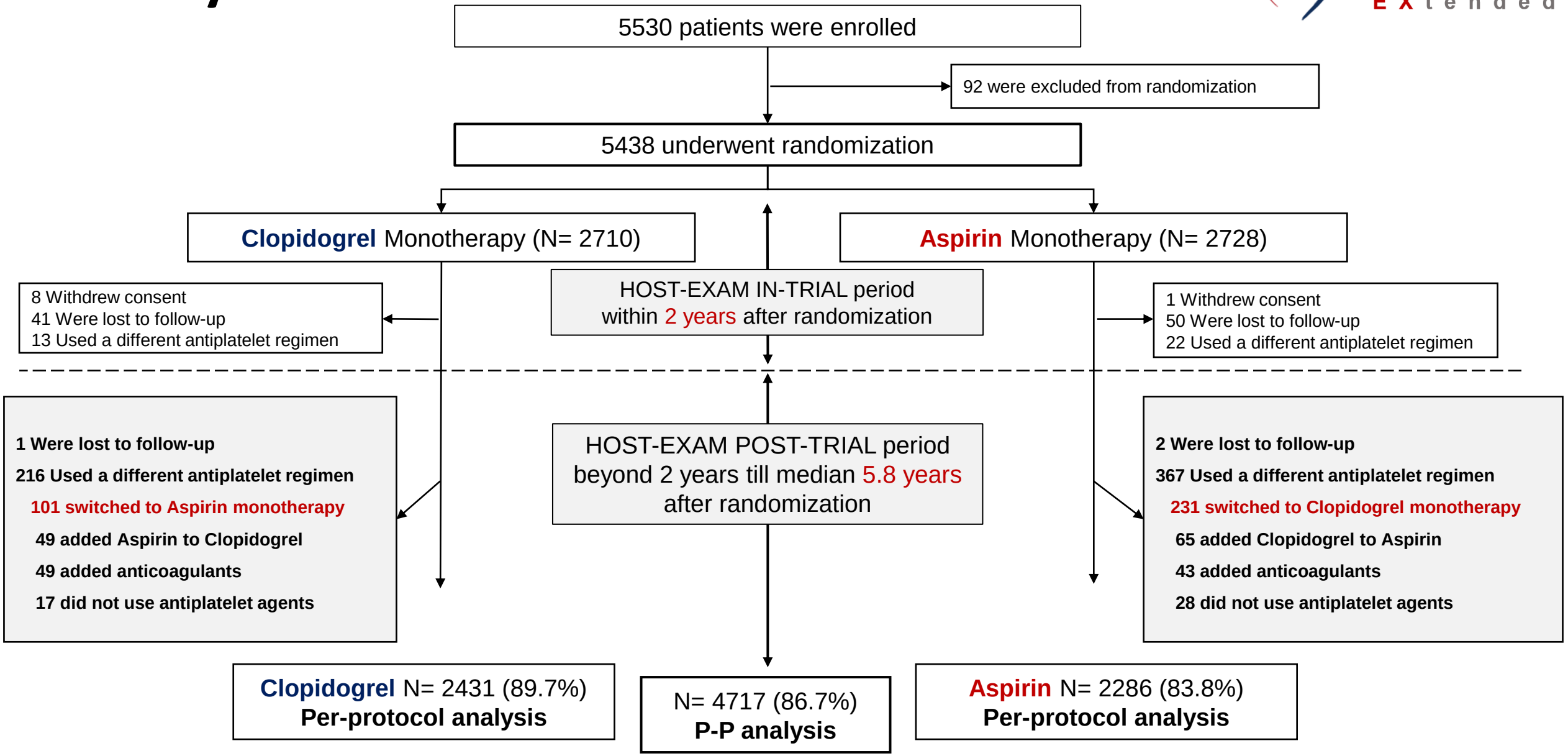


Clinical events and final clinical status ascertained at March, 2022.
The vital status of all patients coss-checked via the National Health Insurance Service system.

