

# *The* American Journal of Cardiology

## *Efficacy of Direct Acting Oral Anticoagulant Drugs in Treatment of Left Atrial Appendage Thrombus in Patients With Atrial Fibrillation*

*Adam Fleddermann, MD, Ryan Eckert, MD, Preetham Muskala, MD, Charles Hayes, PharmD, Anthony Magalski, MD, Michael L. Main, MD*

*American Journal of Cardiology*  
Volume 123, Issue 1, Pages 57-62 (January 2019)  
DOI: 10.1016/j.amjcard.2018.09.026



Copyright © 2018 [Terms and Conditions](#)

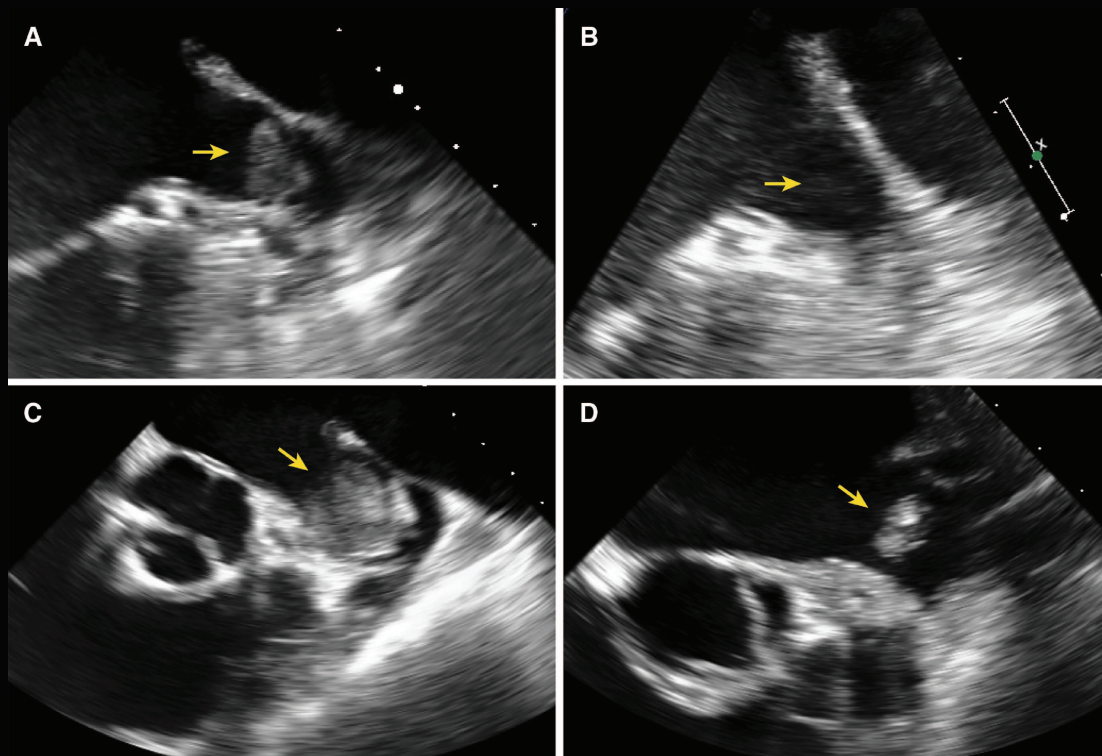


Figure 1. (A) Transesophageal echocardiographic view of the left atrial appendage in a 72-year-old man with a CHA<sub>2</sub>D<sub>2</sub>-VASc score = 3. Note the large (1.0 cm<sup>2</sup> maximum area) left atrial appendage thrombus (yellow arrow). Following the TEE, treatment was initiated with rivaroxaban. (B) Transesophageal echocardiographic view of the left atrial appendage (same patient as panel 1A). This study was performed 483 days following identification of the left atrial appendage thrombus, and initiation of rivaroxaban. Note that the thrombus has completely resolved (yellow arrow). (C) Transesophageal echocardiographic view of the left atrial appendage in a 68-year-old man with a CHA<sub>2</sub>D<sub>2</sub>-VASc score = 5. Note the very large (2.4 cm<sup>2</sup> maximum area) left atrial appendage thrombus. Following the TEE, treatment was initiated with dabigatran. At last clinical follow-up (299 days following the TEE), the patient had not experienced significant bleeding, a stroke, or systemic embolization. (D) Transesophageal echocardiographic view of the left atrial appendage in an 81-year-old woman with a CHA<sub>2</sub>D<sub>2</sub>-VASc score = 4. Note the left atrial appendage thrombus (0.7 cm<sup>2</sup> maximum area) (yellow arrow). Following the TEE, treatment was initiated with rivaroxaban. A repeat TEE was not performed. The patient did not experience significant bleeding complications but suffered an ischemic stroke 484 days following the TEE. (Color version of figure is available online.)

