SUPPLEMENTAL MATERIAL

Table S1. Diagnosis Codes for Inclusion and Exclusion Criteria.

Condition	ICD-9-CM	ICD-10-CM
Inclusion criteria		
Atrial fibrillation	427.31	I48
Intracranial bleeding	430, 431, 432	I60, I61, I62
Exclusion criteria		
Mitral stenosis	394.0, 394.2, 396.0, 396.1, 746.5	I05.0, I05.2, I08.0, Q23.2
Artificial valve replacement	V42.2, V43.3	Z95.3, Z95.4, Z95.2
	NHI codes: FHV01, FHV02	
Pregnancy	V22, V23	Z34, Z33.1, Z33.3
Dialysis	V45.1, V56	Z99.2, Z91.15
	NHI codes: 58001C, 58018C, 58025C, 58027C, 58029C, 58007C, 58014C, 58026C, 58030B, 58002C, 58009A/B, 58010A/B, 58011A/C, 58012A/B, 58017B/C	
Malformation of precerebral vessels	747.89	Q28.0, Q28.1
Malformation of cerebral vessels	747.81	Q28.2, Q28.3
Dissection of cerebral arteries	443.29	I67.0
Cerebral aneurysm	437.3	I67.1
Moyamoya disease	437.5	I67.5

ICD-9-CM: International Classification of Diseases,Ninth Revision, Clinical Modification;
ICD-10-CM: International Classification of Diseases, Tenth Revision, Clinical Modification

Table S2. ATC Codes of Medications.

Categories	ATC codes	Medication
Oral anticoagulants	B01AA03	Warfarin
	B01AE07	Dabigatran
	B01AF01	Rivaroxaban
	B01AF02	Apixaban
	B01AF03	Edoxaban
Platelet aggregation inhibitors	B01AC06	Aspirin
	B01AC04	Clopidogrel
	B01AC22	Prasugrel
	B01AC24	Ticagrelor
Calcium channel blockers	C08D, C08C	
Agents acting on the renin-angiotensin system	C09	
HMG-CoA reductase inhibitors	C10AA	
Nonsteroid anti-inflammatory drugs	M01A	
Antiarrhythmics, class I and III	C01B	
Digitalis glycosides	C01AA05	Digoxin
Beta blocking agents	C07A	
Proton pump inhibitors	A02BC	

ATC: Anatomical Therapeutic Chemical Classification

Table S3. Diagnosis Codes for Baseline Comorbidities and Outcomes

Condition	ICD-9-CM	ICD-10-CM
Congestive heart failure	398.91, 428, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 425.4, 425.5, 425.7, 425.8, 425.9	I11.0, I13.0, I13.2, I42.0, I42.5, I42.6, I42.7, I42.8, I42.9, I50
Hypertension	401, 402, 403, 404, 405	I10, I11, I12, I13, I15, I16
Diabetes mellitus	250	E08, E09, E10, E11, E13
Coronary artery disease	410, 411, 412, 413, 414	I20, I21, I22, I23, I24, I25
Myocardial infarction	410,412	I21, I22, I25.2
Peripheral artery disease	440, 443	I70, I73, I77.7
Peripheral arterial thrombosis	444	I74
Ischemic stroke	433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 436, 362.3	I63, I67.89, I64, G45.3, H34
Transient ischemic attack	435.0, 435.1, 435.2, 435.3, 435.8, 435.9	G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2, I67.841, I67.848
Venous thromboembolism	451, 453	I80, I82
Pulmonary embolism	415.1, 416.2	I26, I27.82,
Intracerebral bleeding	431	I61
Intracranial bleeding	430, 431, 432	I60, I61, I62
Other intracranial bleeding	430, 432	I60, I62
Gastrointestinal bleeding	531.0, 531.2, 531.4, 531.6, 532.0, 532.2, 532.4, 532.6, 533.0, 533.2, 533.4, 533.6, 534.0, 534.2, 534.4, 534.6, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 535.71, 562.02, 562.03, 562.12, 562.13, 568.81, 569.3, 569.85, 578	K25.0, K25.2, K25.4, K25.6, K26.0, K26.2, K26.4, K26.6, K27.0, K27.2, K27.4, K27.6, K28.0, K28.2, K28.4, K28.6, K29.01, K29.21, K29.31, K29.41, K29.51, K29.61, K29.71, K28.91, K29.91, K52.81, K57.01, K57.11, K57.13, K57.21, K57.31, K57.33, K57.41, K57.51, K57.53, K57.81, K57.91, K57.93, K66.1, K62.5, K55.21, K92.0, K92.1, K92.2,
Other bleeding events	287.8, 287.9, 423.0, 459.0, 599.7, 719.1, 784.7, 784.8, 786.3, 362.81	D69.8, D69.9, I31.2, R58, R31, M25.0, R04, H35.6
Liver disease	570, 571, 572, 573, V42.7	K70, K71, K72, K73, K74. K75, K76, K77, Z94.4
Renal disease	403.01, 403.11, 403.91, 404.02, 404.03, 404.12,	I12.0, I13.11, I13.2, N18, N19, Z49.0, Z49.3, Z91.15, Z94.0, Z98.4,

