Supplementary Material

Baseline characteristics

Initially, a total of 7,344 patients who were discharged with a diagnosis of AMI and AF who were discharged with anti-platelet agents were identified. After excluding 5,344 patients with first-time detected AF, and 181 patients used other oral anticoagulants, 1,819 participants were finally included in our study (mean age: 76, interquartile range: 69-81; 42% female). Among these patients, 340 individuals received rivaroxaban, while other 1,479 patients did not receive rivaroxaban. A flow chart of the study population selection is shown in Figure S1. The baseline characteristics for the study population, stratified in rivaroxaban users and non-users are summarized in Supplementary Table S2. Rivaroxaban users were more likely to receive beta blockers, angiotensin receptor inhibitor (ARB), statins, and ezetimibe therapy. They were also younger (73.1±9.1 vs. 75.1±9.4, P<0.001) and less likely to receive dual anti-platelet therapy (40.6% vs. 60.8%, P<0.001) and calcium channel blockers (22.1% vs. 27.9%, P=0.035) (Supplementary Table S2).

Impact of rivaroxaban on the risk of outcomes before PSM

After a median follow-up time of 922 days (interquartile range, 425-1,525), 561 patients died (31%), 631 patients suffered from stroke (35%), and 333 patients suffered from bleeding (18%). Univariable Cox regression showed that compared to non-users, rivaroxaban users had a lower risk of stroke (hazard ratio [HR], 0.71; 95% confidence interval [CI], 0.56-0.90, P=0.004) (Supplementary Table S3).

Subgroup analyses

Prespecified subgroup analyses were performed according to age, gender, history of stroke, history of bleeding, diabetes mellitus, hypertension, renal insufficiency, malignant tumor, chronic obstructive pulmonary disease, heart failure, the types of AMI (STEMI and NSTEMI), the types of anti-platelet therapy (dual anti-platelet therapy and single anti-platelet therapy), use of beta blockers, ACEI, ARB, calcium channel blockers, nitrates, diuretics, or statins. The benefit of rivaroxaban on stroke was significant in patients free of ARB but not in those who received ARB (*P* for interaction=0.047, Supplementary Figure S3).

Table S1: ICD-10 codes.

Disease	ICD-10 code(s)
Acute myocardial infarction	I21, I22
Atrial fibrillation	I48
Stroke	I60, I61, I63, I64
Ischemic stroke	I63, I64
Hemorrhagic stroke	I60, I61
Transient ischemic attack	G45
Bleeding	D62, G59.101, H31.3, H35.6, H43.1, H35.602, H44.801, H45.0, H35.6, I31.900, I31.901, I31.905, I31.906, I60, I61, I62, J94.2, K25.2, K26.4, K27.4, K28.6, K92.1, K25.0, K25.4, K25.6, K26.0, K26.2, K26.6, K27.0, K27.2, K27.6, K28.0, K28.2, K28.4, K29.0, K62.5, K66.1, K92.0, K92.2, M25.0, N02, R04, R31, R58
Major bleeding	G59.101, H31.3, H35.6, H35.602, H43.1, H44.801, H45.0, I31.900, I31.901, I31.905, I31.906, I60, I61, I62.0, I62.9, K66.101, K66.102, M25.0
Diabetes	E10, E11, E12, E13, E14, H280, H380, N083
Hypertension	I10, I11, I13, I14, I15, I674, H035
Valvular heart disease	I05, I06, I07, I34, I35, I36, I37, Q22, Q23, I080, I098
Thyroid disease	B03, E890, G132, H063
Renal insufficiency	N17, N18, N19
Malignant tumor	C00-C97
Chronic obstructive pulmonary disease	I278, I279, J4, J6, J701, J703
Connective tissue diseases	M3
Heart failure	I50.000, I50.100, I50.900, I50.900x021, I50.103, I50.900x001, I50.900x018, I50.900x022, I50.101, I11.000, N18.800x020, I50.000x006, I50.000x500, I50.100x006, I50.900x019, I50.102, I11.001, I11.002, I50.001, I50.908, I13.000, I50.002, I50.900x017, I50.905, I50.907, I13.200