## Baseline demographics

Age (years)	Gender	BMI	CHA <sub>2</sub> DS <sub>2</sub> - Vasc	HAS-BLED score	Smoker	Antiplatelet drugs	Moderate-severe valvular disease	LVEF on baseline TEE (%)	DOAC	DOAC total daily dose (mg)
47	Male	35	1	1	No	Aspirin/Plavix	No	20	Dabigatran	300
49	Female	33	2	0	No	No	No	40	Apixaban	10
54	Male	34	2	1	No	Aspirin	No	20	Dabigatran	300
55	Female	23	7	2	Yes	Aspirin	No	55	Apixaban	10
55	Male	37	2	2	Yes	No	No	20	Apixaban	10
55	Male	26	4	1	No	No	No	65	Apixaban	10
57	Male	45	2	1	No	Aspirin	No	45	Dabigatran	300
57	Male	39	1	0	No	No	No	60	Apixaban	10
58	Male	31	1	1	Yes	Aspirin/Plavix	No	20	Apixaban	10
59	Male	32	2	1	Yes	Aspirin	No	40	Rivaroxaban	20
60	Male	40	3	2	No	No	No	30	Dabigatran	300
60	Female	35	0	0	Yes	No	No	20	Dabigatran	300
61	Male	26	2	0	Yes	No	No	20	Apixaban	10
62	Male	22	3	1	Yes	Aspirin	No	30	Rivaroxaban	20
64	Male	38	2	1	No	Aspirin	MR	20	Apixaban	10
64	Male	42	1	1	No	Aspirin	No	60	Dabigatran	300
65	Male	24	2	2	Yes	Aspirin	No	60	Rivaroxaban	20
66	Male	21	3	1	Yes	No	No	45	Apixaban	10
68	Male	34	5	2	Yes	Aspirin	AS	25	Dabigatran	300
69	Female	29	4	2	No	Aspirin	No	50	Apixaban	10
70	Male	30	4	2	Yes	Aspirin	No	15	Dabigatran	300
71	Female	25	3	1	Yes	No	MR	55	Apixaban	10
72	Male	26	3	1	No	No	No	60	Rivaroxaban	20
73	Female	29	4	1	No	Aspirin/Plavix	No	65	Dabigatran	300
75	Male	30	4	2	No	Aspirin	No	21	Dabigatran	300
76	Female	32	4	1	No	No	AI/AS	60	Apixaban	10
78	Male	30	8	3	Yes	Plavix	AS	55	Apixaban	10
81	Female	24	4	1	Yes	No	No	60	Rivaroxaban	15
81	Female	33	5	2	No	Aspirin	MR	50	Apixaban	10
85	Male	29	5	2	Yes	Aspirin	No	15	Apixaban	10
86	Male	19	3	2	Yes	Aspirin	No	20	Apixaban	10
90	Male	22	6	3	Yes	Aspirin	No	60	Apixaban	5
94	Female	29	4	1	No	No	MR	65	Apixaban	5



**Table 2**  
Outcomes in patients with follow-up TEE

Age (years)	DOAC	Thrombus size (cm <sup>2</sup> )	Resolution of thrombus	Thrombus duration (days)	Major bleed	Embolic event	Duration of follow-up (days)	Endpoint
54	Dabigatran	0.7	Yes	33	No	No	33	Thrombus Resolution
55	Apixaban	0.5	Yes	38	No	No	38	Thrombus Resolution
55	Apixaban	2.4	Yes	66	No	No	66	Thrombus Resolution
57	Apixaban	0.2	Yes	44	No	No	44	Thrombus Resolution
58	Apixaban	0.8	Yes	81	No	No	81	Thrombus Resolution
59	Rivaroxaban	N/A	Yes	65	No	No	65	Thrombus Resolution
64	Apixaban	1.2	Yes	52	No	No	52	Thrombus Resolution
64	Dabigatran	0.7	Yes	57	No	No	57	Thrombus Resolution
65	Rivaroxaban	0.5	No	Unresolved	No	No	2000	Last clinical follow-up
69	Apixaban	0.3	Yes	46	No	No	46	Thrombus Resolution
70	Dabigatran	N/A	Yes	55	No	No	55	Thrombus Resolution
72	Rivaroxaban	1	Yes	483	No	No	483	Thrombus Resolution
73	Dabigatran	0.5	Yes	86	No	No	86	Thrombus Resolution
76	Apixaban	0.8	Yes	302	No	No	302	Thrombus Resolution
81	Apixaban	0.5	Yes	99	No	No	99	Thrombus Resolution
85	Apixaban	3.5	Yes	171	No	No	171	Thrombus Resolution