	404.13, 404.92, 404.93, 585, 586, V42.0, V45.1, V56	Z99.2

ICD-9-CM: International Classification of Diseases,Ninth Revision, Clinical Modification;
ICD-10-CM: International Classification of Diseases, Tenth Revision, Clinical Modification

Table S4. National Health Insurance Codes for Stroke Severity Index

Condition	NHI codes
Airway suctioning	47041C, 47042C
Bacterial sensitivity test	13009C, 13020C, 13010C, 13021B, 13011C, 13022B, 13020C, 13009B, 13010B, 13011B
General ward stay	02006K, 02007A, 02008B, 03001K, 03002A, 03004B 03005K, 03006A,03008B, 03026K, 03027A, 03029B
ICU stay	02011K, 02012A, 02013B, 03010E, 03011F, 03012G, 03047E, 03048F, 03049G
Nasogastric intubation	47017C, 47018C
Osmotherapy (mannitol or glycerol infusion)	**ATC codes**: B05BC01, B05BC92
Urinary catheterization	47013C, 47014C

NHI: National Health Insurance; ICU: Intensive Care Unit; ATC: Anatomical Therapeutic Chemical Classification

Table S5. Distribution of Inverse Probability of Treatment Weights

Weight	OAC Users	AT non-users	AP users	AT non-users	NOAC users	Warfarin users
100%	15.38	2.59	26.14	1.97	3.19	9.93
99%	13.07	2.17	17.27	1.65	2.50	5.33
95%	9.06	1.68	12.93	1.45	2.13	4.09
90%	8.07	1.53	10.38	1.36	1.96	3.47
75%	5.91	1.34	7.37	1.25	1.77	2.89
50%	4.05	1.19	5.18	1.17	1.57	2.47
25%	2.81	1.12	3.64	1.11	1.43	2.06
10%	2.11	1.08	2.95	1.08	1.30	1.89
5%	1.88	1.07	2.51	1.06	1.18	1.77
1%	1.61	1.05	2.02	1.05	1.10	1.60
0%	1.46	1.04	1.76	1.04	1.06	1.56

OACs: Oral anticoagulants, AT: Antithrombotic therapy, AP: Antiplatelet, NOAC: Non-vitamin K antagonist oral anticoagulants

Table S6. Baseline Characteristics Among Oral Anticoagulant Users and Antithrombotic Therapy Non-Users

Characteristics, N (%)	Inverse probability of treatment weighting					
	Before			After		
	OAC users N=283	AT non-users N=1069	Absolute Standardized difference	OAC users N=1312.54	AT non-users N=1353.16	Absolute Standardized Difference
Age, mean (SD)	75.61 (9.84)	76.31 (10.69)	0.07	76.50 (21.09)	76.20 (11.99)	0.03
Sex, male	166 (58.66)	618 (57.81)	0.02	776.73 (59.18)	786.62 (58.13)	0.02
CHA_2DS_2-VASc score, mean (SD)	5.31 (1.67)	5.20 (1.57)	0.07	5.24 (3.64)	5.23 (1.76)	0.01
0-4*	89 (31.45)	349 (32.65)		449.58 (34.25)	432.00 (31.93)	
5-6*	116 (40.99)	495 (46.3)		510.56 (38.90)	630.06 (46.56)	
≧7*	78 (27.56)	225 (21.05)		352.39 (26.85)	291.10 (21.51)	
Stroke severity index, mean (SD)	12.57 (5.81)	15.24 (5.83)	0.46	14.17 (12.44)	14.66 (6.72)	0.08
Comorbidities						
Congestive heart failure	92 (32.51)	301 (28.16)	0.10	396.66 (30.22)	395.29 (29.21)	0.02
Hypertension	209 (73.85)	830 (77.64)	0.09	1021.87 (77.85)	1042.63 (77.05)	0.02
Diabetes mellitus	88 (31.1)	376 (35.17)	0.09	441.43 (33.63)	466.52 (34.48)	0.02
Coronary artery disease	63 (22.26)	228 (21.33)	0.02	293.43 (22.36)	293.77 (21.71)	0.02
PAD and PAT	17 (6.01)	35 (3.27)	0.13	50.58 (3.85)	52.44 (3.88)	<0.01
IS and TIA	145 (51.24)	470 (43.97)	0.15	595.26 (45.35)	615.24 (45.47)	<0.01
VT and PE	11 (3.89)	19 (1.78)	0.13	31.39 (2.39)	30.22 (2.23)	0.01
Gastrointestinal bleeding	22 (7.77)	58 (5.43)	0.10	71.24 (5.43)	78.65 (5.81)	0.02
Other bleeding events	10 (3.53)	50 (4.68)	0.06	50.62 (3.86)	60.39 (4.46)	0.03
Liver disease	15 (5.3)	50 (4.68)	0.03	66.32 (5.05)	65.57 (4.85)	0.01

