Subclinical AF

How to manage?

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Thai Atherosclerosis Society annual meeting 26 January 2024

Scope

- What is subclinical AF?
- How important?
- How to manage?

Subclinical AF

‘AF identified by

- *Implanted devices (pacemakers, defibrillators, or implantable loop recorders) or*
- *Wearable monitors*

in individuals who do not have symptoms attributable to AF and in whom there are no previous ECGs documenting AF’

2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation

Atrial high-rate episodes (AHRE)

Atrial events exceeding the programmed detection rate limit set by the device.

*These are recorded by implanted devices but **require visual inspection to confirm AF** and exclude other atrial arrhythmias, artifact or oversensing.*

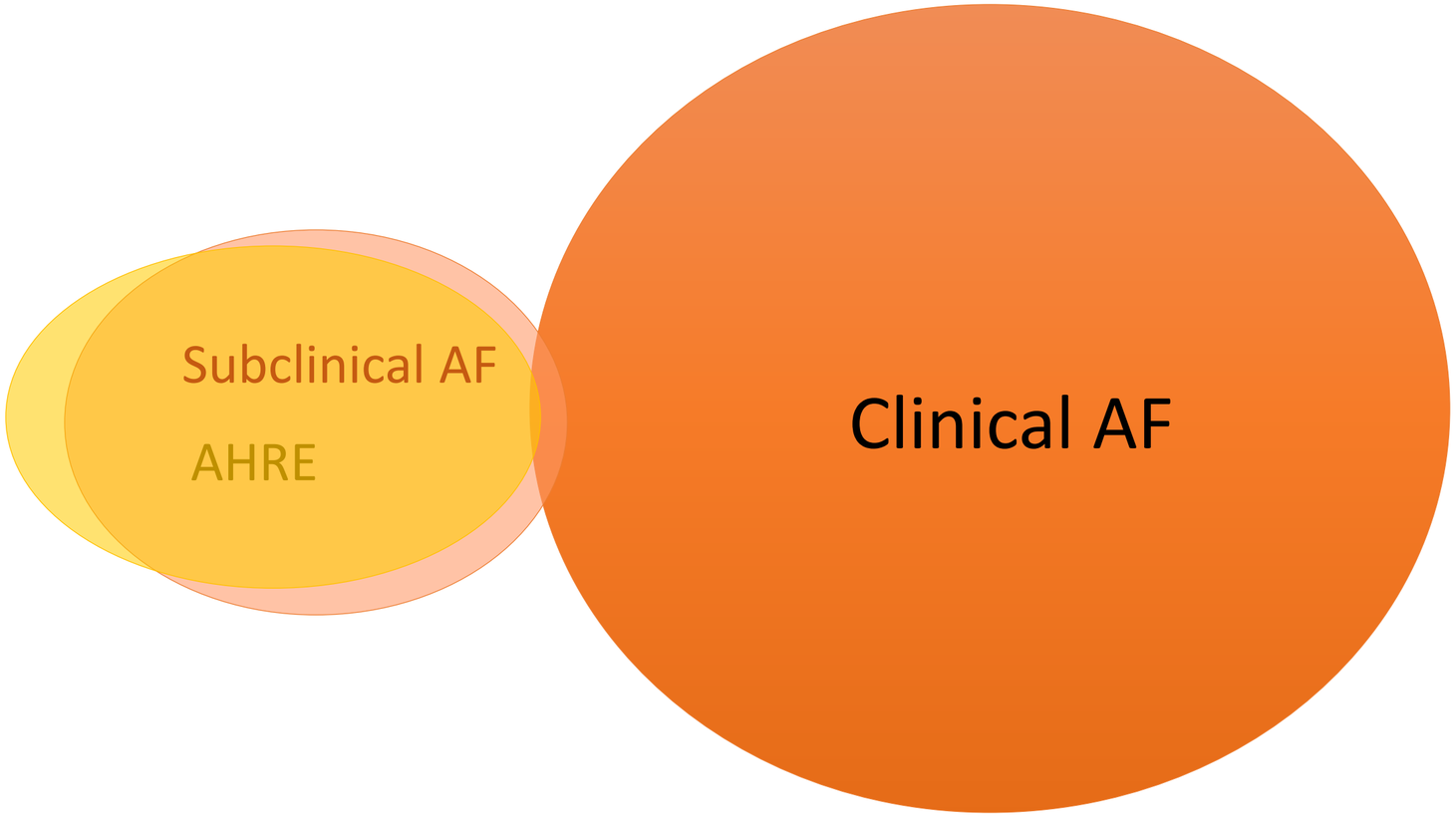
2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation

Clinical AF

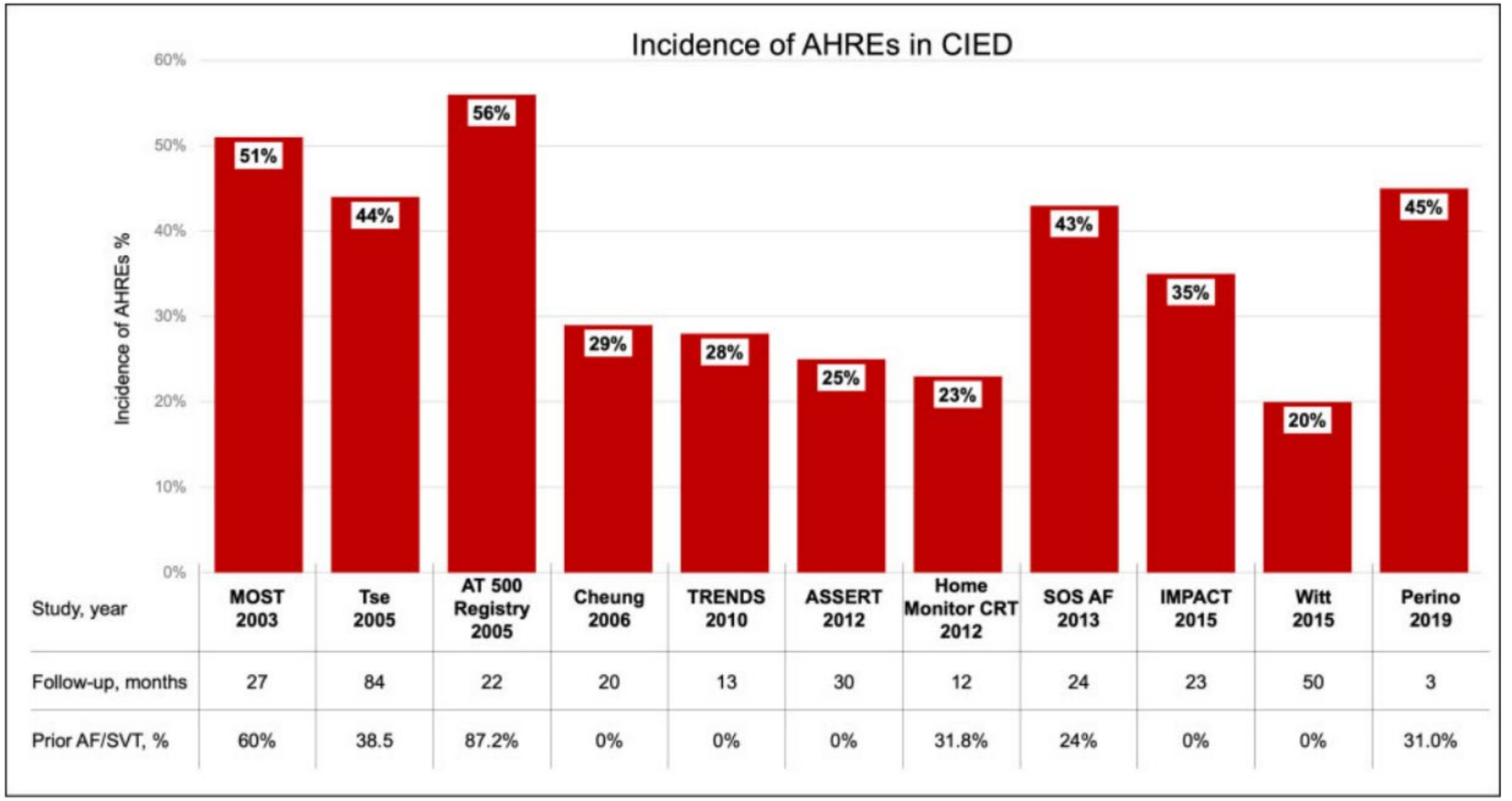
*Symptomatic or asymptomatic AF that is **documented by surface ECG**.*

The minimum duration of an ECG tracing of AF required to establish the diagnosis of clinical AF is at least 30 seconds, or entire 12-lead ECG