Table S2 Baseline characteristics of all patients stratified by Rivaroxaban

Variables	Before PSM			After PSM		
	Non-Rivaroxaban	Rivaroxaban	*P* Value	Non-Rivaroxaban	Rivaroxaban	*P* Value
Number	1479	340		312	312	
Age (mean (SD))	75.1 (9.4)	73.1 (9.1)	<0.001	73.7 (9.5)	73.7 (8.8)	0.976
Male (%)	866 (58.6)	195 (57.4)	0.731	184 (59.0)	178 (57.1)	0.685
STEMI (%)	464 (31.4)	108 (31.8)	0.94	96 (30.8)	95 (30.4)	1.000
Stroke (%)	741 (50.1)	168 (49.4)	0.866	160 (51.3)	156 (50.0)	0.81
Bleeding (%)	261 (17.6)	58 (17.1)	0.859	61 (19.6)	55 (17.6)	0.607
Diabetes mellitus (%)	636 (43.0)	157 (46.2)	0.316	132 (42.3)	141 (45.2)	0.519
Hypertension (%)	1334 (90.2)	315 (92.6)	0.195	291 (93.3)	287 (92.0)	0.646
Heart valve disease (%)	128 (8.7)	29 (8.5)	1.000	23 (7.4)	27 (8.7)	0.658
Renal insufficiency (%)	386 (26.1)	75 (22.1)	0.14	62 (19.9)	71 (22.8)	0.434
Malignant tumor (%)	105 (7.1)	20 (5.9)	0.496	20 (6.4)	20 (6.4)	1.000
COPD (%)	558 (37.7)	143 (42.1)	0.156	130 (41.7)	127 (40.7)	0.871
Connective tissue diseases (%)	61 (4.1)	8 (2.4)	0.166	11 (3.5)	6 (1.9)	0.325
Heart failure (%)	616 (41.6)	159 (46.8)	0.097	135 (43.3)	141 (45.2)	0.687
Revascularization therapy (%)	504 (34.1)	130 (38.2)	0.165	100 (32.1)	117 (37.5)	0.179
DAPT (%)	899 (60.8)	138 (40.6)	<0.001	131 (42.0)	136 (43.6)	0.746
Digoxin (%)	179 (12.1)	39 (11.5)	0.817	42 (13.5)	33 (10.6)	0.325
Ivabradine (%)	29 (2.0)	3 (0.9)	0.256	8 (2.6)	2 (0.6)	0.111
Beta blockers (%)	879 (59.4)	259 (76.2)	<0.001	230 (73.7)	231 (74.0)	1.000

ACEI (%)		218 (14.7)	36 (10.6)	0.057	39 (12.5)	36 (11.5)	0.806
ARB (%)		575 (38.9)	204 (60.0)	<0.001	170 (54.5)	177 (56.7)	0.629
CCB (%)		412 (27.9)	75 (22.1)	0.035	76 (24.4)	74 (23.7)	0.925
Nitrates (%)		391 (26.4)	98 (28.8)	0.408	87 (27.9)	88 (28.2)	1.000
Diuretics (%)		353 (23.9)	96 (28.2)	0.106	83 (26.6)	84 (26.9)	1.000
Statins (%)		593 (40.1)	175 (51.5)	<0.001	156 (50.0)	154 (49.4)	0.936
Ezetimibe (%)		19 (1.3)	11 (3.2)	0.021	6 (1.9)	11 (3.5)	0.325
CHADS-VASc score (mean (SD))		5.59 (1.8)	5.56 (1.8)	0.823	5.55 (1.9)	5.59 (1.8)	0.776

ACEI, angiotensin-converting enzyme inhibitors; ARB, angiotensin receptor blockers; CCB, calcium channel blocker; COPD, chronic obstructive pulmonary disease; DAPT, dual antiplatelet therapy; PSM, Propensity score matching; STEMI, ST-Segment-Elevation Myocardial Infarction

Table S3 Univariate and multivariable Cox regression for stroke before PSM.