Renal disease	28 (9.89)	95 (8.89)	0.04	125.83 (9.59)	124.09 (9.17)	0.014
Baseline medication history						
Antithrombotic agents†	283 (100)	1069 (100)	<0.01	1312.54 (100)	1353.16 (100)	<0.01
Calcium channel blockers	144 (50.88)	515 (48.18)	0.05	709.72 (54.07)	664.13 (49.08)	0.10
ACEIs/ARBs	162 (57.24)	524 (49.02)	0.17	690.09 (52.58)	685.96 (50.69)	0.04
HMG-CoA reductase inhibitors	81 (28.62)	149 (13.94)	0.37	236.64 (18.03)	230.31 (17.02)	0.03
NSAIDs	80 (28.27)	265 (24.79)	0.08	365.56 (27.85)	349.53 (25.83)	0.05
Antiarrhythmics, class I and III	78 (27.56)	218 (20.39)	0.17	309.41 (23.57)	298.272 (22.04)	0.04
Rate control drugs‡	166 (58.66)	524 (49.02)	0.19	717.56 (54.67)	693.52 (51.25)	0.07
Proton pump inhibitors	29 (10.25)	84 (7.86)	0.08	95.97 (7.31)	111.85 (8.27)	0.03

OAC, oral anticoagulant; AT, antithrombotic therapy, SD, standard deviation, IPTW, inverse probability treatment weighting; PAD, peripheral artery disease; PAT, peripheral artery thrombosis; IS, ischemic stroke; TIA, transient ischemic attack; VT, venous thromboembolism; PE, pulmonary embolism, ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; NSAID, non-steroidal anti-inflammatory drug

* Denotes descriptive variables that were not included in the propensity score

† Antithrombotic agents include oral anticoagulants and antiplatelet agents

‡ Rate control drugs include ATC code C07A and C01AA05

Table S7. Baseline Characteristics Among Antiplatelet Agent Users and Antithrombotic Therapy Non-Users

Characteristics, N (%)	Inverse probability of treatment weighting					
	Before			After		
	AP users N=214	AT non-users N=1069	Absolute Standardized difference	AP users N=1291.35	AT non-users N=1282.23	Absolute Standardized Difference
Age, mean (SD)	75.12 (11.10)	76.31 (10.69)	0.11	76.42 (26.83)	76.13 (11.71)	0.03
Sex, male	140 (65.42)	618 (57.81)	0.16	794.45 (61.52)	757.92 (59.11)	0.05
CHA_2DS_2-VASc score, mean (SD)	5.31 (1.56)	5.20 (1.57)	0.07	5.26 (3.90)	5.22 (1.72)	0.03
0-4*	67 (31.31)	349 (32.65)		440.68 (34.13)	412.05 (32.14)	
5-6*	96 (44.86)	495 (46.3)		541.84 (41.96)	593.45 (46.28)	
≧7*	51 (23.83)	225 (21.05)		308.82 (23.91)	276.73 (21.58)	
Stroke severity index, mean (SD)	13.24 (5.73)	15.24 (5.83)	0.35	14.98 (14.19)	14.91 (6.47)	0.01
Comorbidities						
Congestive heart failure	69 (32.24)	301 (28.16)	0.09	386.29 (29.91)	370.80 (28.92)	0.02
Hypertension	167 (78.04)	830 (77.64)	0.01	1013.31 (78.47)	997.87 (77.82)	0.02
Diabetes mellitus	84 (39.25)	376 (35.17)	0.08	439.73 (34.05)	459.54 (35.84)	0.04
Coronary artery disease	67 (31.31)	228 (21.33)	0.23	279.86 (21.67)	292.79 (22.83)	0.03
PAD and PAT	9 (4.21)	35 (3.27)	0.05	43.81 (3.39)	43.34 (3.38)	<0.01
IS and TIA	109 (50.93)	470 (43.97)	0.14	624.66 (48.37)	580.82 (45.30)	0.06
VT and PE	3 (1.4)	19 (1.78)	0.03	21.37 (1.65)	21.91 (1.71)	<0.01
Gastrointestinal bleeding	18 (8.41)	58 (5.43)	0.12	64.70 (5.01)	74.67 (5.82)	0.03
Other bleeding events	16 (7.48)	50 (4.68)	0.12	63.93 (4.95)	65.53 (5.11)	0.01
Liver disease	12 (5.61)	50 (4.68)	0.04	48.24 (3.74)	60.67 (4.73)	0.05

Renal disease	20 (9.35)	95 (8.89)	0.02	99.30 (7.69)	114.79 (8.95)	0.04
Baseline medication history						
Antithrombotic agents†	214 (100)	1069 (100)	<0.01	1291.35 (100)	1282.23 (100)	<0.01
Calcium channel blockers	99 (46.26)	515 (48.18)	0.04	619.89 (48.00)	615.49 (48.00)	<0.01
ACEIs/ARBs	125 (58.41)	524 (49.02)	0.19	639.19 (49.50)	647.87 (50.53)	0.02
HMG-CoA reductase inhibitors	42 (19.63)	149 (13.94)	0.15	192.35 (14.89)	191.12 (14.9)	<0.01
NSAIDs	63 (29.44)	265 (24.79)	0.11	326.24 (25.26)	327.52 (25.54)	0.01
Antiarrhythmics, class I and III	53 (24.77)	218 (20.39)	0.11	278.06 (21.53)	270.96 (21.13)	0.01
Rate control drugs‡	131 (61.21)	524 (49.02)	0.25	653.26 (50.59)	655.07 (51.09)	0.01
Proton pump inhibitors	11 (5.14)	84 (7.86)	0.11	100.37 (7.77)	94.78 (7.39)	0.02

