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Risk of Myocardial Infarction in Anticoagulated Patients With Atrial Fibrillation

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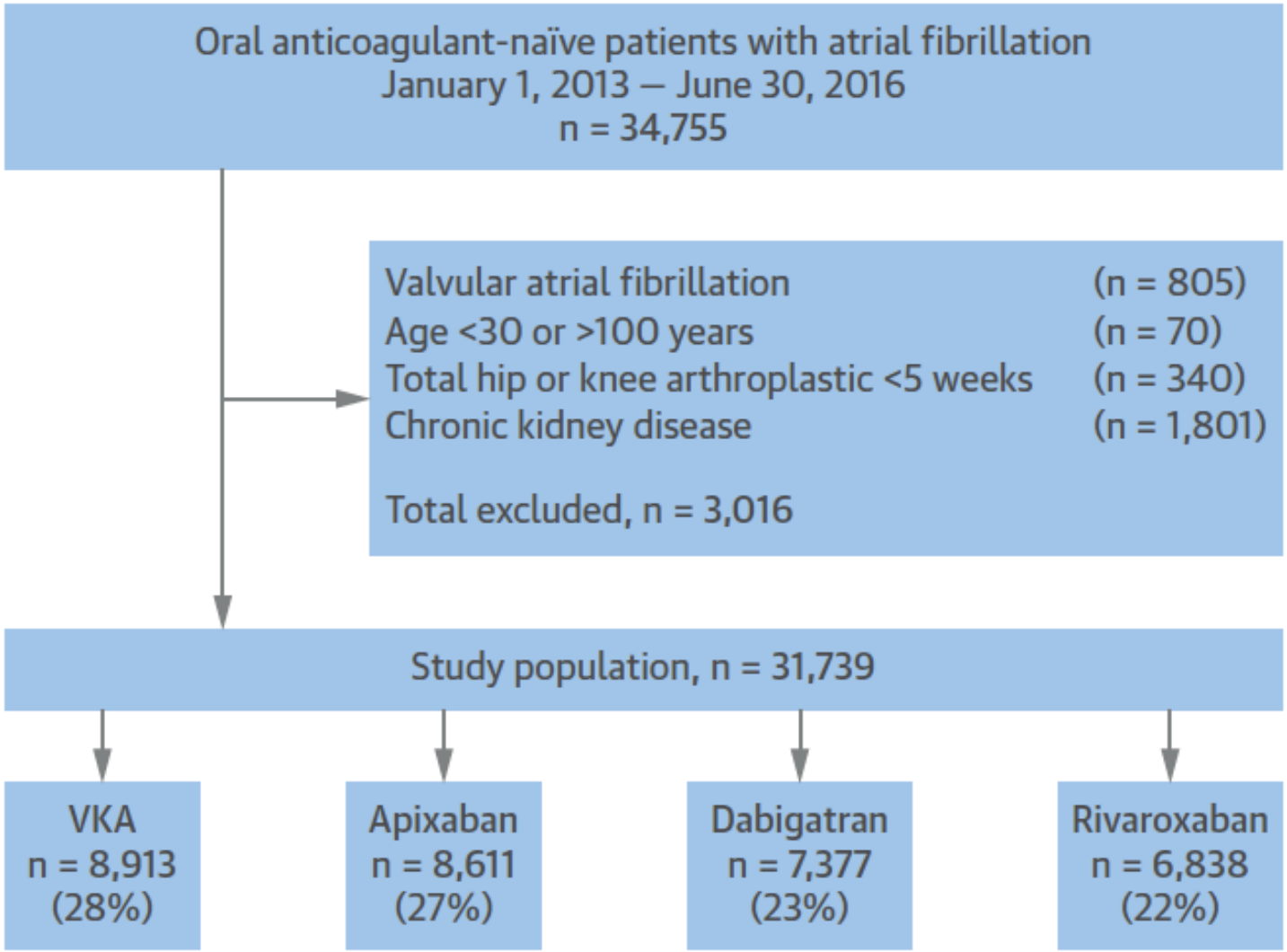
FIGURE 1 Selection of Study Cohort



VKA = vitamin K antagonists.