Kang J, Park KW, Koo BK,,,, Kim HS.
Circulation 2023

SNUH SEOUL NATIONAL UNIVERSITY HOSPITAL

Study Flow

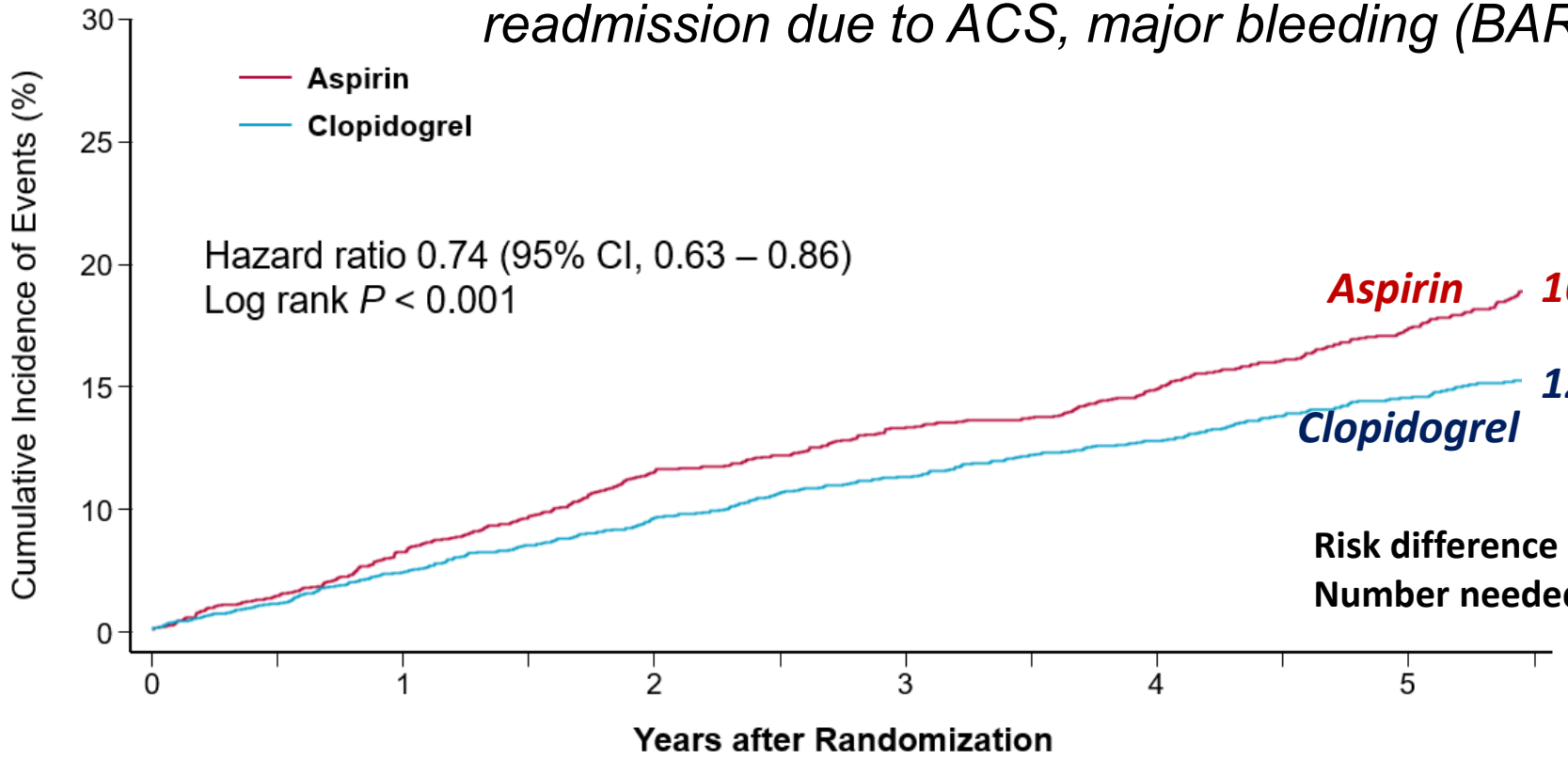


Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

Primary Endpoint

HOST EXAM Extended

Primary endpoint: *All-cause death, nonfatal MI, stroke, readmission due to ACS, major bleeding (BARC type ≥3)*



Aspirin ***16.9% (387 patients)***

Clopidogrel ***12.8% (311 patients)***

Risk difference : 4.1% (2.1% - 6.2%)
Number needed to treat : 24

Number at Risk

Aspirin	2286	2189	2086	2014	1777	1287	1007
Clopidogrel	2431	2355	2280	2214	1964	1462	1181