AP, antiplatelet; AT, antithrombotic therapy, SD, standard deviation, IPTW, inverse probability treatment weighting; PAD, peripheral artery disease; PAT, peripheral artery thrombosis; IS, ischemic stroke; TIA, transient ischemic attack; VT, venous thromboembolism; PE, pulmonary embolism, ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; NSAIDs, non-steroidal anti-inflammatory drug

* Denotes descriptive variables that were not included in the propensity score

† Antithrombotic agents include oral anticoagulants and antiplatelet agents

‡ Rate control drugs include ATC code C07A and C01AA05

Table S8. Baseline Characteristics Among Oral Anticoagulant Users and Antiplatelet Agent Users

Characteristics, N (%)	Inverse probability of treatment weighting					
	Before			After		
	OAC users N=283	AP users N=214	Absolute Standardized difference	OAC users N=495.25	AP users N=498.38	Absolute Standardized Difference
Age, mean (SD)	75.61 (9.84)	75.12 (11.10)	0.05	75.45 (13.01)	75.34 (17.44)	0.01
Sex, male	166 (58.66)	140 (65.42)	0.14	309.25 (62.01)	304.69 (61.52)	0.01
CHA_2DS_2-VASc score, mean (SD)	5.31 (1.67)	5.31 (1.56)	<0.01	5.31 (2.19)	5.29 (2.43)	0.01
0-4*	89 (31.45)	67 (31.31)	0.10	156.88 (31.68)	162.78 (32.66)	0.09
5-6*	116 (40.99)	96 (44.86)		202.73 (40.94)	220.14 (44.17)	
≧7*	78 (27.56)	51 (23.83)		135.63 (27.39)	115.46 (23.17)	
Stroke severity index, mean (SD)	12.57 (5.81)	13.24 (5.74)	0.12	12.81 (7.56)	12.86 (8.76)	0.01
Comorbidities						
Congestive heart failure	92 (32.51)	69 (32.24)	0.01	158.01 (31.91)	157.56 (31.61)	0.01
Hypertension	209 (73.85)	167 (78.04)	0.10	374.79 (75.68)	376.92 (75.63)	<0.01
Diabetes mellitus	88 (31.10)	84 (39.25)	0.17	170.20 (34.37)	171.79 (34.47)	<0.01
Coronary artery disease	63 (22.26)	67 (31.31)	0.21	130.23 (26.30)	134.29 (26.94)	0.02
PAD and PAT	17 (6.01)	9 (4.21)	0.08	24.27 (4.90)	22.64 (4.54)	0.02
IS and TIA	145 (51.24)	109 (50.93)	0.01	254.48 (51.38)	257.14 (51.60)	<0.01
VT and PE	11 (3.89)	3 (1.40)	0.16	13.43 (2.71)	9.27 (1.86)	0.06
Gastrointestinal bleeding	22 (7.77)	18 (8.41)	0.02	41.16 (8.31)	39.14 (7.85)	0.02
Other bleeding events	10 (3.53)	16 (7.48)	0.17	22.68 (4.58)	25.65 (5.15)	0.03
Liver disease	15 (5.30)	12 (5.61)	0.01	27.50 (5.55)	28.06 (5.63)	<0.01

Renal disease	28 (9.89)	20 (9.35)	0.02	47.93 (9.68)	52.57 (10.55)	0.03
Baseline medication history						
Antithrombotic agents†	283	214		495.25	498.38	
Calcium channel blockers	144 (50.88)	99 (42.26)	0.09	246.38 (49.75)	255.89 (51.34)	0.03
ACEIs/ARBs	162 (57.24)	125 (58.41)	0.02	284.08 (57.36)	279.70 (56.12)	0.03
HMG-CoA reductase inhibitors	81 (28.62)	42 (19.63)	0.21	123.24 (24.88)	130.63 (26.21)	0.03
NSAIDs	80 (28.27)	63 (29.44)	0.03	140.12 (28.29)	140.46 (28.18)	<0.01
Antiarrhythmics, class I and III	78 (27.56)	53 (24.77)	0.06	131.66 (26.58)	133.33 (26.75)	<0.01
Rate control drugs‡	166 (58.66)	131 (61.21)	0.05	300.52 (60.68)	305.89 (61.38)	0.01
Proton pump inhibitors	29 (10.25)	11 (5.14)	0.19	40.65 (8.21)	42.73 (8.57)	0.01

AP, antiplatelet agent; OAC, oral anticoagulant; SD, standard deviation, IPTW, inverse probability treatment weighting; PAD, peripheral artery disease; PAT, peripheral artery thrombosis; IS, ischemic stroke; TIA, transient ischemic attack; VT, venous thromboembolism; PE, pulmonary embolism, ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; NSAID, non-steroidal anti-inflammatory drug

* Denotes descriptive variables that were not included in the propensity score.

† Antithrombotic agents include oral anticoagulants and antiplatelet agents.

‡Rate control drugs include ATC code C07A and C01AA05.