TABLE 1 Patient Characteristics by Oral Anticoagulant Treatment at Baseline

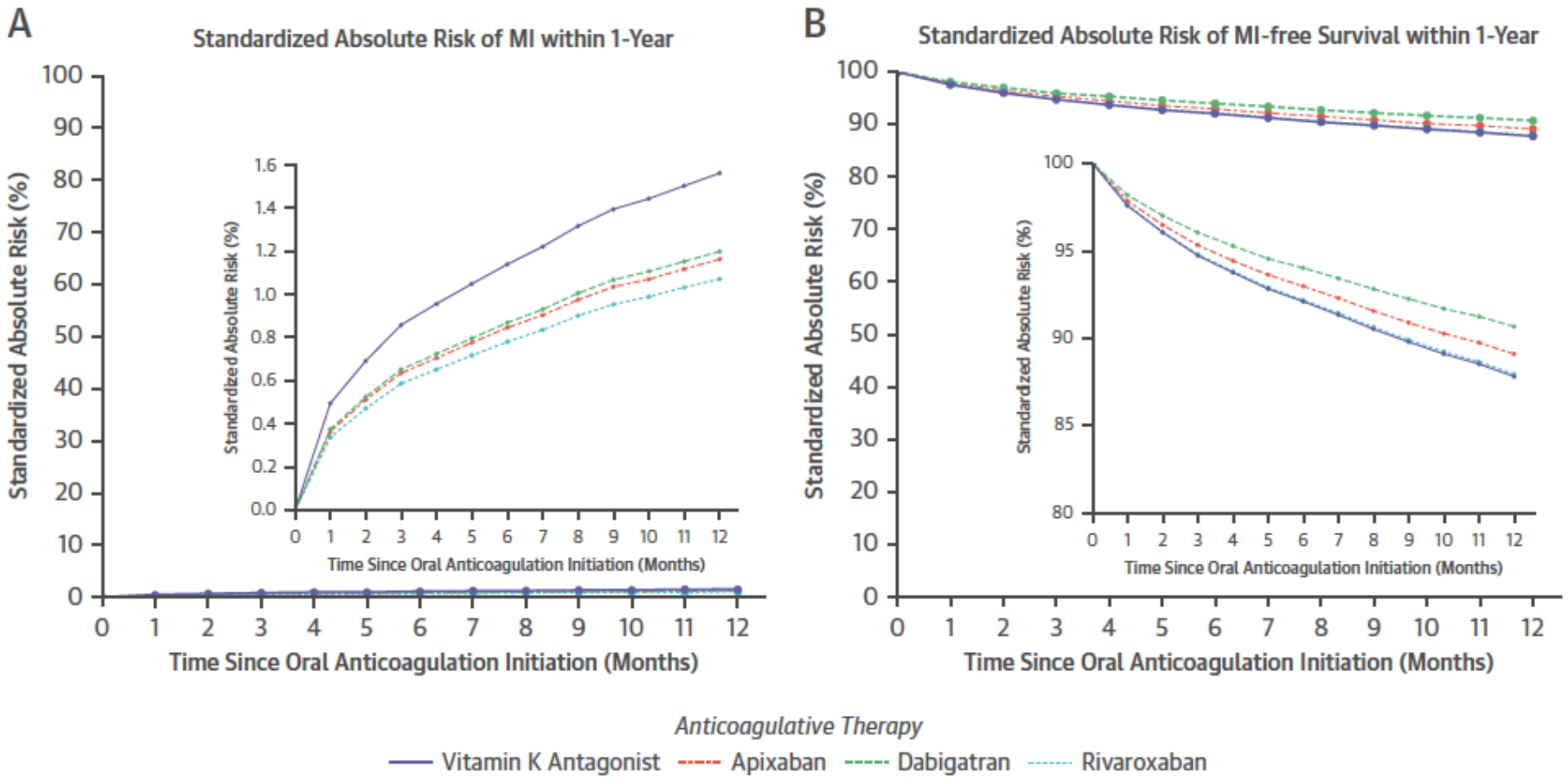
	VKA (n = 8,913)	Apixaban (n = 8,611)	Dabigatran (n = 7,377)	Rivaroxaban (n = 6,838)	p Value
Male	5,232 (58.7)	4,226 (49.1)	4,102 (55.6)	3,490 (51.0)	<0.001
Age, yrs	73 (66-81)	76 (68-84)	72 (65-80)	74 (67-83)	<0.001
Comorbidities					
Bleeding	1,031 (11.6)	1,118 (13.0)	765 (10.4)	746 (10.9)	<0.001
Stroke	1,151 (12.9)	1,753 (20.4)	1,051 (14.2)	1,141 (16.7)	<0.001
Heart failure	1,555 (17.4)	1,397 (16.2)	1,036 (14.0)	997 (14.6)	<0.001
Liver disease	140 (1.6)	123 (1.4)	78 (1.1)	74 (1.1)	0.007
Hypertension	5,359 (60.1)	5,413 (62.9)	4,336 (58.8)	4,234 (61.9)	<0.001
Diabetes	1,080 (12.1)	1,042 (12.1)	806 (10.9)	753 (11.0)	0.019
Malignancy	1,383 (15.5)	1,345 (15.6)	961 (13.0)	974 (14.2)	<0.001
Chronic obstructive pulmonary disease	1,002 (11.2)	1,055 (12.3)	723 (9.8)	788 (11.5)	<0.001
Myocardial infarction	928 (10.4)	635 (7.4)	523 (7.1)	407 (6.0)	<0.001
Ischemic heart disease	2,234 (25.1)	1,783 (20.7)	1,438 (19.5)	1,293 (18.9)	<0.001
PCI	310 (3.5)	80 (0.9)	91 (1.2)	57 (0.8)	<0.001