Variables	Univariate Cox regression			Multivariable Cox regression		
	Hazard ratio	95% Confidence interval	*P* Value	Hazard ratio	95% Confidence interval	*P* Value
CHADS-VASc score	1.23	1.18-1.29	**<0.001**			
Stroke	2.90	2.40-3.40	**<0.001**	2.83	2.38-3.38	**<0.001**
Rivaroxaban	0.71	0.57-0.89	**0.003**	0.71	0.56-0.90	**0.004**
Diabetes mellitus	1.30	1.10-1.50	**0.004**	1.14	0.96-1.34	0.129
COPD	1.20	1.00-1.40	**0.011**	1.02	0.86-1.20	0.849
Hypertension	1.50	1.10-2.00	**0.014**	1.05	0.77-1.43	0.752
CCB	1.20	1.00-1.40	**0.018**	1.06	0.89-1.27	0.489
Diuretics	1.20	1.00-1.40	**0.032**	1.26	1.04-1.52	**0.020**
Renal insufficiency	1.20	1.00-1.40	**0.045**	0.99	0.82-1.20	0.908
Digoxin	1.20	0.95-1.50	0.120			
Nitrates	1.10	0.96-1.40	0.120	1.19	0.99-1.44	0.064
Age	1.00	1.00-1.00	0.160	1.00	0.99-1.01	0.521
Malignant tumor	1.20	0.91-1.60	0.180	1.20	0.90-1.62	0.219
Beta blockers	0.90	0.77-1.10	0.210	0.96	0.82-1.14	0.668
Ezetimibe	0.65	0.32-1.30	0.250			
Bleeding	1.10	0.92-1.40	0.270	0.97	0.79-1.19	0.774
Revascularization therapy	0.91	0.77-1.10	0.280			
ACEI	1.10	0.88-1.40	0.390	1.17	0.94-1.47	0.166
Statins	0.93	0.80-1.10	0.400	0.87	0.73-1.05	0.137
Heart valve disease	0.88	0.64-1.20	0.410			

Connective tissue diseases	1.20	0.78-1.80	0.450			
Heart failure	1.00	0.89-1.20	0.570	0.95	0.80-1.12	0.533
Male	0.96	0.82-1.10	0.600	0.96	0.82-1.13	0.631
ARB	1.00	0.88-1.20	0.740	1.07	0.90-1.26	0.461
Ivabradine	0.92	0.49-1.70	0.800			
DAPT	0.99	0.84-1.20	0.900	0.97	0.82-1.14	0.689
STEMI	1.00	0.84-1.20	0.960	0.99	0.84-1.17	0.916

ACEI, angiotensin-converting enzyme inhibitors; ARB, angiotensin receptor blockers; CCB, calcium channel blocker; COPD, chronic obstructive pulmonary disease; DAPT,dual antiplatelet therapy; PSM, Propensity score matching; STEMI, ST-Segment-Elevation Myocardial Infarction

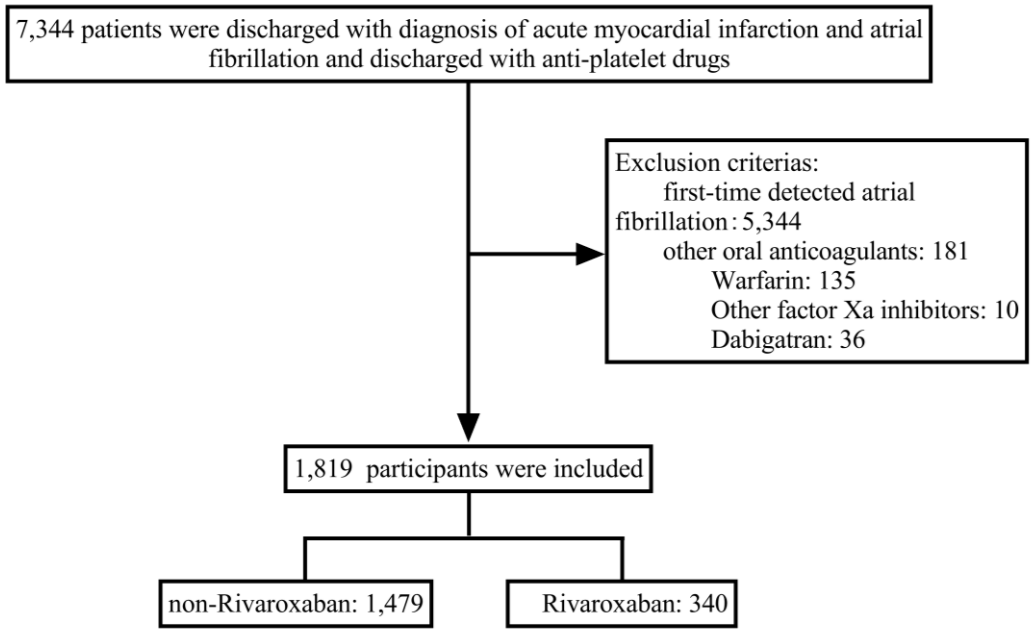

Figure S1. Flow chart of study population selection.