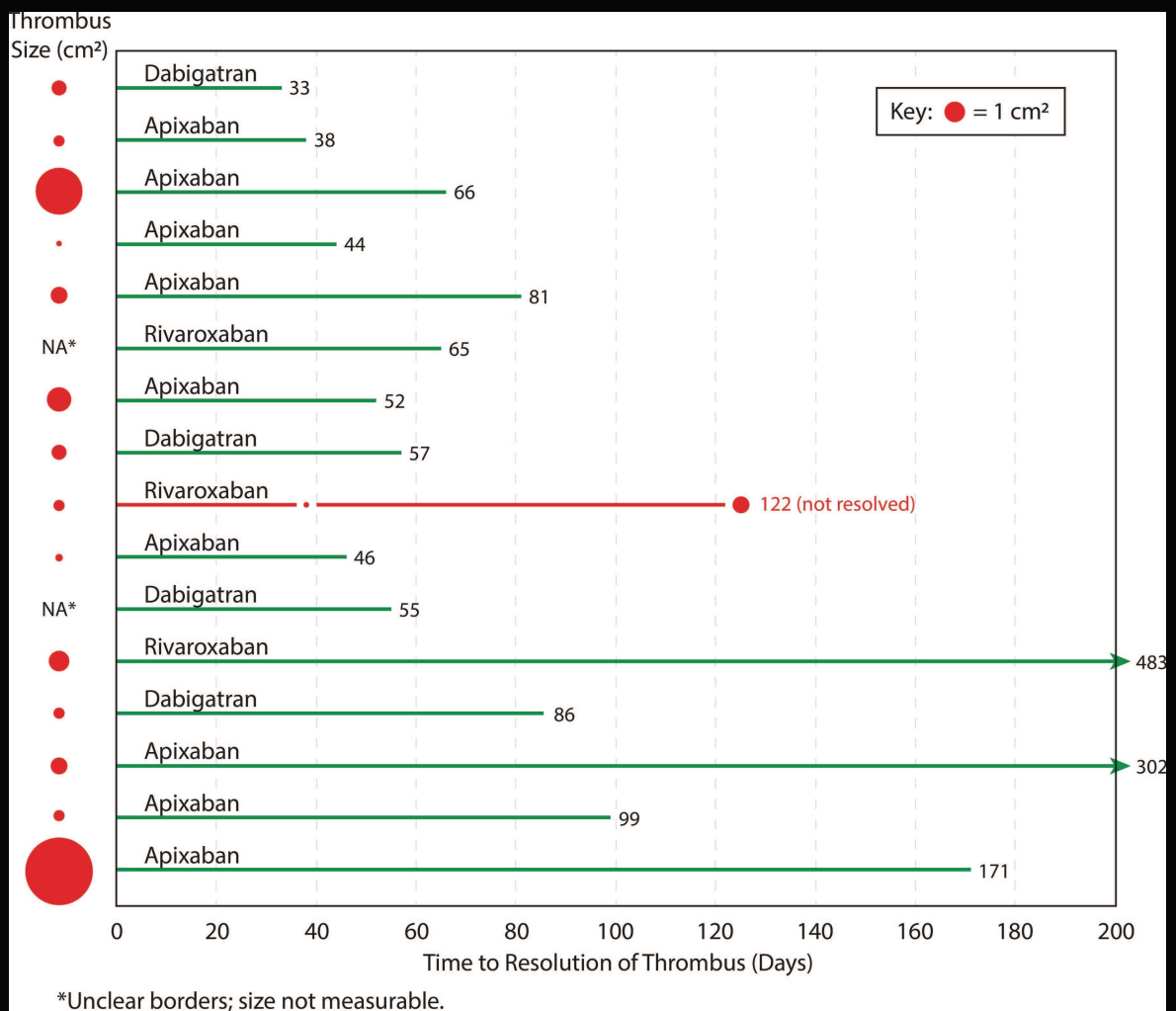


Figure 2. Outcomes in the patients with a follow-up TEE. Patients order corresponds to Table 2.





**Table 3**  
Outcomes in patients without follow-up TEE

Age (years)	DOAC	Thrombus size (cm <sup>2</sup> )	Major bleed	Embolic event	Duration of follow-up (days)	Endpoint	Cause of death
47	Dabigatran	0.8	No	No	1299	Last clinical f/u	
49	Apixaban	2.4	RP bleed	No	29	Death	RP bleed
55	Apixaban	1.7	GI bleed	No	422	GI bleed	
57	Dabigatran	2	No	No	103	Death	Unknown
60	Dabigatran	1.3	No	No	173	Last clinical f/u	
60	Dabigatran	1.4	No	No	134	Last clinical f/u	
61	Apixaban	1.7	No	No	756	Last clinical f/u	
62	Rivaroxaban	0.9	No	No	442	Last clinical f/u	
66	Apixaban	2.7	No	No	834	Last clinical f/u	
68	Dabigatran	2.4	No	No	299	Last clinical f/u	
71	Apixaban	0.6	GI bleed	No	204	GI bleed	
75	Dabigatran	0.4	No	No	152	Last clinical f/u	
78	Apixaban	6	No	Ischemic stroke	718	Last clinical f/u	
81	Rivaroxaban	0.7	No	Ischemic stroke	484	Stroke	
86	Apixaban	1.3	No	MI	270	Last clinical f/u	
90	Apixaban	2.1	No	No	71	Last clinical f/u	
94	Apixaban	2.3	No	No	259	Last clinical f/u	