Concomitant medication					
Acetylsalicylic acid	3,410 (38.3)	2,962 (34.4)	2,537 (34.4)	2,414 (35.3)	<0.001
ADP receptor inhibitors	908 (10.2)	1,013 (11.8)	648 (8.8)	714 (10.4)	<0.001
Dual antiplatelet inhibition	420 (4.7)	285 (3.3)	228 (3.1)	213 (3.1)	<0.001
Diuretics	2,773 (31.1)	2,707 (31.4)	2,323 (31.5)	2,199 (32.2)	0.570
Beta-blockers	3,816 (42.8)	2,994 (34.8)	2,639 (35.8)	2,497 (36.5)	<0.001
Calcium-channel blockers	2,305 (25.9)	2,252 (26.2)	1,885 (25.6)	1,770 (25.9)	0.862
Digoxin	564 (6.3)	505 (5.9)	419 (5.7)	452 (6.6)	0.072
Renin angiotensin system inhibitors	3,695 (41.5)	3,640 (42.3)	3,041 (41.2)	2,771 (40.5)	0.175
Loop diuretics	1,760 (19.7)	1,511 (17.5)	1,052 (14.3)	1,151 (16.8)	<0.001
Statins	3,205 (36.0)	2,873 (33.4)	2,455 (33.3)	2,196 (32.1)	<0.001
Nonsteroidal anti-inflammatory drug	1,203 (13.5)	1,175 (13.6)	1,059 (14.4)	982 (14.4)	0.246
CHA_2DS_2-VASc score					
0	858 (9.6)	427 (5.0)	624 (8.5)	372 (5.4)	
1	966 (10.8)	733 (8.5)	911 (12.3)	728 (10.6)	
2	1,827 (20.5)	1,582 (18.4)	1,717 (23.3)	1,406 (20.6)	
3	5,262 (59.0)	5,869 (68.2)	4,125 (55.9)	4,332 (63.4)	

Values are n (%) or median (interquartile range).