Table S9. Baseline Characteristics Among NOAC Users and Warfarin Users

Characteristics, N (%)	Inverse probability of treatment weighting					
	Before			After		
	NOAC users N=333	Warfarin users N=205	Absolute Standardized difference	NOAC users N=538.00	Warfarin users N=537.19	Absolute Standardized Difference
Age, mean (SD)	76.23 (9.99)	74.34 (10.24)	0.19	75.53 (13.01)	75.45 (15.61)	0.01
Sex, male	191 (57.36)	117 (57.07)	0.01	311.82 (57.96)	309.64 (57.64)	0.01
CHA_2DS_2-VASc score, mean (SD)	5.16 (1.54)	4.92 (1.77)	0.15	5.07 (1.97)	5.06 (2.84)	0.01
0-4*	108 (32.43)	84 (40.98)		185.55 (34.49)	204.69 (38.10)	
5-6*	164 (49.25)	79 (38.54)		263.23 (48.93)	210.58 (39.20)	
≧7*	61 (18.32)	42 (20.49)		89.22 (16.58)	121.91 (22.69)	
Stroke severity index, mean (SD)	13.16 (6.05)	13.21 (5.74)	0.01	13.18 (7.64)	13.16 (9.40)	0.01
Comorbidities						
Congestive heart failure	89 (26.73)	53 (25.85)	0.02	141.69 (26.34)	139.74 (26.01)	0.04
Hypertension	240 (72.07)	143 (69.76)	0.05	385.29 (71.62)	390.75 (72.74)	0.03
Diabetes mellitus	93 (27.93)	66 (32.2)	0.09	160.81 (29.89)	160.11 (29.80)	<0.01
Coronary artery disease	59 (17.72)	40 (19.51)	0.05	101.49 (18.86)	110.24 (20.52)	0.04
PAD and PAT	19 (5.71)	3 (1.46)	0.23	21.93 (4.08)	19.98 (3.72)	0.02
IS and TIA	152 (45.65)	82 (40)	0.11	232.45 (43.21)	230.58 (42.92)	0.01
VT and PE	10 (3)	8 (3.9)	0.05	17.75 (3.30)	17.71 (3.30)	<0.01
Gastrointestinal bleeding	17 (5.11)	12 (5.85)	0.03	29.86 (5.55)	30.20 (5.62)	<0.01
Other bleeding events	11 (3.3)	8 (3.9)	0.03	18.816 (3.50)	18.03 (3.36)	0.01
Liver disease	11 (3.3)	11 (5.37)	0.10	21.27 (3.95)	20.67 (3.85)	0.01

Renal disease	28 (8.41)	22 (10.73)	0.08	51.96 (9.66)	52.26 (9.73)	<0.01
Baseline medication history						
Oral anticoagulants	286 (85.89)	175 (85.37)	0.02	459.76 (85.46)	457.98 (85.25)	0.01
Antiplatelet agents	71 (21.32)	46 (22.44)	0.03	118.22 (21.97)	117.00 (21.78)	0.01
Calcium channel blockers	142 (42.64)	84 (40.98)	0.03	225.41 (41.90)	229.18 (42.66)	0.02
ACEI/ARB	164 (49.25)	94 (45.85)	0.07	257.36 (47.84)	261.78 (48.73)	0.02
HMG-CoA reductase inhibitors	80 (24.02)	37 (18.05)	0.15	117.61 (21.86)	119.14 (22.18)	0.01
NSAIDs	108 (32.43)	72 (35.12)	0.06	179.43 (33.35)	175.86 (32.74)	0.01
Antiarrhythmics, class I and III	72 (21.62)	50 (24.39)	0.07	119.79 (22.27)	115.92 (21.58)	0.02
Rate control drugs†	173 (51.95)	107 (52.2)	0.01	281.61 (52.34)	280.00 (52.12)	<0.01
Proton pump inhibitors	49 (14.71)	21 (10.24)	0.14	70.74 (13.15)	67.53 (12.57)	0.02

NOAC, non-vitamin K antagonist oral anticoagulant; SD, standard deviation, IPTW, inverse probability treatment weighting; PAD, peripheral artery disease; PAT, peripheral artery thrombosis; IS, ischemic stroke; TIA, transient ischemic attack; VT, venous thromboembolism; PE, pulmonary embolism, ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; NSAID, non-steroidal anti-inflammatory drug

* Denotes descriptive variables that were not included in the propensity score

† Rate control drugs include ATC code C07A and C01AA05

Table S10. Sensitivity Analysis: Event Rate of Different Outcomes According to Treatment Stratification (Up to 2 Years of Follow-Up)