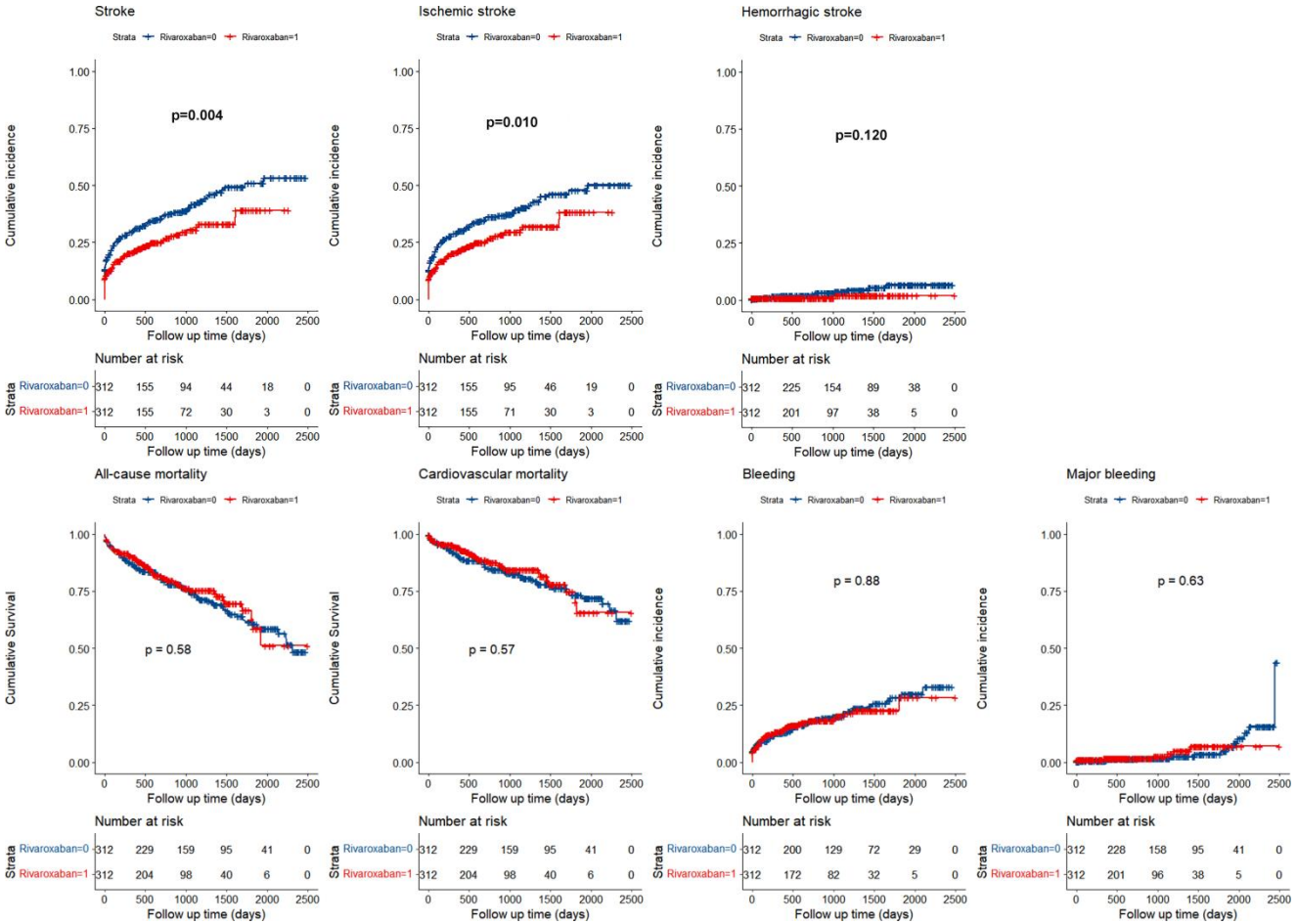

Figure S2. Kaplan-Meier showing cumulative incidence and cumulative survival for individuals with and without rivaroxaban. (A) stroke; (B) ischemic stroke; (C) hemorrhagic stroke; (D) all-cause mortality; (E) cardiovascular mortality; (F) bleeding and (G) major bleeding.