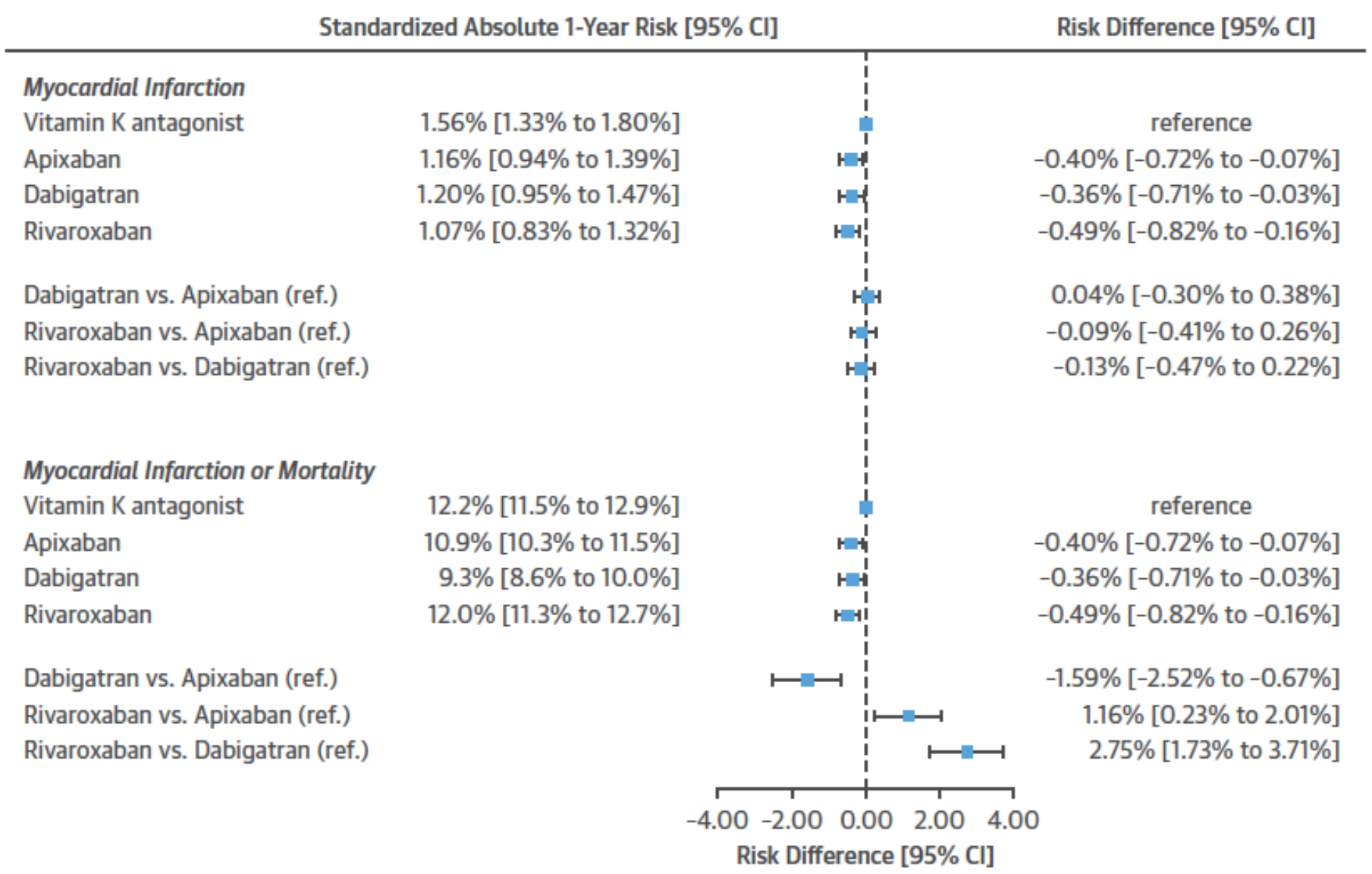
ADP = adenosine diphosphate receptor; CHA_2DS_2-VASc score = congestive heart failure, hypertension, age ≥75 years or 65 to 74 years, diabetes, previous stroke, vascular disease, sex category female; PCI = percutaneous coronary intervention; VKA = vitamin k antagonist.

FIGURE 2 Standardized Absolute Risk of MI and Standardized Absolute MI-Free Survival Probability Within 1 Year