Outcome	No treatment	Oral anticoagulants	Adjusted HR[a]	Antiplatelet therapy	Adjusted HR[b]
Ischemic stroke			0.61 (0.42-0.88)		1.13 (0.82-1.56)
Number of events	52	10		15	
Person-years	840.05	267.77		217.13	
Event rate (95% CI)	61.90 (47.17-81.23)	37.35 (20.09-69.41)		69.08 (41.65-114.59)	
Thromboembolism			0.60 (0.43-0.83)		1.11 (0.84-1.48)
Number of events	68	12		18	
Person-years	838.42	265.45		212.26	
Event rate (95% CI)	81.10 (63.95-102.87)	45.13 (25.63-79.47)		84.80 (53.43-134.60)	
Intracerebral hemorrhage			1.10 (0.63-1.93)		1.80 (1.07-3.03)
Number of events	17	4		7	
Person-years	837.76	272.82		218.08	
Event rate (95% CI)	20.29 (12.61-32.64)	14.66 (5.50-39.06)		32.10 (15.30-67.33)	
Major bleeding			1.34 (0.94-1.89)		1.11 (0.78-1.59)
Number of events	42	11		11	
Person-years	827.82	269.18		217.28	
Event rate (95%CI)	50.74 (37.49-68.65)	40.86 (22.63-73.79)		50.63 (28.04-91.42)	
All-cause mortality			0.84 (0.71-0.99)		0.90 (0.76-1.06)
Number of events	235	48		45	
Person-years	850.42	273.71		221.67	
Event rate (95%CI)	276.34 (243.17-314.02)	175.37 (132.16-232.71)		203.01 (151.57-271.89)	

Abbreviations: CI, confidence interval; HR, hazard ratio.

[a]HR between oral anticoagulants and no treatment.

[b]HR between antiplatelet therapy and no treatment.

Table S11. Sensitivity Analysis: Event Rate of Different Outcomes Between Warfarin and NOAC Therapy (Up to 2 Years of Follow-Up)

Outcome	Warfarin	NOACs	Adjusted HR
Ischemic stroke			0.89 (0.48-1.63)
Number of events	9	12	
Person-years	166.09	251.90	
Event rate (95% CI)	54.19 (28.20-104.15)	47.64 (27.05-83.88)	
Thromboembolism			0.79 (0.45-1.39)
Number of events	11	13	
Person-years	165.45	250.84	
Event rate (95% CI)	66.48 (36.82-120.05)	51.83 (30.09-89.26)	
Intracerebral hemorrhage			0.53 (0.22-1.30)
Number of events	6	5	
Person-years	165.66	258.45	
Event rate (95% CI)	36.22 (16.27-80.62)	19.35 (8.05-46.48)	
Major bleeding			0.36 (0.22-0.60)
Number of events	18	13	
Person-years	160.04	256.01	
Event rate (95% CI)	112.47 (70.86-178.52)	50.78 (29.48-87.45)	
All-cause mortality			0.58 (0.42-0.81)
Number of events	39	34	
Person-years	167.41	259.22	
Event rate (95% CI)	232.96 (170.21-318.85)	131.16 (93.72-183.57)	

Abbreviations: CI, confidence interval; HR, hazard ratio; NOACs, non-vitamin K antagonist oral anticoagulants.

Table S12. Sensitivity Analysis: Event Rate of Different Outcomes According to Treatment Stratification (At Least 3-Month Follow-Up)

Outcome	No treatment	Oral anticoagulants	Adjusted HR[a]	Antiplatelet therapy	Adjusted HR[b]
Ischemic stroke			0.63 (0.41-0.98)		1.32 (0.91-1.92)
Number of events	37	7		12	
Person-years	1031.76	322.32		268.49	
Event rate (95% CI)	35.86 (25.98-49.49)	21.72 (10.35-45.55)		44.69 (25.38-78.70)	
Thromboembolism			0.57 (0.38-0.84)		1.17 (0.84-1.63)
Number of events	49	8		13	
Person-years	1028.64	320.22		260.08	
Event rate (95% CI)	47.64 (36.00-63.03)	24.98 (12.49-49.96)		49.98 (29.02-86.08)	
Intracerebral hemorrhage			1.79 (0.87-3.67)		2.61 (1.32-5.16)
Number of events	9	3		5	
Person-years	1029.30	330.64		271.56	
Event rate (95% CI)	8.74 (4.55-16.80)	9.07 (2.93-28.13)		18.41 (7.66-44.24)	
Major bleeding			1.56 (1.00-2.44)		1.56 (1.01-2.41)
Number of events	25	7		9	
Person-years	1013.65	323.43		269.18	
Event rate (95%CI)	24.66 (16.67-36.50)	21.64 (10.32-45.40)		33.44 (17.40-64.26)	
All-cause mortality			0.83 (0.69-1.00)		0.84 (0.70-1.01)
Number of events	190	39		35	
Person-years	1051.41	331.69		276.48	
Event rate (95%CI)	180.71 (156.76-208.32)	117.58 (85.91-160.92)		126.59 (90.89-176.32)	

Abbreviations: CI, confidence interval; HR, hazard ratio.

[a]HR between oral anticoagulants and no treatment.

[b]HR between antiplatelet therapy and no treatment.