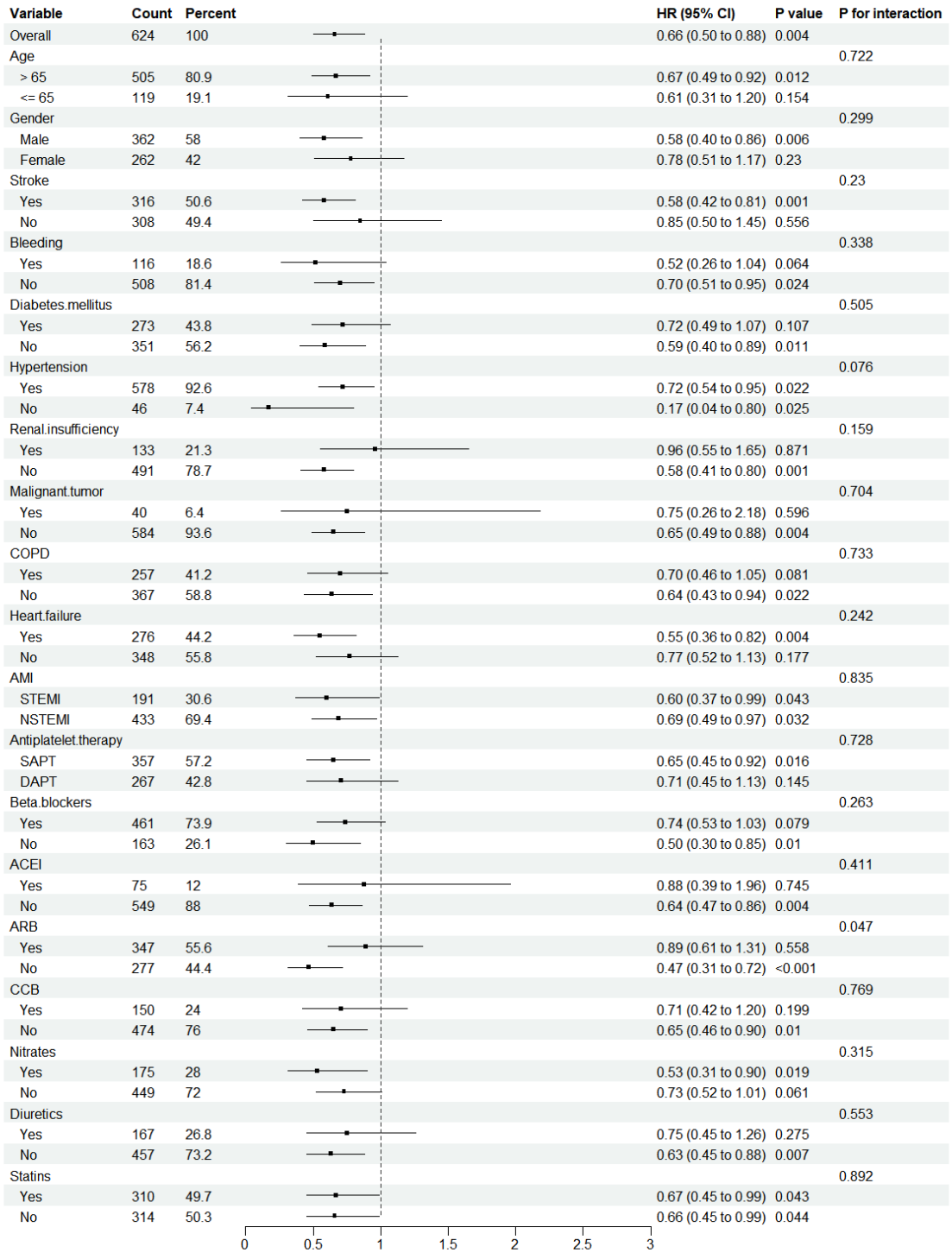

Figure S3. Subgroup analysis for stroke. ACEI, angiotensin-converting enzyme inhibitors; AMI, acute myocardial infarction; ARB, angiotensin receptor blockers; CCB, calcium channel blocker; COPD, chronic obstructive pulmonary disease; DAPT,

dual antiplatelet therapy; NSTEMI, non-ST-segment-elevation myocardial infarction; SAPT, single antiplatelet therapy; STEMI, ST-segment-elevation myocardial infarction