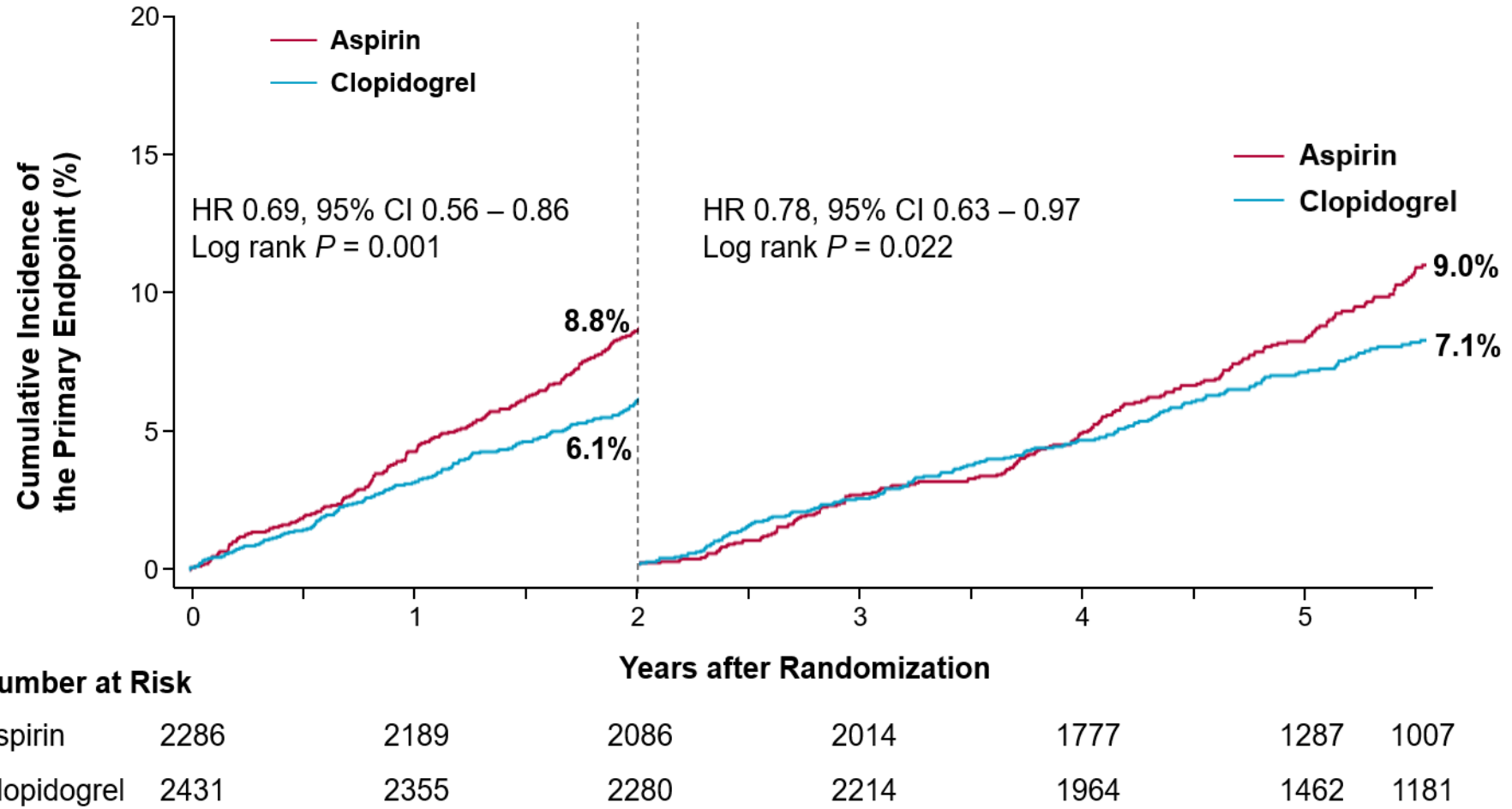
SNUH SEOUL NATIONAL UNIVERSITY HOSPITAL

Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

Landmark analysis of the Primary Endpoint

HOST EXAM Extended

Consistent beneficial effects
- both
- in the In-trial period
- and post-trial period



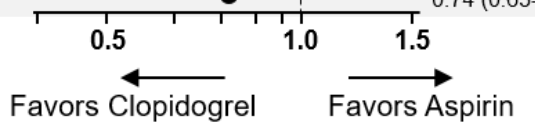
Number at Risk

Aspirin	2286	2189	2086	2014	1777	1287	1007
Clopidogrel	2431	2355	2280	2214	1964	1462	1181

SNUH SEOUL NATIONAL UNIVERSITY HOSPITAL

Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

	Clopidogrel group (events/patients)	Aspirin group (events/patients)	Hazard Ratio (95% CI)	P value	Interaction P
Age (years)					
≥65	200/1040	232/992	0.80 (0.66-0.96)	0.019	0.176
<65	110/1390	155/1294	0.65 (0.51-0.83)	<0.001	
Sex					
Male	222/1807	287/1723	0.72 (0.60-0.85)	<0.001	0.563
Female	89/624	100/563	0.79 (0.59-1.05)	0.107	
Body Mass Index ≥ 25 kg/m²					
Yes	119/1103	140/976	0.74 (0.58-0.94)	0.014	0.936
No	179/1244	231/1233	0.75 (0.61-0.91)	0.003	
Diabetes Mellitus					
Yes	128/817	165/776	0.71 (0.57-0.90)	0.004	0.764
No	182/1613	222/1510	0.75 (0.62-0.91)	0.004	
Chronic Kidney Disease					
Yes	77/313	95/274	0.67 (0.50-0.90)	0.009	0.614
No	233/2117	292/2012	0.74 (0.62-0.88)	0.001	
Multivessel Disease					
Yes	170/1201	227/1145	0.69 (0.57-0.85)	0.002	0.356
No	140/1229	159/1140	0.80 (0.64-1.00)	0.054	
Acute Myocardial Infarction					
Yes	116/888	143/858	0.77 (0.60-0.98)	0.036	0.756
No	194/1542	244/1428	0.72 (0.59-0.86)	<0.001	
Acute Coronary Syndrome					
Yes	219/1758	274/1631	0.72 (0.61-0.86)	<0.001	0.556
No	91/672	113/655	0.76 (0.58-1.00)	0.053	
Complex PCI					
Yes	60/530	92/499	0.59 (0.43-0.82)	0.002	0.138
No	249/1882	294/1769	0.78 (0.66-0.92)	0.004	
High Bleeding Risk					
Yes	113/461	126/390	0.71 (0.55-0.92)	0.009	0.860
No	161/1616	204/1536	0.74 (0.60-0.90)	0.004	
Proton Pump Inhibitor usage					
Yes	39/251	56/266	0.72 (0.48-1.08)	0.113	0.888
No	272/2180	331/2020	0.74 (0.63-0.87)	<0.001	



HOST EXAM Extended

Subgroup Analysis

No significant interaction between the treatment effect and subgroups

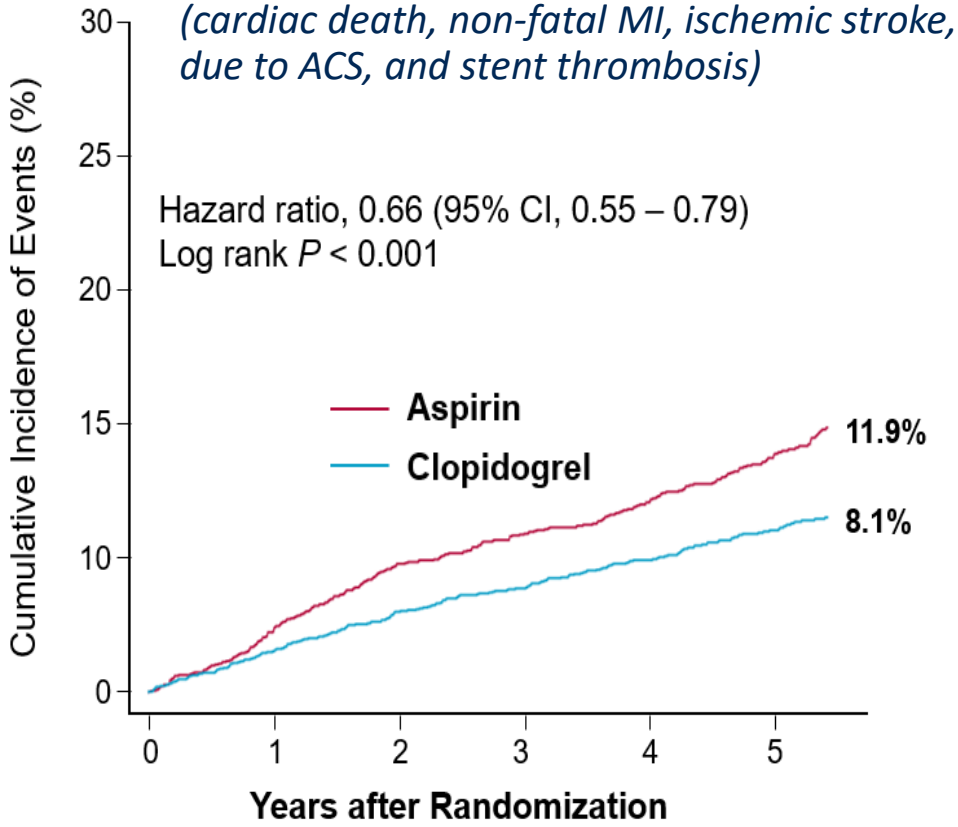
Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