Table S13. Sensitivity Analysis: Event Rate of Different Outcomes Between Warfarin and NOAC Therapy (At Least 3-Month Follow-Up)

Outcome	NOAC*s*	Warfarin	Adjusted HR
Ischemic stroke			0.67 (0.33-1.36)
Number of events	8	8	
Person-years	270.80	191.90	
Event rate (95% CI)	29.54 (14.77-59.07)	41.69 (20.85-83.36)	
Thromboembolism			0.59 (0.30-1.18)
Number of events	8	9	
Person-years	269.52	191.06	
Event rate (95% CI)	29.68 (14.84)	(24.51-90.54)	
Intracerebral hemorrhage			0.73 (0.23-2.33)
Number of events	3	3	
Person-years	278.71	191.78	
Event rate (95% CI)	(3.47-33.37)	15.64 (5.05-48.50)	
Major bleeding			0.44 (0.22-0.87)
Number of events	7	8	
Person-years	276.23	182.80	
Event rate (95% CI)	25.34 (12.08-53.16)	43.76 (21.89-87.51)	
All-cause mortality			0.65 (0.45-0.94)
Number of events	28	32	
Person-years	279.72	193.58	
Event rate (95% CI)	100.10 (69.12-144.98)	165.30 (116.90-233.75)	

Abbreviations: CI, confidence interval; HR, hazard ratio; NOAC*s*, non-vitamin K antagonist oral anticoagulants.

Table S14. Sensitivity Analysis: Event Rate of Different Outcomes Between Warfarin and NOAC Therapy (With a 90-Day Landmark Period)

Outcome	NOACs (N=325)	Warfarin (N=176)	Adjusted HR
Ischemic stroke			0.64 (0.32-1.27)
Number of events	6	8	
Person-years	187.02	294.90	
Event rate (95% CI)	32.08 (14.41-71.41)	27.13 (13.57-54.24)	
Thromboembolism			0.74 (0.39-1.39)
Number of events	7	10	
Person-years	186.56	292.13	
Event rate (95% CI)	37.52 (17.89-78.70)	34.23 (18.42-63.62)	
Intracerebral hemorrhage			0.25 (0.11-0.58)
Number of events	6	4	
Person-years	188.47	302.33	
Event rate (95% CI)	31.83 (14.30-70.86)	13.23 (4.97-32.25)	
Major bleeding			0.39 (0.24-0.64)
Number of events	14	14	
Person-years	174.34	298.62	
Event rate (95% CI)	80.30 (47.56-135.59)	46.88 (27.77-79.16)	
All-cause mortality			0.59 (0.42-0.84)
Number of events	34	33	
Person-years	189.23	302.95	
Event rate (95% CI)	179.67 (128.38-251.46)	108.93 (77.44-153.22)	

Abbreviations: CI, confidence interval; HR, hazard ratio; NOACs, non-vitamin K antagonist oral anticoagulants.

Table S15. Sensitivity Analysis: Event Rate of Different Outcomes Between Warfarin and NOAC Therapy (With a 90-Day Landmark Period and Up to 2 Years of Follow-Up)

Outcome	NOACs (N= 325)	Warfarin (N= 176)	Adjusted HR
Ischemic stroke			0.63 (0.32-1.26)
Number of events	6	8	
Person-years	180.31	291.89	
Event rate (95% CI)	33.28 (14.95-74.07)	27.41 (13.71-54.80)	
Thromboembolism			0.73 (0.39-1.37)
Number of events	7	10	
Person-years	179.85	289.11	
Event rate (95% CI)	38.92 (18.56-81.64)	34.59 (18.61-64.28)	
Intracerebral hemorrhage			0.25 (0.11-0.58)
Number of events	6	4	
Person-years	181.76	299.32	
Event rate (95% CI)	33.01 (14.83-73.48)	13.36 (5.02-35.61)	
Major bleeding			0.39 (0.24-0.64)
Number of events	14	14	
Person-years	168.09	295.61	
Event rate (95% CI)	83.29 (49.33-140.63)	47.36 (28.05-79.97)	
All-cause mortality			0.57 (0.41-0.81)
Number of events	34	33	
Person-years	182.52	299.93	
Event rate (95% CI)	186.28 (133.10-260.71)	110.02 (78.22-154.76)	

Abbreviations: CI, confidence interval; HR, hazard ratio; NOACs, non-vitamin K antagonist oral anticoagulants.

Table S16. Event Rate of Different Outcomes According to Treatment Stratification (Trim Upper and Lower 2.5% of the Weights)

Outcome	No treatment (n=1035)	Oral anticoagulants (n=250)	Adjusted HR[a]	Antiplatelet therapy (n=181)	Adjusted HR[b]
Ischemic stroke			0.51 (0.33-0.79)		1.44 (1.03-2.02)
Number of events	50	8		14	
Person-years	1040.82	287.50		220.88	
Event rate (95% CI)	48.04 (36.41-63.38)	27.83 (13.92-55.64)		63.38 (37.54-107.02)	
Thromboembolism			0.57 (0.40-0.83)		1.37 (1.01-1.86)
Number of events	65	10		16	
Person-years	1037.92	285.60		214.09	
Event rate (95% CI)	62.63 (49.11-79.86)	35.01 (18.84-65.07)		74.74 (45.79-121.99)	
Intracerebral hemorrhage			0.94 (0.51-1.75)		1.88 (1.09-3.24)
Number of events	17	3		6	
Person-years	1038.30	295.24		224.00	
Event rate (95% CI)	16.37 (10.18-26.34)	10.16 (3.28-31.51)		26.79 (12.03-59.62)	
Major bleeding			1.01 (0.68-1.51)		1.34 (0.92-1.95)
Number of events	40	7		10	
Person-years	1023.99	289.28		221.62	
Event rate (95%CI)	39.06 (28.65-53.25)	24.20 (11.54-50.76)		45.12 (24.28-83.86)	
All-cause mortality			0.62 (0.51-0.76)		0.83 (0.69-1.001)
Number of events	218	34		36	
Person-years	1059.43	296.13		228.59	
Event rate (95%CI)	205.77 (180.19-234.98)	114.82 (82.04-160.69)		157.49 (113.60-218.33)	

Abbreviations: CI, confidence interval; HR, hazard ratio.