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation


Subclinical AF
AHRE
Clinical AF

Incidence of AHREs in CIED



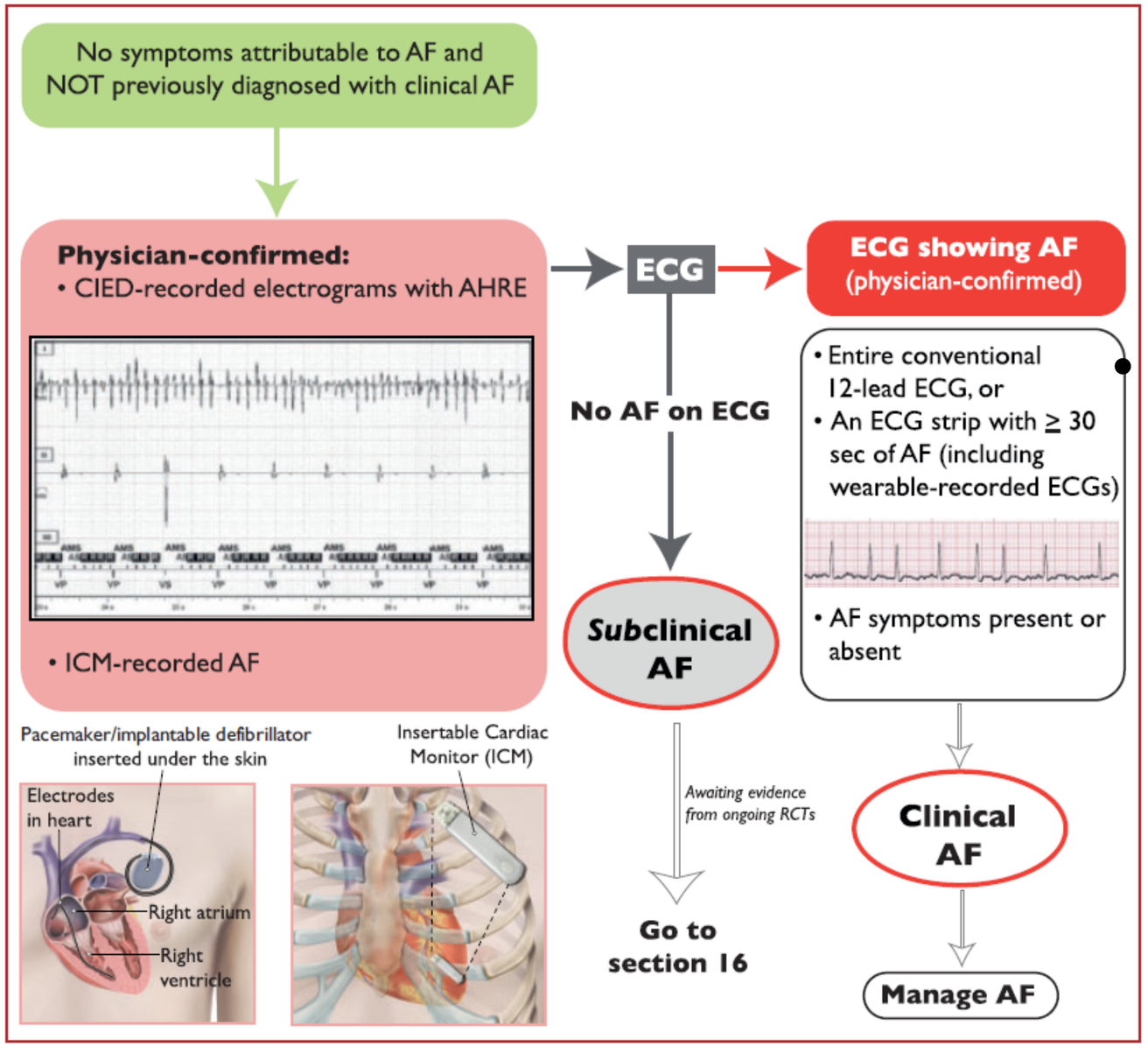
Study, year	MOST 2003	Tse 2005	AT 500 Registry 2005	Cheung 2006	TRENDS 2010	ASSERT 2012	Home Monitor CRT 2012	SOS AF 2013	IMPACT 2015	Witt 2015	Perino 2019
Follow-up, months	27	84	22	20	13	30	12	24	23	50	3
Prior AF/SVT, %	60%	38.5	87.2%	0%	0%	0%	31.8%	24%	0%	0%	31.0%

- The incidence of AHRE/subclinical AF in patients with a pacemaker/ implanted device is 20-70%, but it may be lower in the general population

G. Boriani, et al. European Heart Journal Supplements (2020) 22 (Supplement O), O42–O52

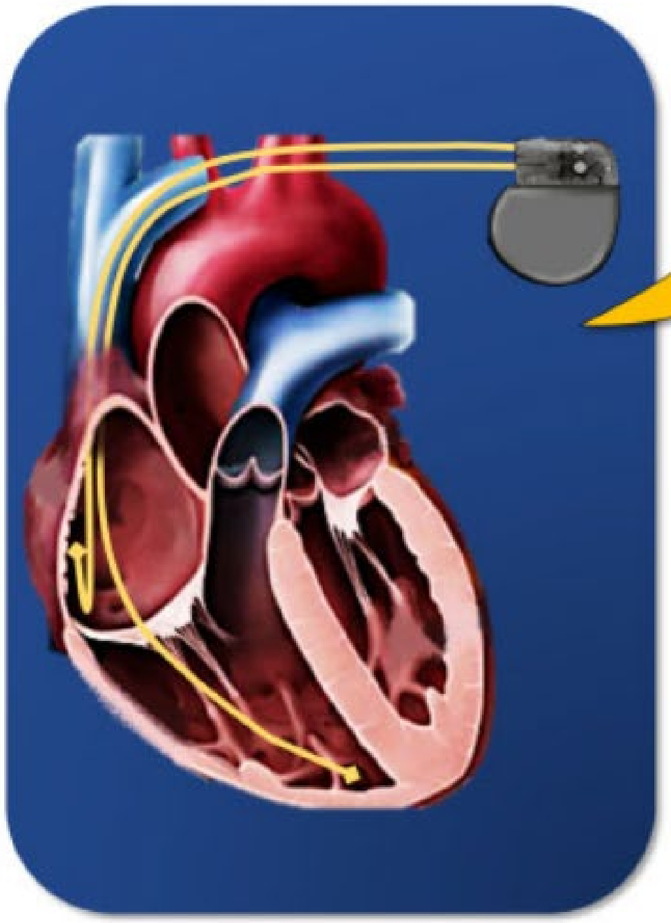
Diagnosis of subclinical AF

When AHRE is detected by a device/wearable Inspection of the stored electrograms/ECG rhythm strips is recommended to exclude artefacts or other causes of inappropriate detection.

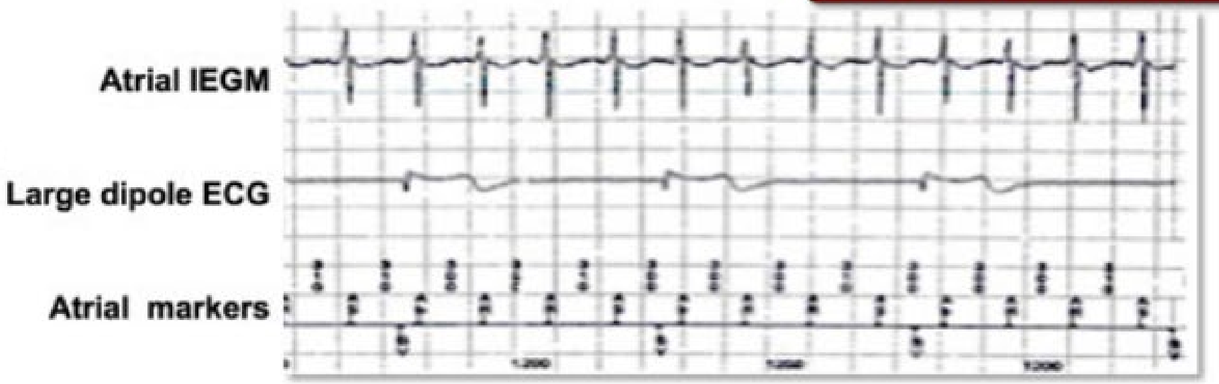


2020 ESC Guidelines for the diagnosis and management of atrial fibrillation

AHRE



DEVICE SNAPSHOTS



DEVICE DIAGNOSTICS

Tipo	ATP Seq	shock	Succ.	ID#	Data	Ora hh:mm	Durata hh:mm:ss	Media min-1 A/V
AT/AF				75	30-Giu-2018	00:15	:05:35	194/51
AT/AF				71	17-Giu-2018	23:06	:34:41	192/51
AT/AF				69	01-Giu-2018	03:55	:35:09	198/51

Event	Date/Time	Type	Summary	Duration hh:mm:ss
RVAT-110	21 Jan 2024 23:52	RV Auto		------
RAAT-110	21 Jan 2024 23:50	RA Auto		------
ATR-231	12 Jan 2024 20:56	ATR	Avg V Rate in ATR: 78 min⁻¹	00:00:06
ATR-230	05 Jan 2024 20:30	ATR	Avg V Rate in ATR: 82 min⁻¹	00:00:03
ATR-229	05 Jan 2024 03:37	ATR	Avg V Rate in ATR: 82 min⁻¹	00:00:38
ATR-228	05 Jan 2024 03:32	ATR	Avg V Rate in ATR: 73 min⁻¹	00:01:03
ATR-227	05 Jan 2024 03:22	ATR	Avg V Rate in ATR: 89 min⁻¹	00:00:32
ATR-226	03 Jan 2024 04:53	ATR	Avg V Rate in ATR: 118 min⁻¹	00:00:57
ATR-225	03 Jan 2024 04:52	ATR	Avg V Rate in ATR: 129 min⁻¹	00:01:06
ATR-224	03 Jan 2024 03:39	ATR	Avg V Rate in ATR: 108 min⁻¹	00:00:57
ATR-223	03 Jan 2024 03:30	ATR	Avg V Rate in ATR: 93 min⁻¹	00:01:15
ATR-222	03 Jan 2024 03:06	ATR	Avg V Rate in ATR: 95 min⁻¹	00:09:33
V-3	25 Nov 2023 21:22	NonSustV	Avg V Rate at Onset: 163 min⁻¹	00:00:12
V-2	25 Nov 2023 21:05	NonSustV	Avg V Rate at Onset: 170 min⁻¹	00:00:13
V-1	20 Oct 2023 11:18	NonSustV	Avg V Rate at Onset: 203 min⁻¹	00:00:17

Device: **Evera MRI S DR DDMC3D4** SW033 Software Versio
Serial Number: **PHZ647390S** Copyright © Medtronic,

Arrhythmia Episode List

Arrhythmia Episode List: 02-Oct-2023 13:05:53 to 22-Jan-2024 13:34:44
All collected episodes.