Secondary Endpoints

HOST EXAM Extended

Thrombotic composite outcome

(cardiac death, non-fatal MI, ischemic stroke, readmission due to ACS, and stent thrombosis)

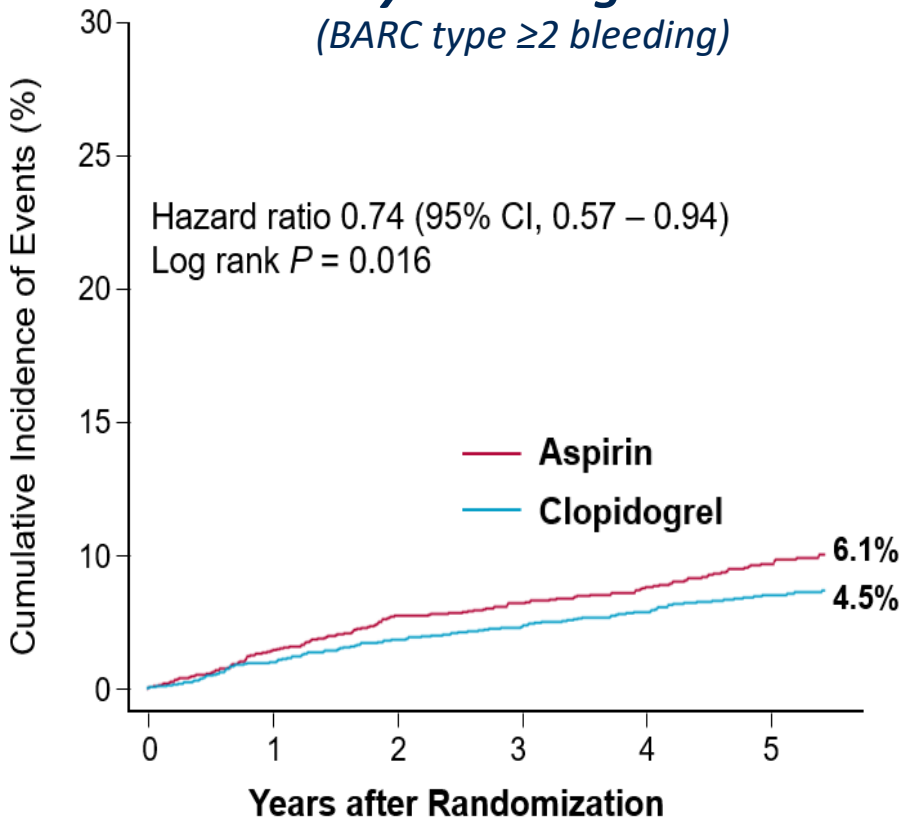


Number at Risk

Aspirin	2286	2120	1819	1040
Clopidogrel	2431	2304	1992	1202

Any bleeding

(BARC type ≥2 bleeding)