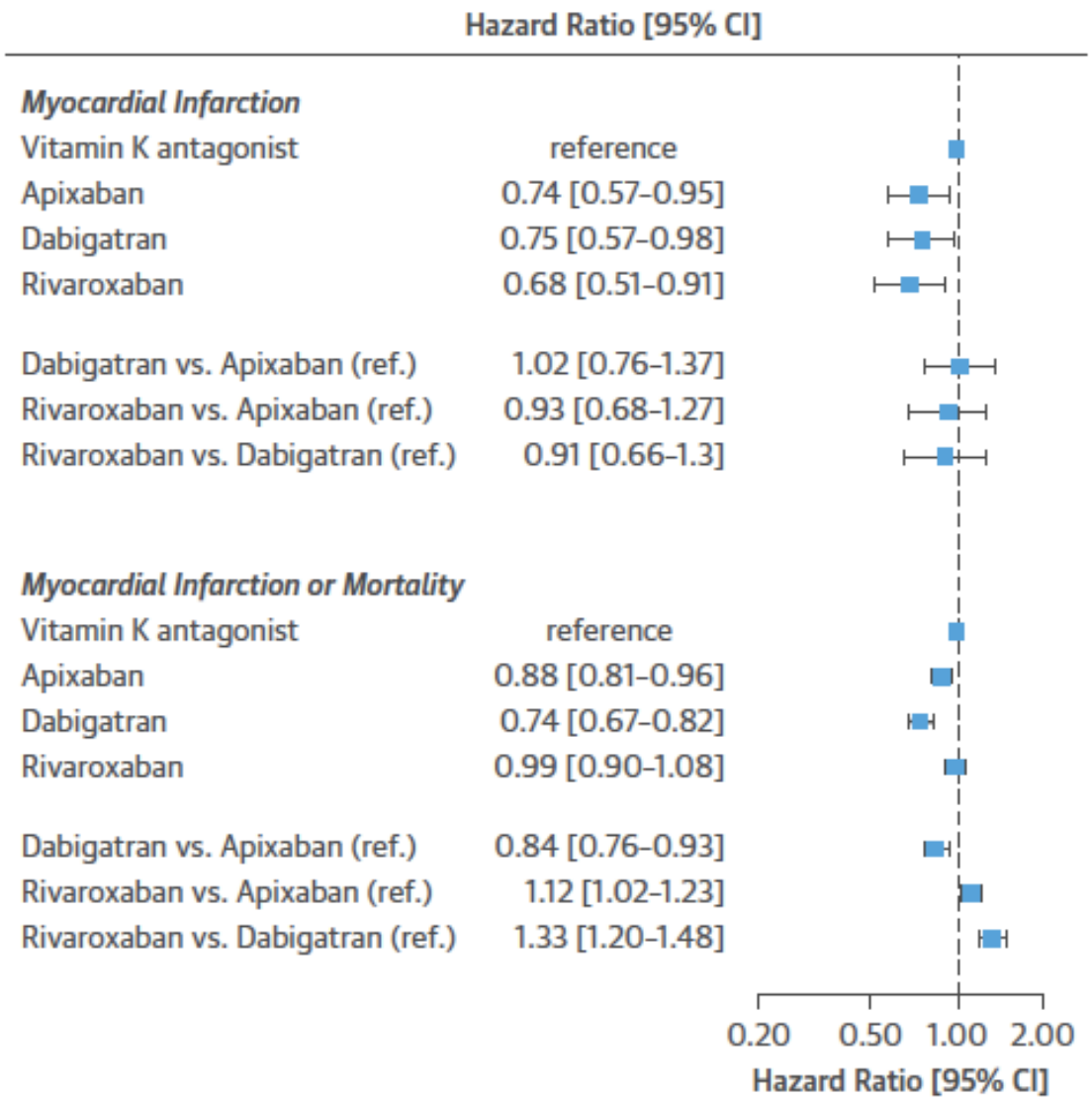
(A) Standardized absolute risk of MI within 1 year. **(B)** Standardized absolute risk of MI-free survival within 1 year. MI = myocardial infarction.

FIGURE 3 Standardized 1-Year Absolute Risk



CI = confidence interval.

FIGURE 4 Cox Regression for 1-Year Risk of Myocardial Infarction and the Combined Endpoint of Myocardial Infarction or All-Cause Mortality



CI = confidence interval.