Type	ATP Seq	Shocks	Success	ID#	Date	Time hh:mm	Duration hh:mm:ss	Avg bpm A/V
AT/AF				432	22-Jan-2024	08:43	:01:11	188/99
AT/AF				431	21-Jan-2024	16:58	:43:42	211/108
AT/AF				430	20-Jan-2024	06:37	:29:01	227/106
AT/AF				429	30-Oct-2023	06:12	:01:32	192/98
AT/AF				428	28-Oct-2023	08:06	:11:39	214/98
AT/AF				427	26-Oct-2023	08:01	:50	185/97
AT/AF				426	26-Oct-2023	07:54	:02:57	187/101
AT/AF				425	26-Oct-2023	07:53	:36	168/107
AT/AF				424	26-Oct-2023	07:47	:03:54	183/95

---------- Last Programmer Session 02-Oct-2023 ----------
(Data prior to last session has not been interrogated.)

Episodes Summary

Page 1 of 1

Episodes/SEGMs Last Cleared 5 Sep 2023 1:06 pm Last Read 22 Jan 2024 2:28 pm

Triggers

	Counts	EGMs
AMS Entry	4	4
High Ventricular Rate (5 cycles @ 175 bpm)	0	0
PMT	0	0
Noise Reversion	4	4
Magnet Response	0	0

Device Reversions

	Counts	Last Recorded
A. Noise Reversion	0	
V. Noise Reversion	4	23 Sep 2023

Episodes

Date / Time	Type	Peak A / V Rate (bpm)	Duration (D:H:M:S)	Alerts
22 Nov 2023 8:48 am	AMS Entry	199 / 60	0:00:00:16	
24 Sep 2023 1:51 am	AMS Entry	640 / 73	0:06:48:34	
24 Sep 2023 1:13 am	AMS Entry	512 / 62	0:00:37:10	
23 Sep 2023 8:34 am	Noise Reversion			A
17 Sep 2023 7:12 am	Noise Reversion			A
10 Sep 2023 5:32 pm	AMS Entry	640 / 95	0:14:47:26	
8 Sep 2023 12:57 pm	Noise Reversion			A
7 Sep 2023 11:03 pm	Noise Reversion			A

Device-programmed rate criterion for AHRE is ≥175-190 bpm
ATR=Atrial Tachy Response
AMS=Automatic mode switch

Our task

- Is it real AF from EGM recorded?
- How long is the longest episode?

AMS=Automatic mode switch

Abbott/St.Jude

Episodes Summary

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	Counts	EGMs
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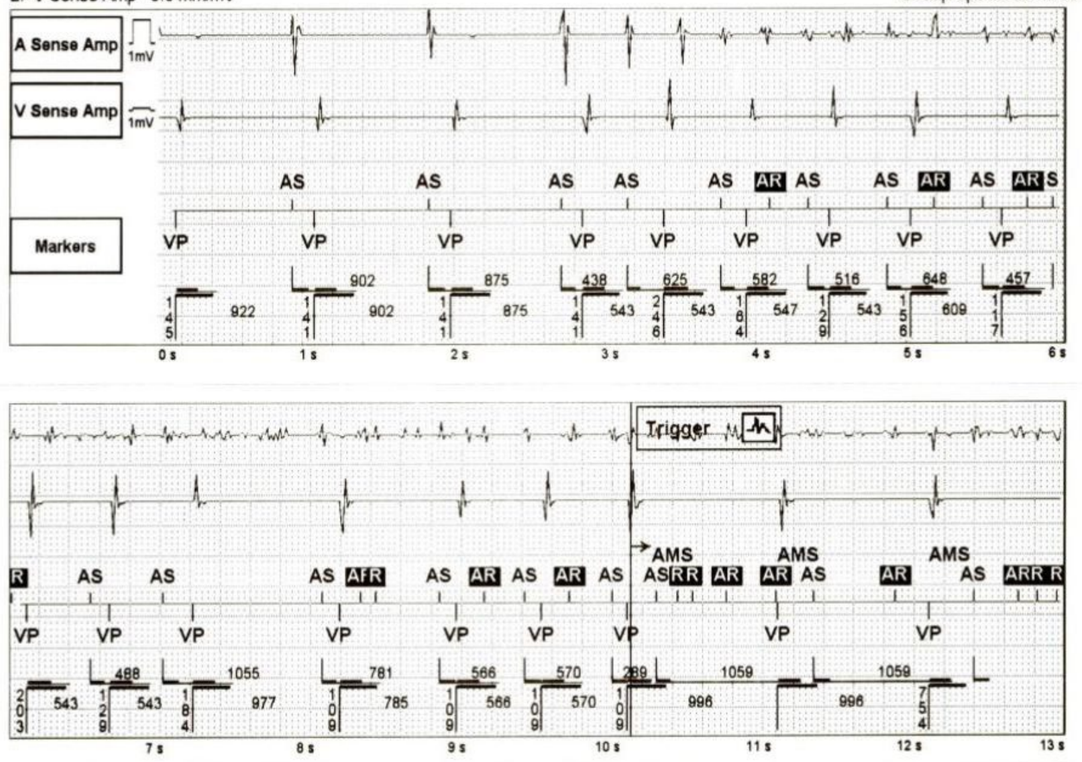
7 Sep 2023 11:03 pm	Noise Reversion			A

Longest episode

10 Sep 2023 5:32 pm

Duration	14:47:26 (H:M:S)
Peak A Rate	640 bpm
Peak V Rate	95 bpm
Mode	DDD
Auto Mode Switch	DDI
Trigger	180 bpm

1: A Sense Amp 4.0 mm/mV 3: Markers
2: V Sense Amp 0.5 mm/mV Sweep Speed: 25 mm/s