Number at Risk

Aspirin	2286	2175	1888	1104
Clopidogrel	2431	2323	2028	1238

SNUH SEOUL NATIONAL UNIVERSITY HOSPITAL

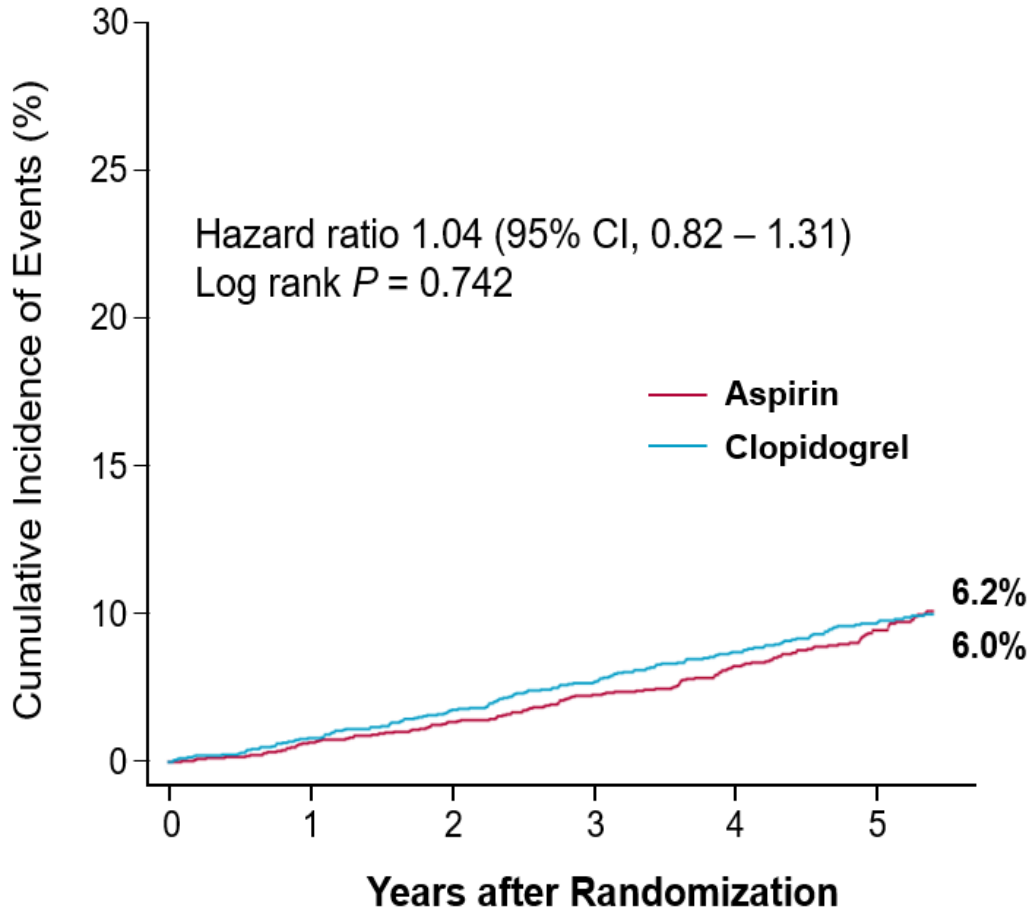
Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

Specific Bleeding site

	Total	Clopidogrel group (n=2431)	Aspirin group (n=2286)	P value
Bleeding grade				
BARC type 2	98	48 (2.0%)	50 (2.2%)	0.609
BARC type 3	138	57 (2.6%)	81 (3.9%)	0.015
- **BARC type 3a**	72	28 (1.2%)	44 (1.9%)	
- **BARC type 3b**	32	15 (0.6%)	17 (0.7%)	
- **BARC type 3c**	34	14 (0.6%)	20 (0.9%)	
BARC type 5	14	5 (0.2%)	9 (0.4%)	0.235
Bleeding site				0.093
Gastrointestinal	120	54 (2.2%)	66 (2.9%)	
Intracranial	34	12 (0.5%)	22 (1.0%)	
Genitourinary	26	10 (0.4%)	16 (0.7%)	
Respiratory	19	7 (0.3%)	12 (0.5%)	
Others	51	27 (1.1%)	24 (1.0%)	

Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

Mortality



Number at Risk

Aspirin	2286	2244	1971	1165
Clopidogrel	2431	2374	2088	1285

HOST EXAM Extended

No. of patients	Clopidogrel (N=2431)	Aspirin (N=2286)	P value
Total mortality	150 (6.2%)	136 (6.0%)	0.753
Cardiovascular cause	69 (2.8%)	71 (3.1%)	0.587
Cardiac arrest	21	22	
Heart failure aggravation	5	3	
Cerebrovascular accident	7	3	
Unknown origin of death	36	43	
Non-cardiovascular cause	81 (3.3%)	65 (2.8%)	0.334
Malignancy	34	29	
- Gastrointestinal origin	15	12	
- Respiratory origin	8	11	
- Endocrinology origin	1	1	
- Genitourinary origin	4	3	
- Other	3	2	
- Unknown primary	3	0	
Infectious disease	4	5	
Suicide or Trauma	8	3	
Others	20	16	

Kang J, Park KW, Koo BK,,,, Kim HS. Circulation 2023

PANTHER meta-analysis: which monotherapy for 2nd prevention

TABLE 1 Main Characteristics of Trials and Patient Populations Included in the PANTHER Meta-Analysis

	Year of Publication	Definition of CAD	Overall Population	$P2Y_{12}$ Inhibitor Group	Aspirin Group	$P2Y_{12}$ Inhibitor	$P2Y_{12}$ Inhibitor Dose	Aspirin Dose	Initial DAPT Phase	Follow-up (mo)
ASCET	2012	Stable CAD documented by coronary angiography (with or without PCI)	1,001	499	502	Clopidogrel	75 mg once daily	160 mg once daily	When clinically indicated (ie, PCI)	24
CADET	2004	Recent myocardial infarction (within 3-7 d)	184	94	90	Clopidogrel	75 mg once daily	75 mg once daily	No	6
CAPRIE[a]	1996	Previous myocardial infarction (at any time)	8,446	4,242	4,204	Clopidogrel	75 mg once daily	325 mg once daily	No	36
DACAB	2018	Post-CABG patients (within 24 h after surgery)	322	166	166	Ticagrelor	90 mg twice daily	100 mg once daily	No	12
GLASSY[b]	2019	Post-PCI patients (12 mo after index PCI)	7,065	3,536	3,529	Ticagrelor	90 mg twice daily	75-100 mg once daily	Yes	12
HOST-EXAM	2021	Post-PCI patients (6-18 mo after PCI)	5,438	2,710	2,728	Clopidogrel	75 mg once daily	100 mg once daily	Yes	24
TiCAB	2019	Post-CABG patients (within 24 h after surgery)	1,859	931	928	Ticagrelor	90 mg twice daily	100 mg once daily	No	12

[a]For CAPRIE (Clopidogrel Versus Aspirin in Patients at Risk of Ischaemic Events), all patients with a history of myocardial infarction contributed to the meta-analysis. [b]For GLASSY (GLOBAL LEADERS Adjudication Sub-Study), alive patients at 1 year after randomization who did not experience myocardial infarction, stroke, or Bleeding Academic Research Consortium type 3 or type 5 bleeding and who were not lost to follow-up during the first year after enrollment were included.