[a]HR between oral anticoagulants and no treatment.

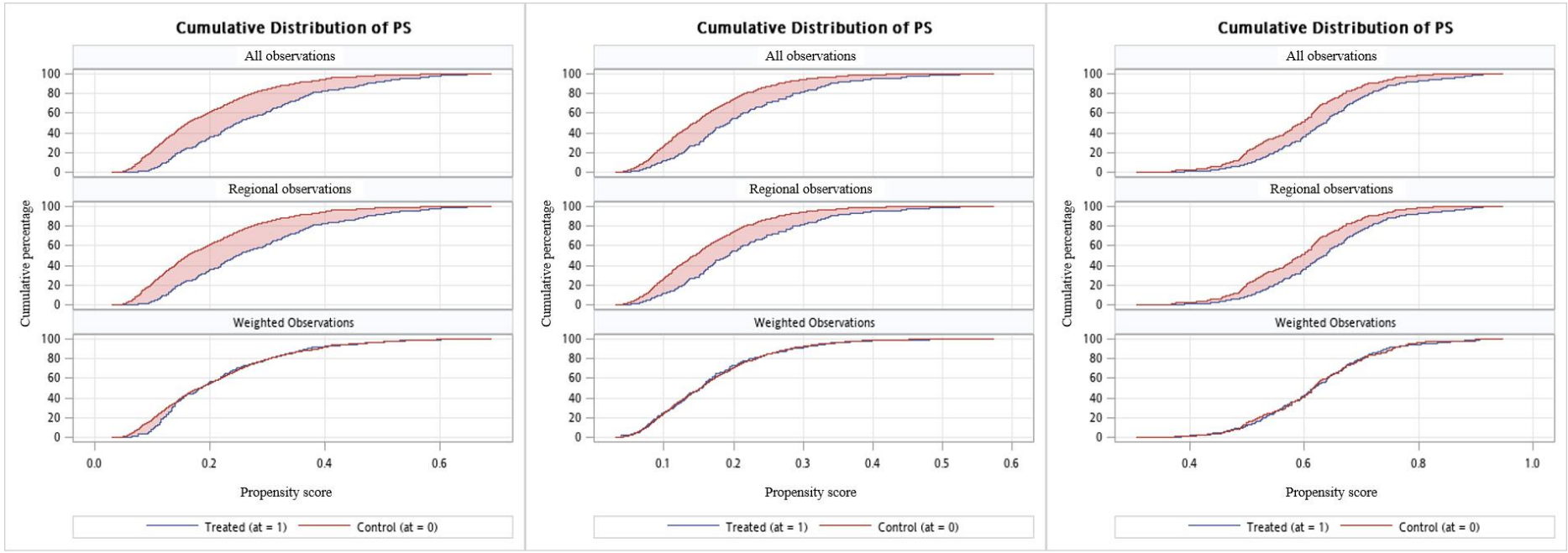
[b]HR between antiplatelet therapy and no treatment.

Table S17. Event Rate of Different Outcomes Between Warfarin and NOAC Therapy (Trim Upper and Lower 2.5% of the Weights)

Outcome	NOAC*s* (n=319)	Warfarin (n=191)	Adjusted HR
Ischemic stroke			0.94 (0.49-1.79)
Number of events	11	8	
Person-years	261.35	186.33	
Event rate (95% CI)	42.09 (23.31-76.00)	42.93 (21.47-85.85)	
Thromboembolism			0.80 (0.44-1.46)
Number of events	12	10	
Person-years	260.29	185.70	
Event rate (95% CI)	46.10 (26.18-81.18)	53.85 (28.98-100.09)	
Intracerebral hemorrhage			0.41 (0.16-1.05)
Number of events	4	6	
Person-years	269.36	185.92	
Event rate (95% CI)	14.85 (5.57-39.57)	32.27 (14.50-71.83)	
Major bleeding			0.45 (0.26-0.77)
Number of events	12	16	
Person-years	266.89	177.52	
Event rate (95% CI)	44.96 (25.54-79.17)	90.13 (55.22-147.12)	
All-cause mortality			0.59 (0.41-0.83)
Number of events	31	37	
Person-years	270.13	187.67	
Event rate (95% CI)	114.76 (80.71-163.18)	197.15 (142.85-272.11)	

CI, confidence interval; HR, hazard ratio; NOAC*s*, non-vitamin K antagonist oral anticoagulants.

Figure S1. Cumulation Distribution of Propensity Score.



OAC users (Treated)
vs
AT non-users (Control)

AP users (Treated)
vs
AT non-users (Control)

NOAC users (Treated)
vs
Warfarin users (Control)