GI = gastrointestinal; MI = myocardial infarction; RP = retroperitoneal.



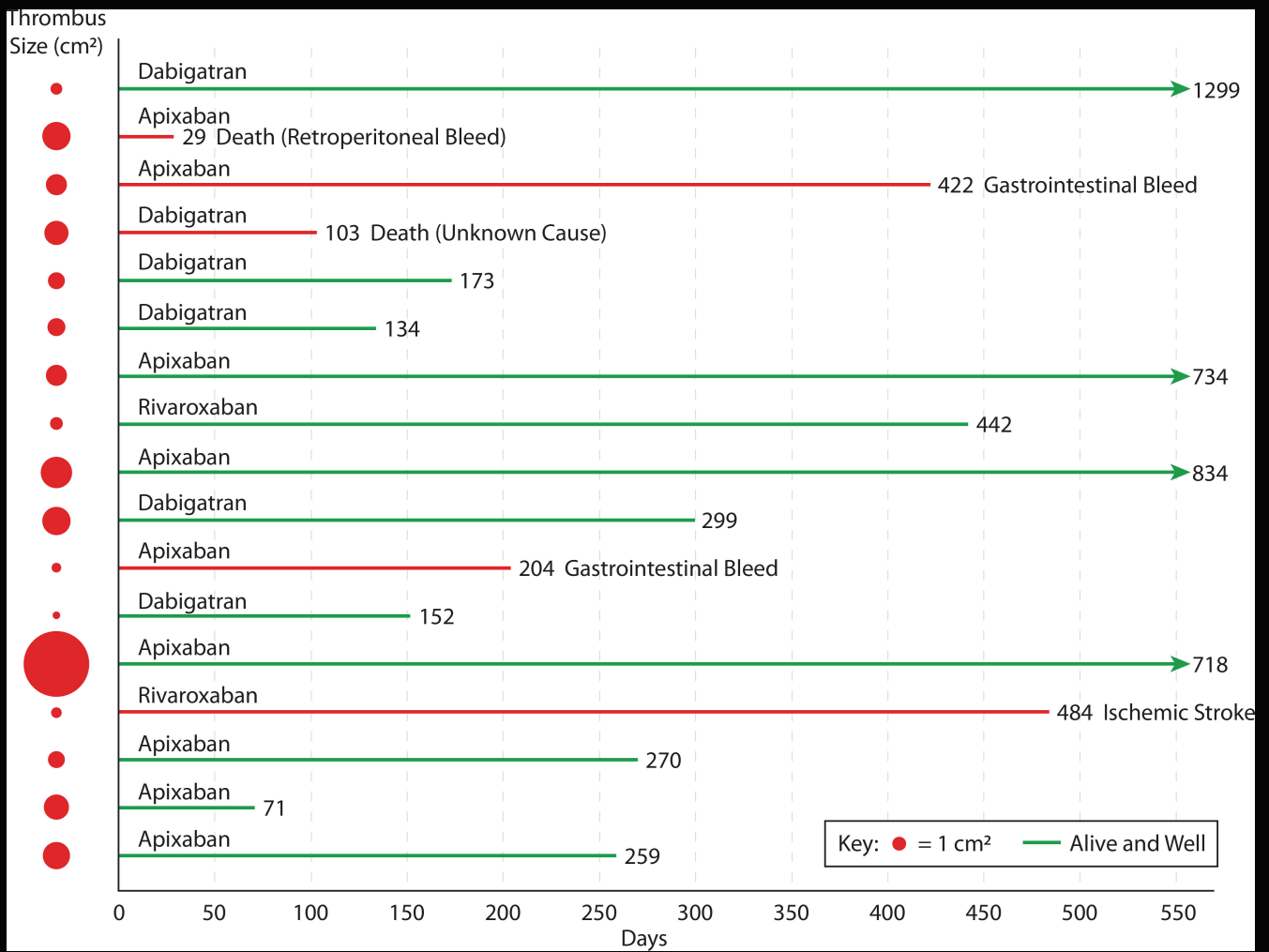


Figure 3. Outcomes in patients without a follow-up TEE. Patients order corresponds to Table 3.