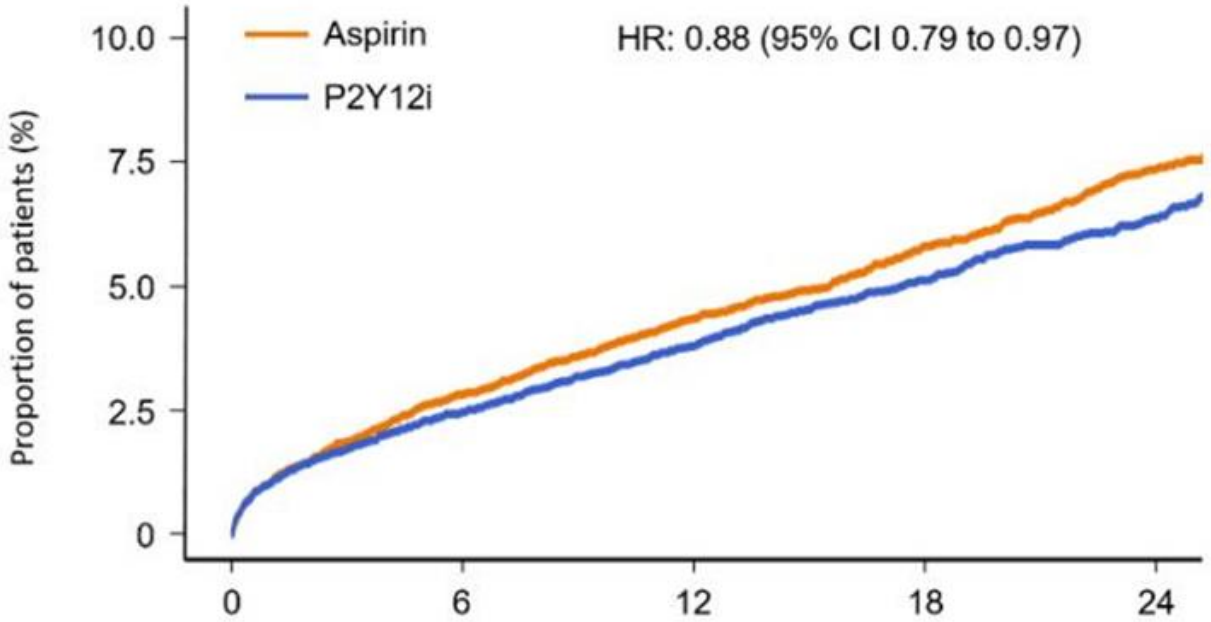
ASCET = Aspirin Non-responsiveness and Clopidogrel Clinical Endpoint Trial; CABG = coronary artery bypass grafting; CAD = coronary artery disease; CADET = Clopidogrel and Aspirin: Determination of the Effects on Thrombogenicity; DACAB = Different Antiplatelet Therapy Strategy After Coronary Artery Bypass Graft Surgery; DAPT = dual antiplatelet therapy; HOST-EXAM = Harmonizing Optimal Strategy for Treatment of Coronary Artery Stenosis-Extended Antiplatelet Monotherapy; PANTHER = $P2Y_{12}$ Inhibitor or Aspirin Monotherapy; PCI = percutaneous coronary intervention; TiCAB = Ticagrelor in Coronary Artery Bypass.

Gragnano F, Park KW, Kim HS, Valgimigli M et al. JACC 2023

Primary Efficacy Outcome: CV death, MI, stroke

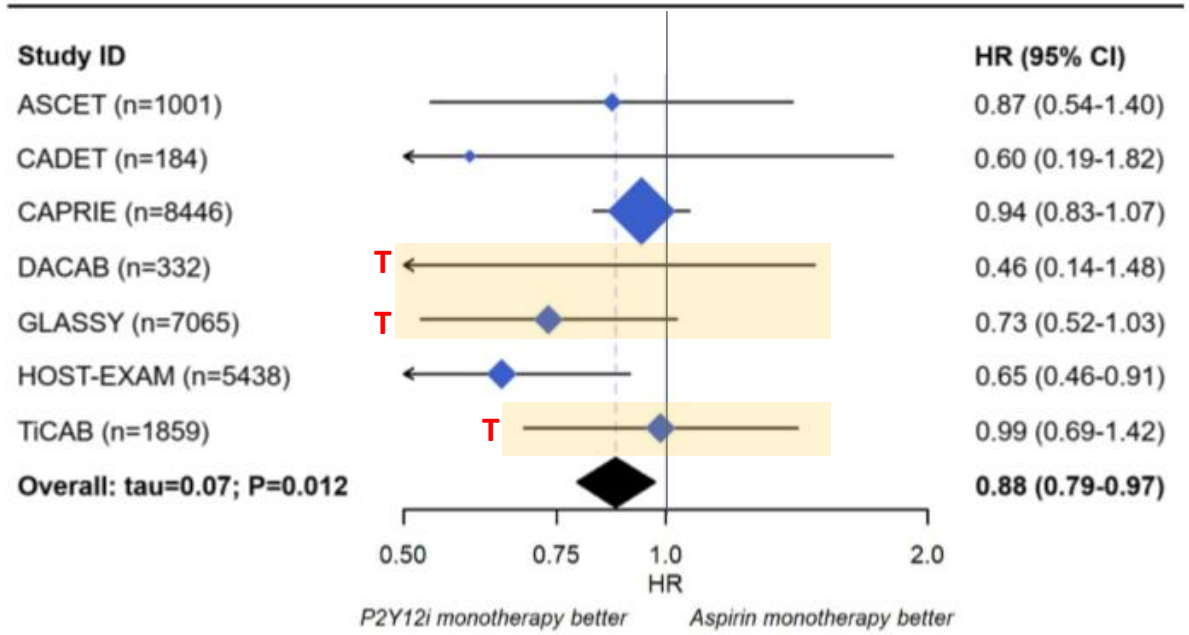
The PANTHER Collaboration : which monotherapy for 2nd prevention