ATR=Atrial Tachy Response
Boston

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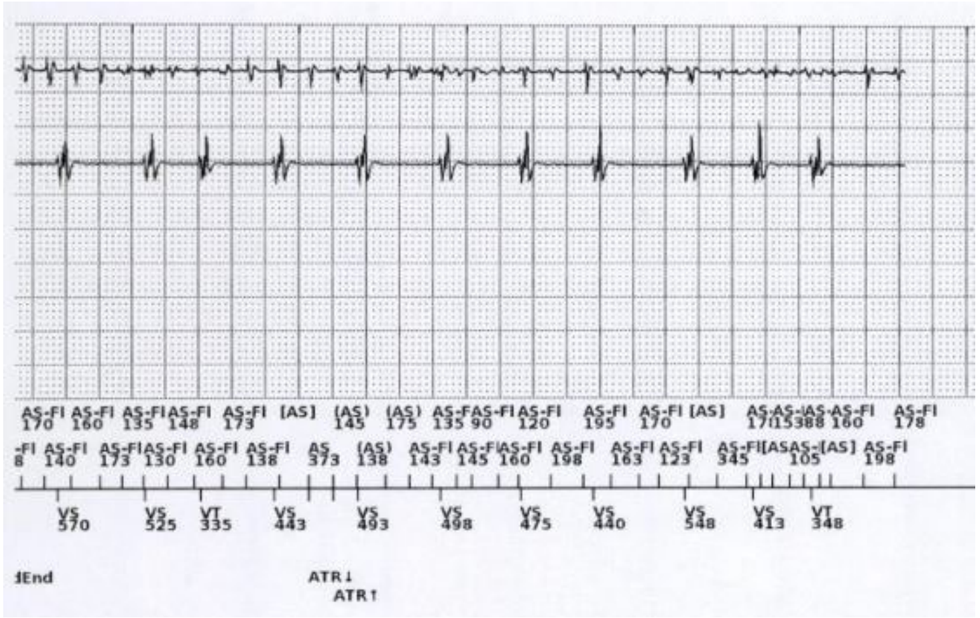
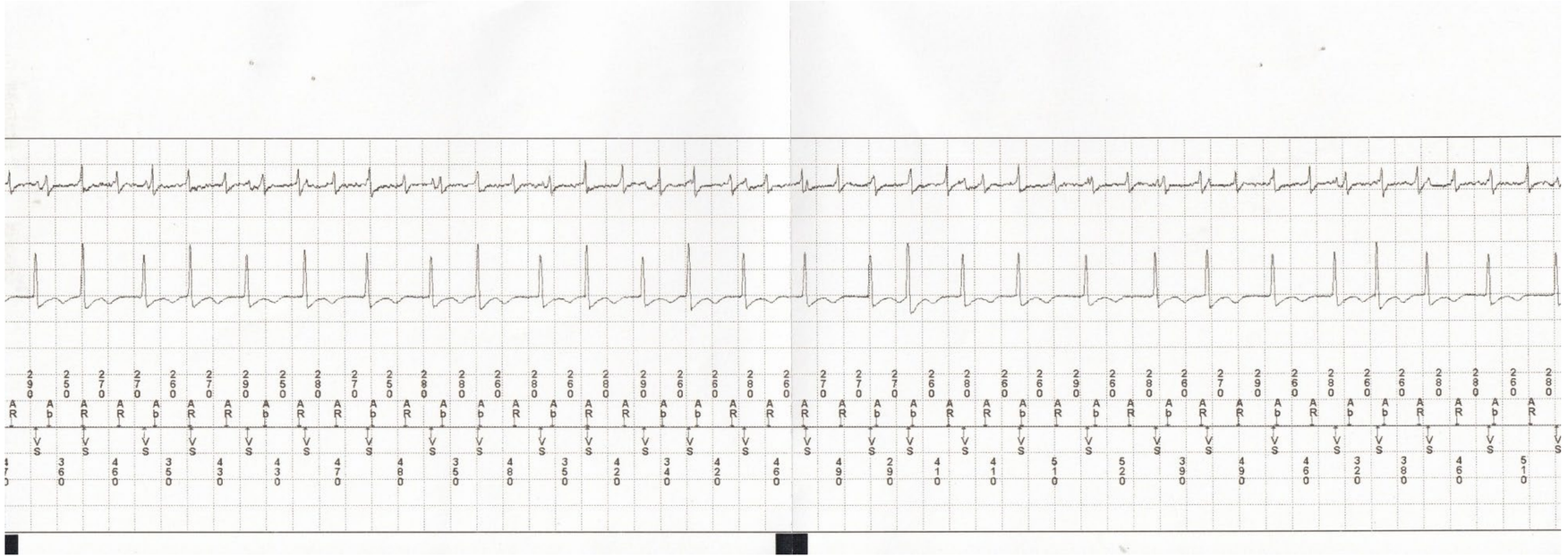
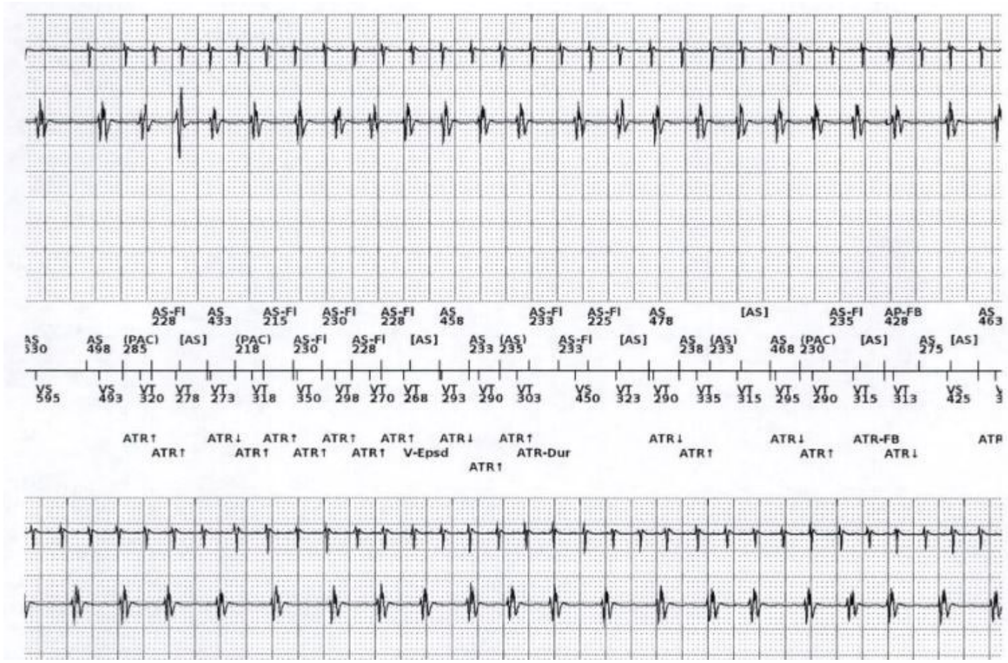


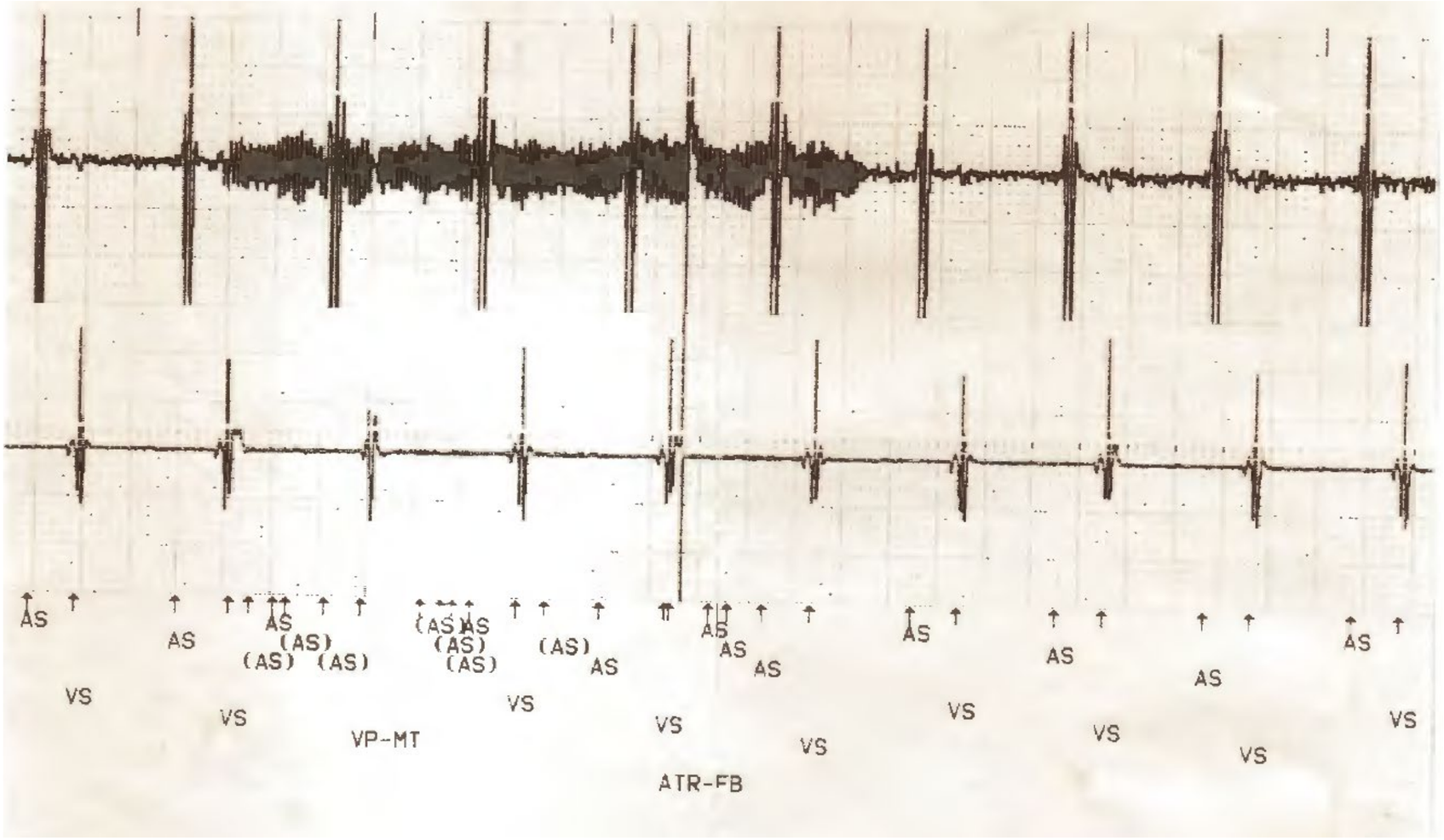
Brady Counters	Reset Before Last 10 day(s) 20 Oct 2023 to 30 Oct 2023	Since Last Reset 84 day(s) 30 Oct 2023 to Today
Counters		
% A Paced	30	7
% V Paced	2	1
Intrinsic Promotion		
AV Search +		
% Successful	0	0
Rate Hysteresis		
% Successful	0	0
Atrial Arrhythmia		
% AT/AF	<1	<1
Total Time in AT/AF (hr)	1.8	11.7
Episodes by Duration		
< 1 minute	24	108
1 min - < 1 hr	23	71
1 hr - < 24 hr	0	1
24 hr - < 48 hr	0	0
> 48 hr	0	0
Total PACs	20.9K	131.4K
Ventricular Counters		
Total PVCs	75.3K	210.8K
Three or More PVCs	1.8K	4.3K

Real AF?