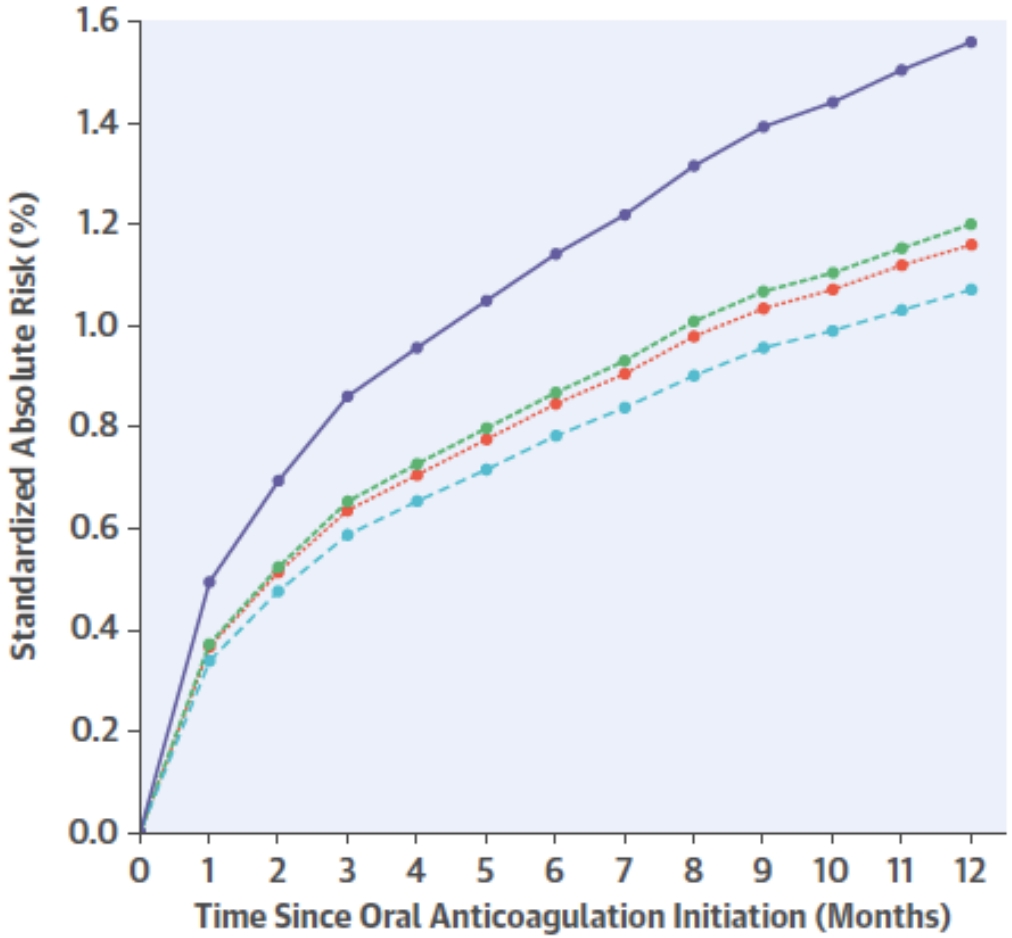
CENTRAL ILLUSTRATION Oral Anticoagulation Therapy and Risk of MI in Patients With Atrial Fibrillation

Standardized Absolute Risk of MI Within 1-Year

In patients with nonvalvular atrial fibrillation:

What is the risk of MI when treated with the following oral anticoagulants?

- Apixaban
- Dabigatran
- Rivaroxaban
- Vitamin K Antagonist



Lee, C.J.-Y. et al. J Am Coll Cardiol. 2018;72(1):17-26.

Patients with atrial fibrillation have a higher risk of myocardial infarction (MI), and the optimal prevention of MI with oral anticoagulative therapy is unknown. Our study finds no significant difference in the standardized absolute 1-year risk for MI in the direct comparison of the direct oral anticoagulants. Furthermore, all the direct oral anticoagulants were associated with a significantly lower standardized absolute risk of MI than vitamin K antagonists.

PERSPECTIVES

COMPETENCY IN MEDICAL KNOWLEDGE: In a large nationwide cohort of patients with AF, there were no significant differences in the risk of MI related to treatment with one DOAC compared with another, and the risk of MI was lower with DOACs than with VKA therapy.

TRANSLATIONAL OUTLOOK: Direct comparative studies of the DOACs with and without concurrent antiplatelet therapy are needed to determine optimum antithrombotic therapy for patients with AF who are at elevated risk of MI.