CV death, MI or stroke: 5.5% vs. 6.3%; HR 0.88, 95% CI 0.79 to 0.97, P=0.014; NNTB: 123



Number at risk

Aspirin	11645	11143	10141	5405	4288
P2Y12i	11679	11196	10142	5389	4357

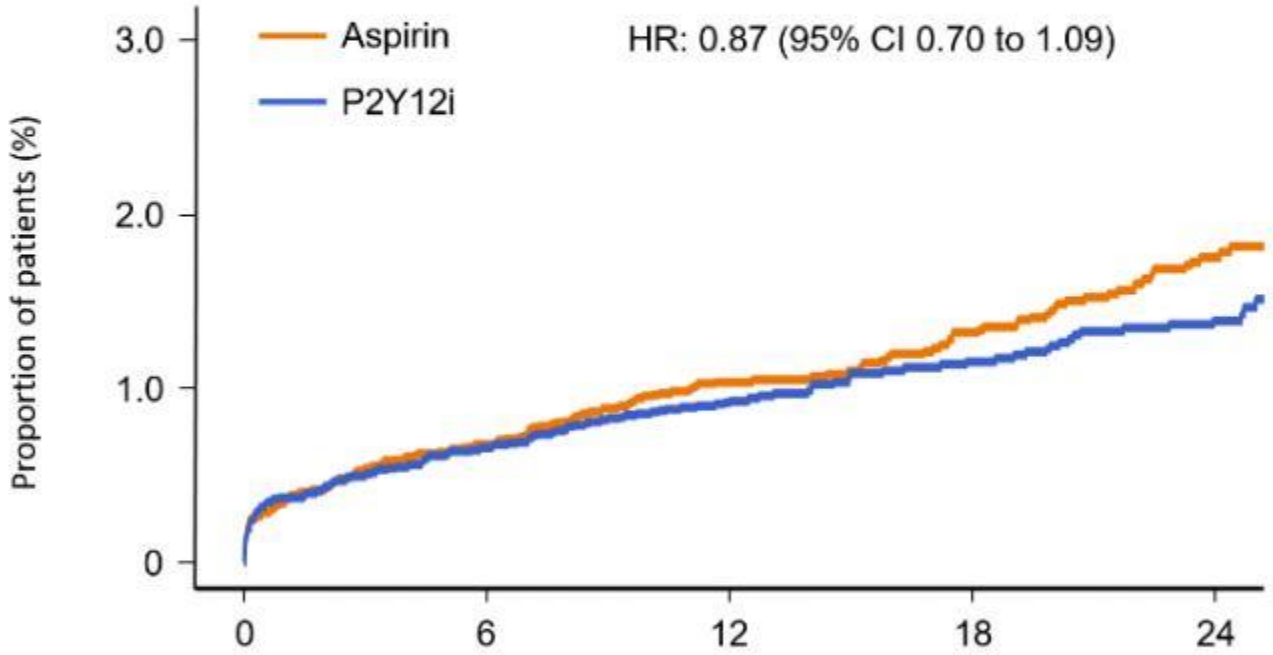


Gragnano F, Park KW, Kim HS, Valgimigli M et al. JACC 2023

Primary Safety Outcome: Major Bleeding

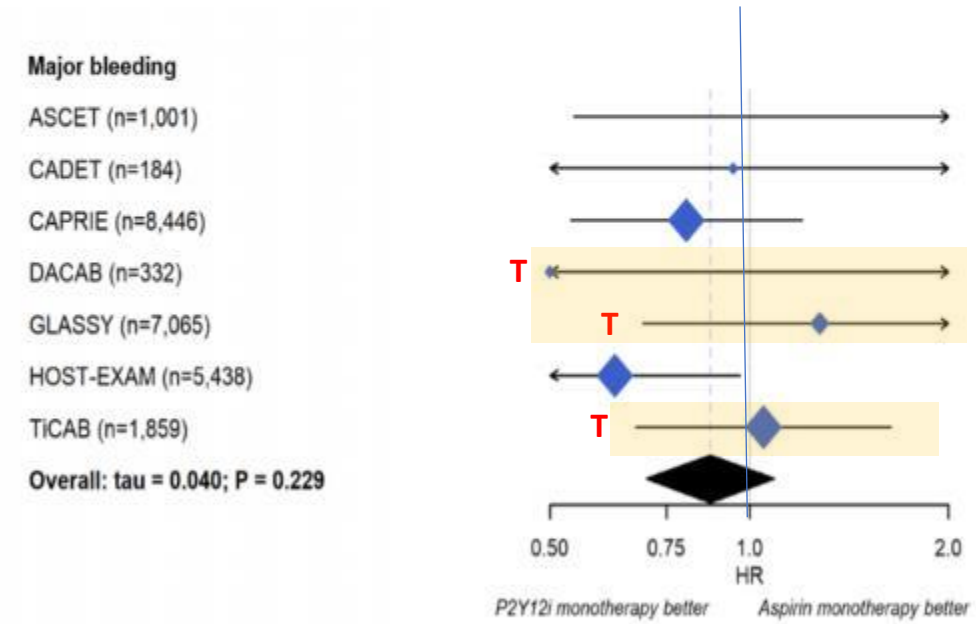
The PANTHER Collaboration : which monotherapy for 2nd prevention