Real AF?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ATR-FB
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VS

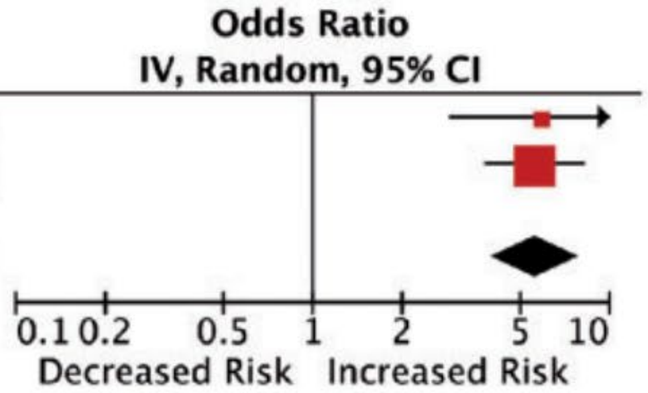
How important is it?

Association between subclinical and clinical AF

Risk of Clinical AF
5.66 X

Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
Ancillary MOST	1.78	0.3685	22.5%	5.93 [2.88, 12.21]
ASSERT	1.7192	0.1987	77.5%	5.58 [3.78, 8.24]
Total (95% CI)			**100.0%**	**5.66 [4.02, 7.97]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.02$, df = 1 (P = 0.88); $I^2 = 0\%$
Test for overall effect: Z = 9.91 (P < 0.00001)



R. Mahajan, et al. European Heart Journal (2018) 39, 1407-1415

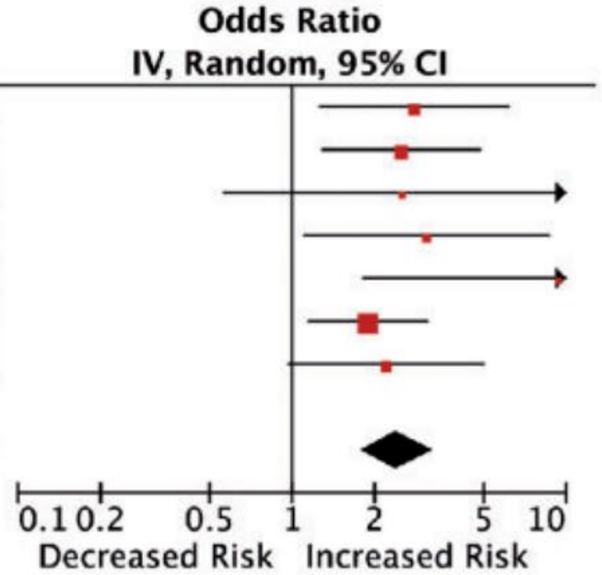
Association of subclinical AF and stroke risk

Risk of Stroke 2.41 X (lower than the 5.0 X reported in Clinical AF)

Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
Ancillary MOST	1.026	0.4096	14.2%	2.79 [1.25, 6.23]
ASSERT	0.9163	0.3416	20.5%	2.50 [1.28, 4.88]
Botto et al	0.9243	0.7674	4.1%	2.52 [0.56, 11.34]
Capucci et al	1.1314	0.5286	8.6%	3.10 [1.10, 8.74]
Shanmugam et al	2.2407	0.8433	3.4%	9.40 [1.80, 49.08]
SOS AF	0.6366	0.2579	35.9%	1.89 [1.14, 3.13]
TRENDS	0.7885	0.4231	13.4%	2.20 [0.96, 5.04]
Total (95% CI)			**100.0%**	**2.41 [1.78, 3.26]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 3.91$, df = 6 (P = 0.69); $I^2 = 0\%$

Test for overall effect: Z = 5.68 (P < 0.00001)



R. Mahajan, et al. European Heart Journal (2018) 39, 1407-1415

ASSERT

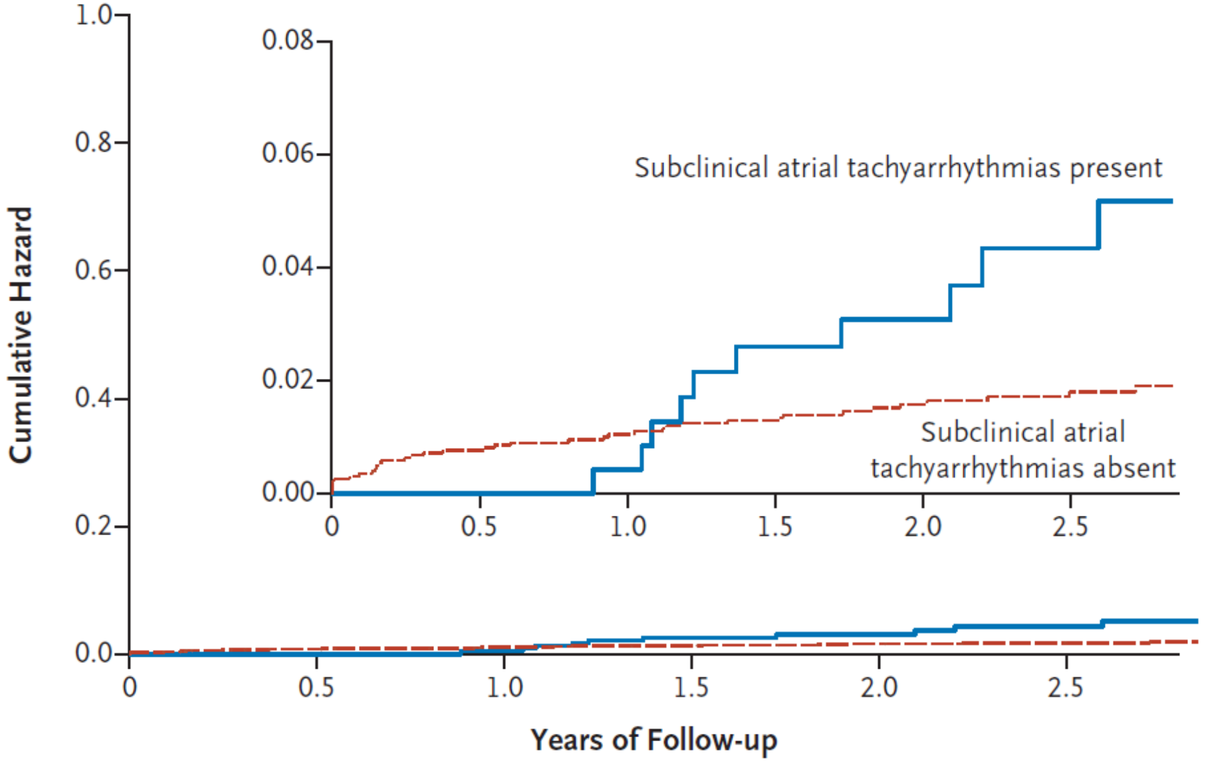
Subclinical Atrial Fibrillation and the Risk of Stroke

The absolute risk of stroke in patients with SCAF was 1.7% per year

AHRE and Stroke

Having any subclinical AHRE >6 minutes was significantly associated with ischemic stroke or systemic embolism with a hazard ratio of 2.49 (95% CI,1.28–4.85),

- 2580 patients with no history of AF (≥65 years ,history of HT),
- Dual-chamber pacemaker or ICD had been recently placed
- Monitored for 3 months for the presence of AHRE (defined as an atrial rate of >190 bpm for >6 min).
- F/U for a mean of 2.5 years
- At 3 months, 10.1% of patients demonstrated subclinical AHRE.

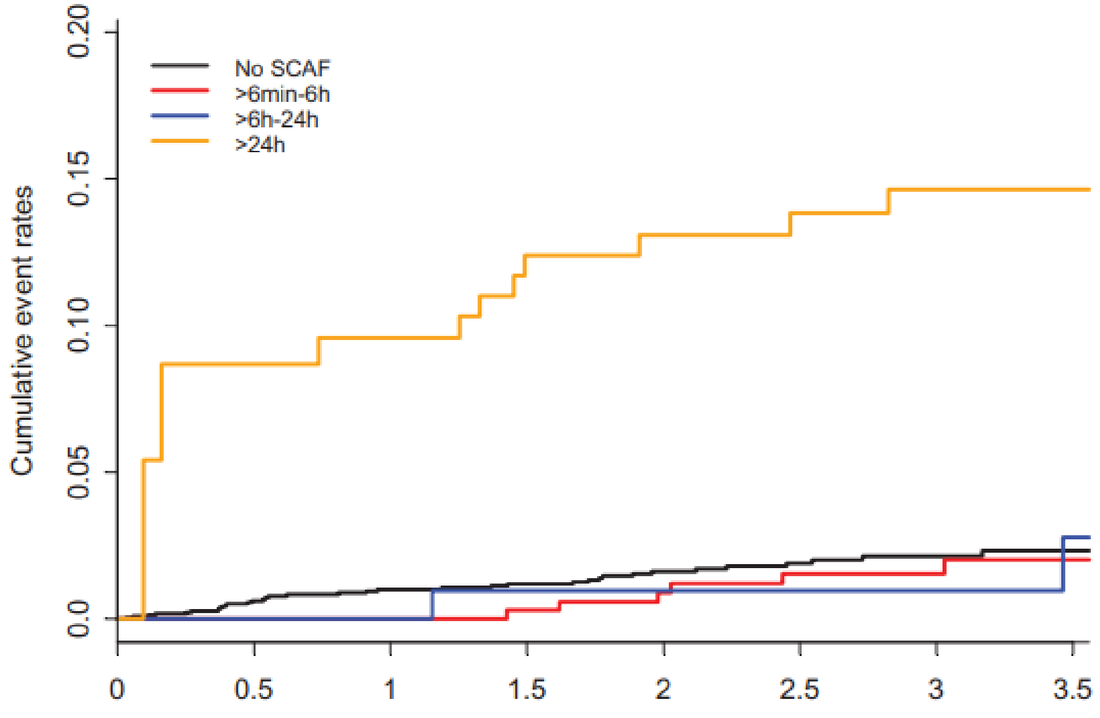


No. at Risk

Subclinical atrial tachyarrhythmias present	261	249	238	218	178	122
Subclinical atrial tachyarrhythmias absent	2319	2145	2070	1922	1556	1197