Major bleeding: 1.2% vs. 1.4%; HR 0.87, 95% CI 0.70 to 1.09, P=0.23



Number at risk

Aspirin	11479	11127	10220	5562	4430
P2Y12i	11513	11149	10179	5530	4459

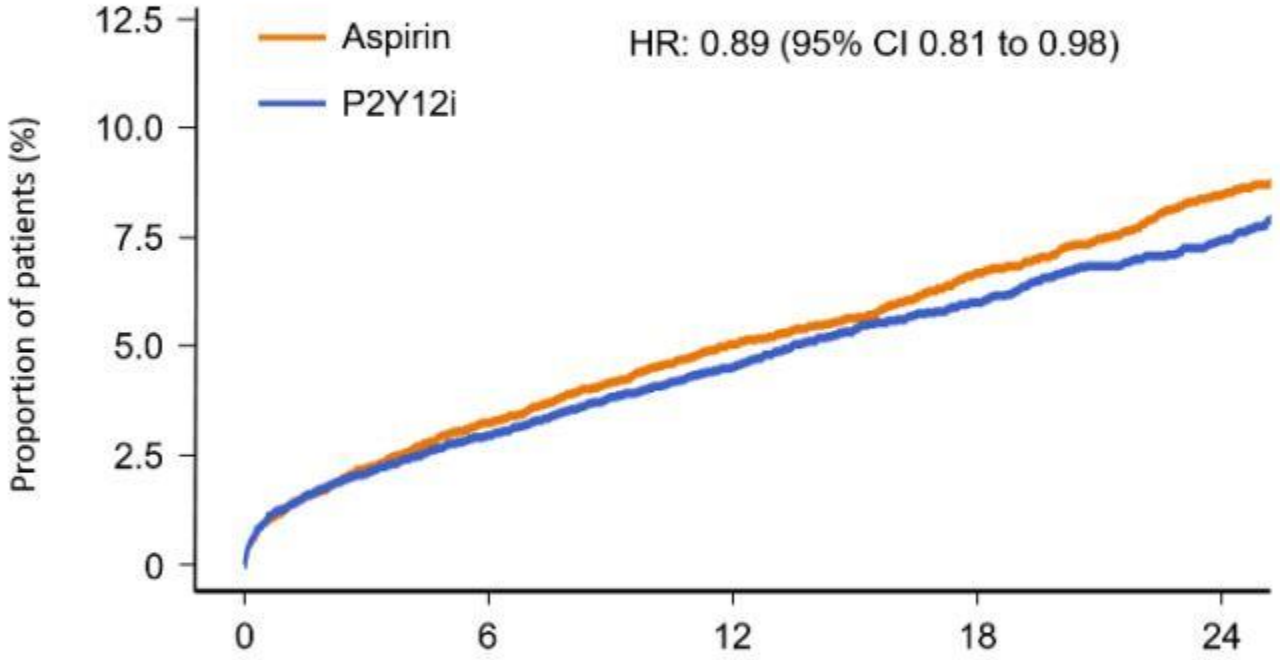


Gragnano F, Park KW, Kim HS, Valgimigli M et al. JACC 2023

Key Secondary Outcome: Net Adverse Clinical Events

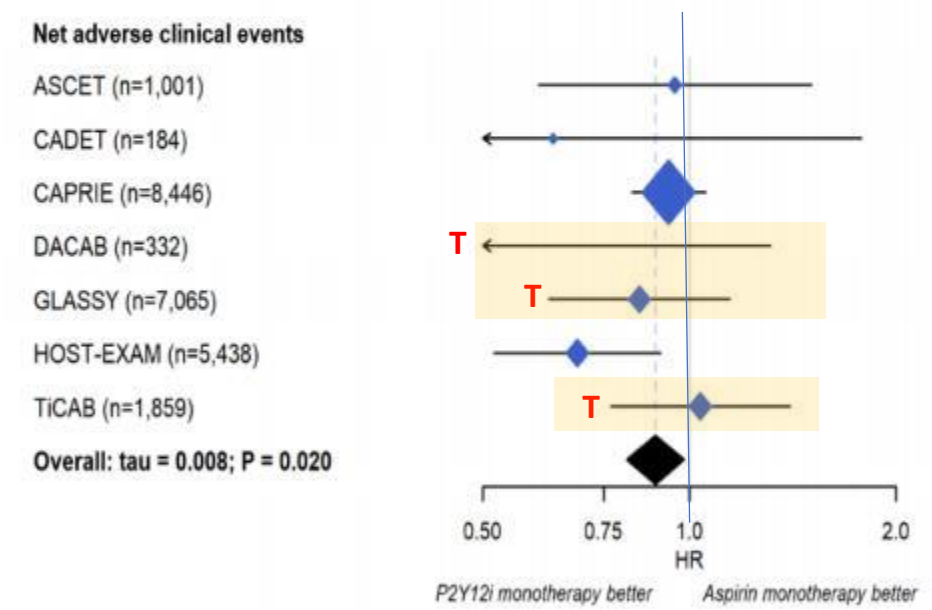
The PANTHER Collaboration : which monotherapy for 2nd prevention

NACE: 6.4% vs. 7.2%; HR 0.89, 95% CI 0.81 to 0.98, P=0.02



Number at risk

Aspirin	11479	10935	9949	5363	4244
P2Y12i	11513	10987	9959	5354	4323



Gragnano F, Park KW, Kim HS, Valgimigli M et al. JACC 2023

Longterm anti-platelet therapy

beyond 1 year after PCI or ACS

Clopidogrel > ASA

in every subgroup

especially DM or high clinical risk (high TRS2P)