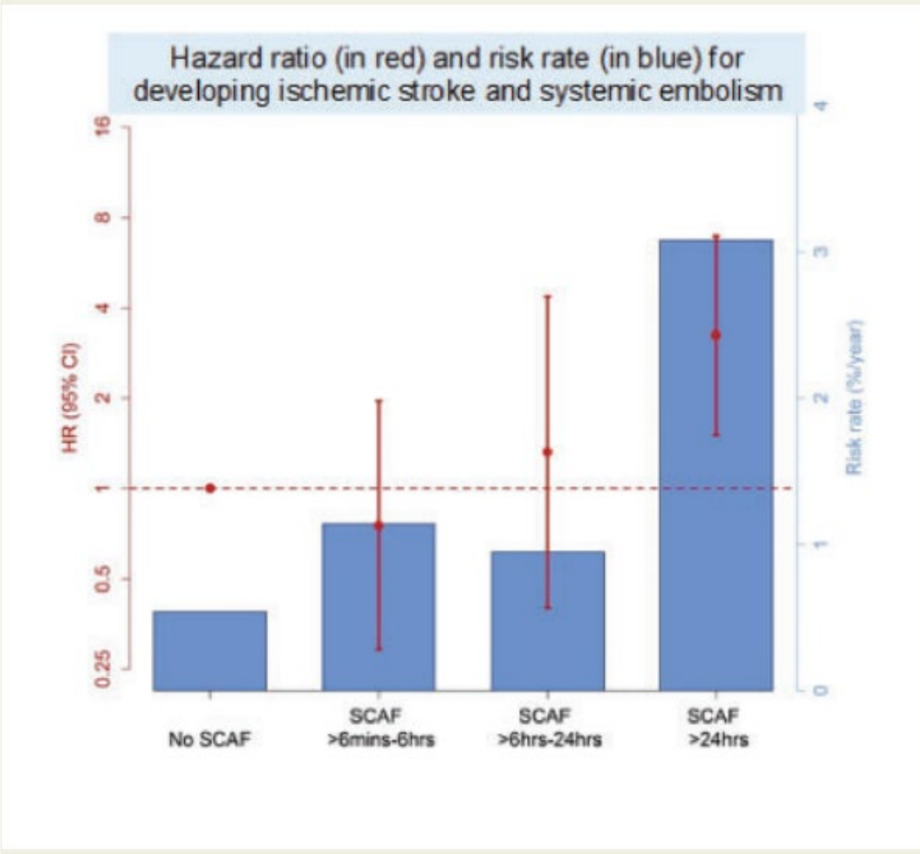
Healey et al. N Engl J Med 2012;366:120-9.

Duration of device-detected subclinical atrial fibrillation and occurrence of stroke in ASSERT



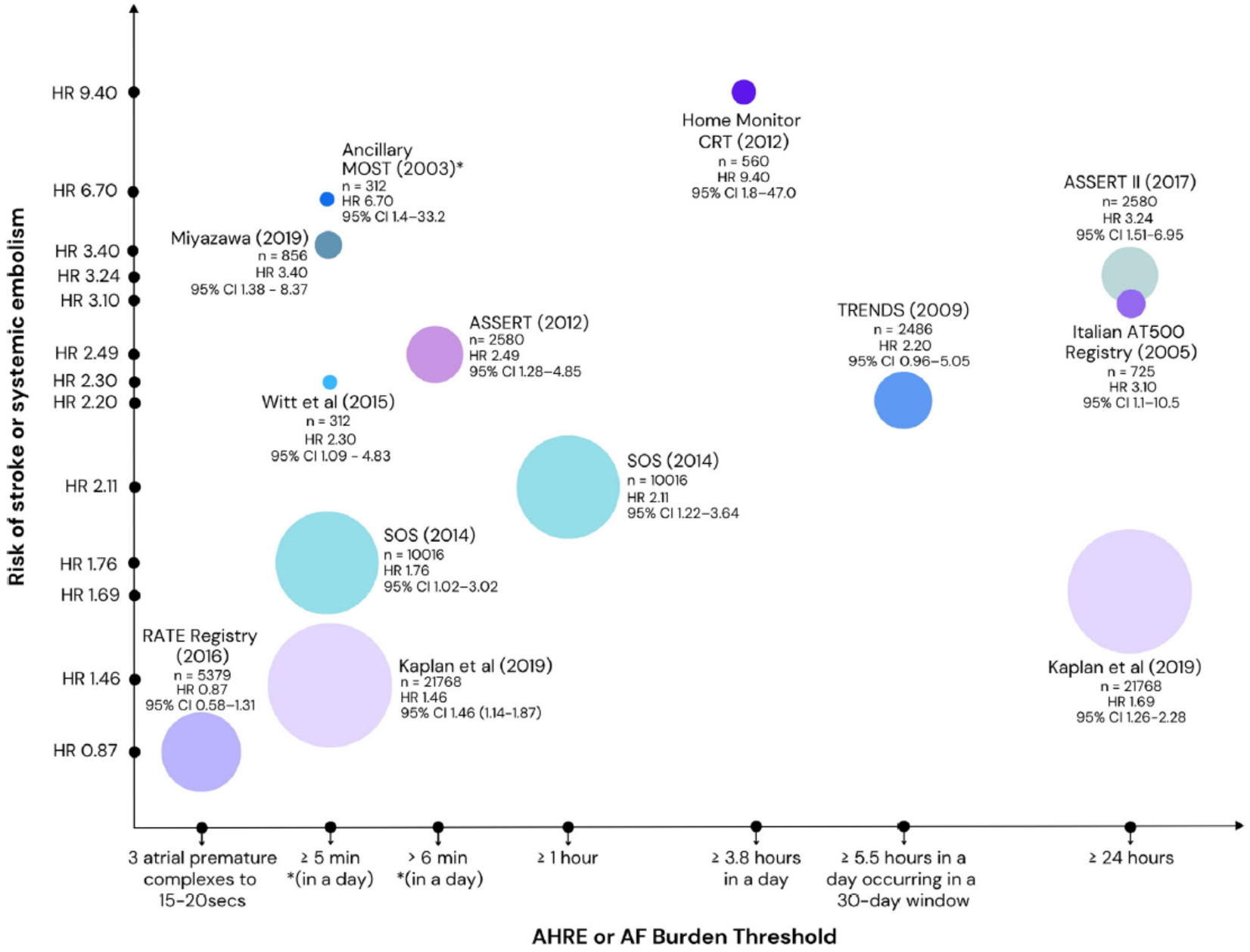
No. at Risk

No SCAF	2455	1926	1708	1528	1251	900	624	390
>6min-6h	0	226	302	347	322	281	218	155
>6h-24h	0	88	104	103	108	93	80	52
>24h	0	91	124	144	140	126	116	85



SCAF duration >24 h was associated with a significant increased risk of subsequent stroke or SE (adjusted hazard ratio [HR] 3.24, 95% CI 1.51–6.95, P=0.003).

Van Gelder IC, et al. Eur Heart J. 2017;38:1339–1344.



Risk of stroke or SE & duration of subclinical AF

Leung AW, et al. AmJCardiol2024;211:183–190

Temporal Relationship Between Subclinical Atrial Fibrillation and Embolic Events

ASSERT study population (n=2580)

Ischemic stroke or SE after 3-month visit (n=51)

SCAF not detected (n=25)

SCAF detected (n=26, 51%)

SCAF after the stroke occurred (n=8,16%)

SCAF before the stroke occurred (n=18, 35%)

≤30 days before stroke (n=4, 8%)

>30 days before stroke (n=14, 24%)

AHRE/subclinical AF may represent a marker rather than a risk factor for stroke

Only 1 patient (2%) had subclinical AF at the time of stroke

Circulation. 2014;129:2094-2099

Stroke rates according to AHRE daily burden and CHA2DS2-VASc score

Stroke rates[b] per AHRE burden and CHA_2DS_2VASc category
(*n* = 21 768 device patients not taking OAC)[1466]

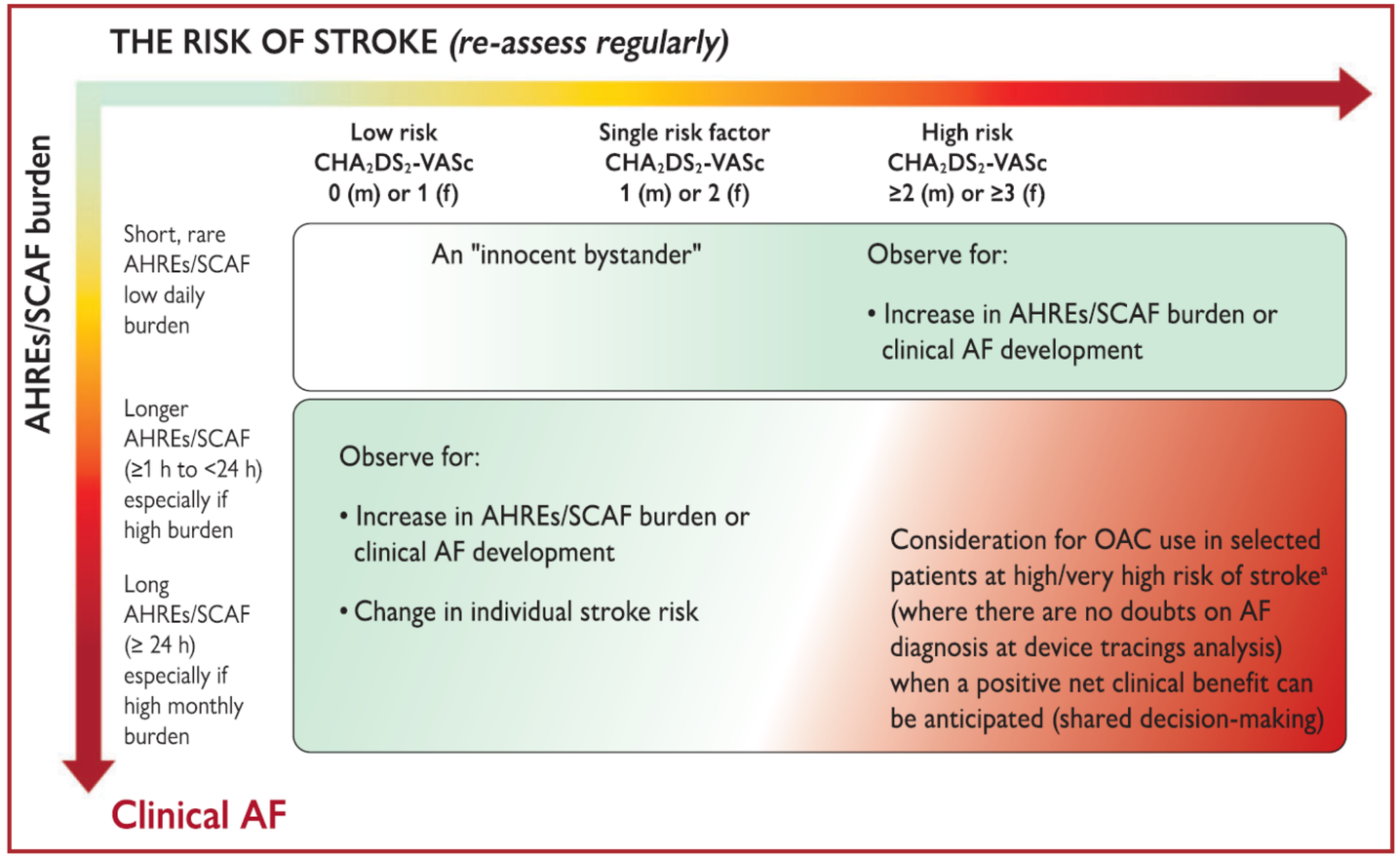
	Baseline maximum daily burden		
CHA_2DS_2-VASc score	No AF	AF 6 min–23.5 h	AF >23.5 h
0	0.33%	0.52%	0.86%
1	0.62%	0.32%	0.50%
2	0.70%	0.62%	1.52%
3-4	0.83%	1.28%	1.77%
≥5	1.79%	2.21%	1.68%

- 21768 non-anticoagulated patients with CIED (age, 68.6±12.7 years; 63% male)
- Both increasing AF duration (P<0.001) and increasing CHA2DS2-VASc score (P<0.001) were significantly associated with annualized risk of SSE

Kaplan RM, et al. Circulation. 2019;140:1639–1646

How to Manage?

Recommendations for management of patients with AHRE

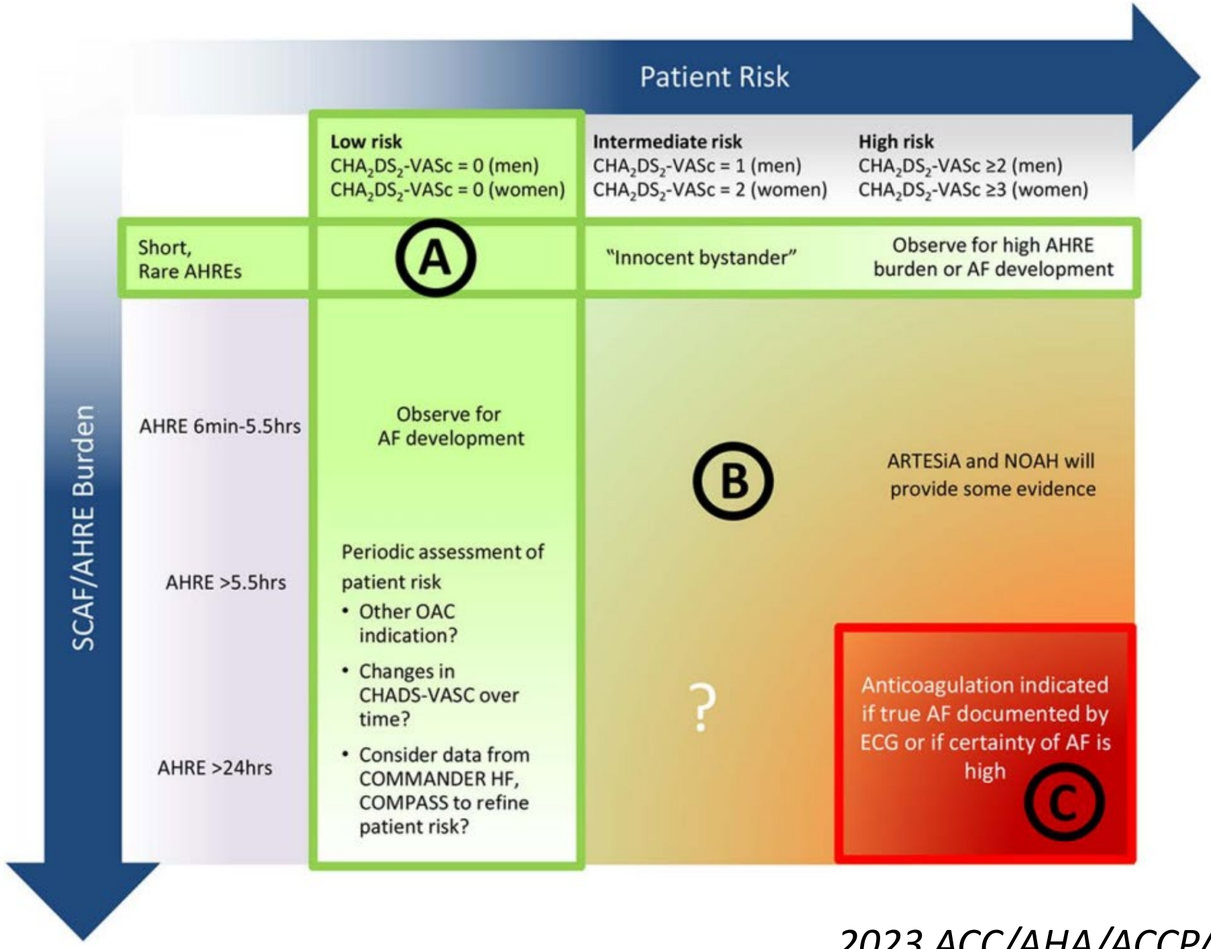


Recommendations for management of patients with AHRE

Recommendations	Class[a]	Level[b]
In patients with AHRE/subclinical AF detected by CIED or insertable cardiac monitor, it is recommended to conduct: • Complete cardiovascular evaluation with ECG recording, clinical risk factors/comorbidity evaluation, and thrombo-embolic risk assessment using the CHA_2DS_2-VASc score.[469] • Continued patient follow-up and monitoring (preferably with the support of remote monitoring) to detect progression to clinical AF, monitor the AHRE/subclinical AF burden (especially transition to ≥24 h), and detect changes in underlying clinical conditions.[469]	I	B

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation

OAC for Device-Detected AHRE Among Patients Without a Previous Diagnosis of AF



COR	LOE	Recommendations
2a	B-NR	1. For patients with a device-detected atrial high-rate episode (AHRE) lasting ≥24 hours[1] and with a CHA_2DS_2-VASc score ≥2 or equivalent stroke risk,[2] it is reasonable to initiate oral anticoagulation[3] within a SDM framework that considers episode duration and individual patient risk.
2b	B-NR	2. For patients with a device-detected AHRE lasting between 5 minutes and 24 hours and with a CHA_2DS_2-VASc score ≥3 or equivalent stroke risk,[2] it may be reasonable to initiate anticoagulation within a SDM framework that considers episode duration and individual patient risk.
3: No Benefit	B-NR	3. Patients with a device-detected AHRE lasting <5 minutes and without another indication for oral anticoagulation should not receive oral anticoagulation.[4,5]

2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation

Practice Variation in Anticoagulation Prescription and Outcomes After Device Detected AF

Insights From the Veterans Health Administration

Cohorts' Baseline and Outcome Variables	Index Device-Detected AF Episode Burden			
	>6 min	>1 h	>6 h	>24 h
Included patients	2101	1712	1279	818
CHA_2DS_2-VASc score	3.9±1.4	4.0±1.4	4.0±1.4	4.2±1.4
HAS-BLED score*	2.7±1.1	2.6±1.1	2.7±1.1	2.8±1.1
OAC prescribed†‡	272 (13.0)	273 (16.0)	263 (20.6)	224 (27.4)
Warfarin	258 (94.9)	257 (94.1)	246 (93.5)	208 (92.9)
NOAC	14 (5.1)	17 (6.2)	18 (6.8)	18 (8.0)
Days from device-detected AF to OAC	31.2±24.6	31.9±24.4	30.7±24.0	33.3±24.1

Table 3. Incidence of Stroke and Death in Patients With Device-Detected AF by AF Burden and OAC Prescription

Device-Detected AF Burden	Total		No OAC*		OAC*		
	n/N (%)	IR (95% CI)	n/N (%)	IR (95% CI)	n/N (%)	IR (95% CI)	*P* Value†
AF >6 min‡							
Stroke	72/2101 (3.4)	9.9 (7.8–12.4)	66/1829 (3.6)	10.3 (8.1–13.1)	6/272 (2.2)	6.6 (2.9–14.6)	0.28
Death	587/2101 (27.9)	92.5 (85.3–100.3)	518/1829 (28.3)	93.3 (85.6–101.7)	69/272 (25.4)	87.1 (68.6–110.3)	0.60
AF >1 h‡							
Stroke	58/1712 (3.4)	9.8 (7.6–12.7)	51/1439 (3.5)	10.2 (7.8–13.5)	7/273 (2.6)	7.7 (3.7–16.2)	0.50
Death	503/1712 (29.4)	99.4 (91.1–108.5)	429/1439 (29.3)	100.4 (91.3–110.3)	74/273 (27.1)	94.4 (75.1–118.5)	0.63
AF >6 h‡							
Stroke	47/1279 (3.7)	10.7 (8.1–14.3)	41/1016 (4.0)	11.7 (8.6–15.8)	6/263 (2.3)	6.9 (3.1–15.5)	0.23
Death	395/1279 (20.9)	106.1 (96.1–117.1)	324/1016 (31.9)	108.7 (97.5–121.2)	71/263 (27.0)	95.8 (75.9–120.9)	0.34
AF >24 h‡							
Stroke	35/818 (4.3)	12.5 (9.0–17.4)	31/594 (5.2)	14.9 (10.5–21.2)	4/224 (1.8)	5.6 (2.1–14.8)	0.04
Death	297/818 (36.3)	129.0 (115.1–144.5)	234/594 (39.4)	139.3 (122.5–158.3)	63/224 (28.1)	101.1 (79.0–129.4)	0.02

Perino AC, et al. Circulation. 2019;139:2502–2512.

Progression of atrial high-rate episode burden

Six-month incidence of transition to higher AHRE burden[a]
(*n* = 6580, pooled from three prospective studies)[469]

	Baseline burden			
6-month progression	5 min to <1 h	1 h to <6 h	6 h to <12 h	12 h to <23 h
Transition to ≥1 h	33.5%			
Transition to ≥6 h	15.3%	42.2%		
Transition to ≥12 h	8.9%	27.5%	55.8%	
Transition to ≥23 h	5.1%	16.0%	40.6%	63.1%

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 SEPTEMBER 28, 2023 VOL. 389 NO. 13

NOAH-AFNET 6

Anticoagulation with Edoxaban in Patients with Atrial High-Rate Episodes

P. Kirchhof, T. Toennis, A. Goette, A.J. Camm, H.C. Diener, N. Becher, E. Bertaglia, C. Blomstrom Lundqvist, M. Borlich, A. Brandes, N. Cabanelas, M. Calvert, G. Chlouverakis, G.-A. Dan, J.R. de Groot, W. Dichtl, B. Kravchuk, A. Lubiński, E. Marijon, B. Merkely, L. Mont, A.-K. Ozga, K. Rajappan, A. Sarkozy, D. Scherr, R. Sznajder, V. Velchev, D. Wichterle, S. Sehner, E. Simantirakis, G.Y.H. Lip, P. Vardas, U. Schotten, and A. Zapf, for the NOAH-AFNET 6 Investigators*

ARTESIA

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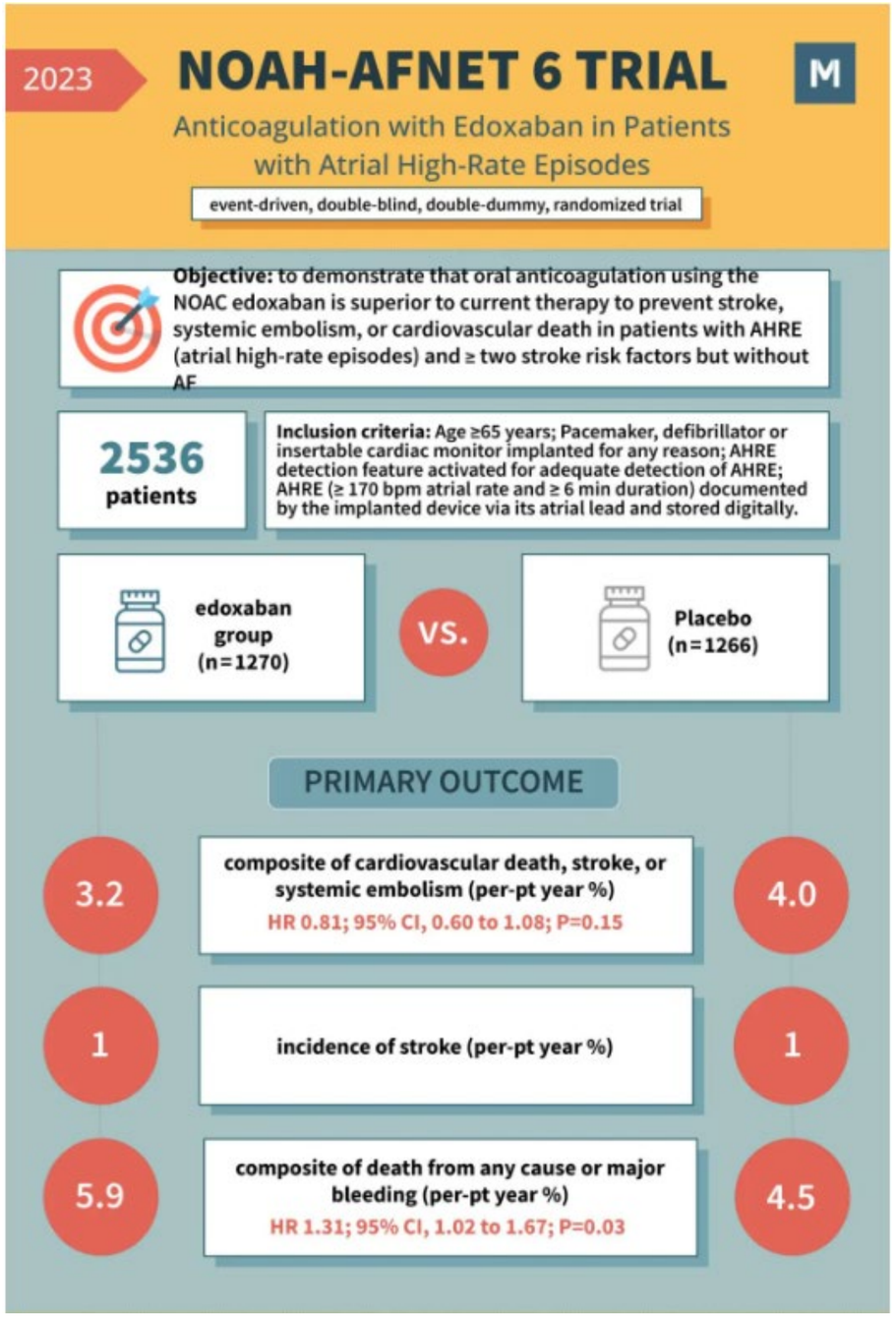
Apixaban for Stroke Prevention in Subclinical Atrial Fibrillation

J.S. Healey, R.D. Lopes, C.B. Granger, M. Alings, L. Rivard, W.F. McIntyre, D. Atar, D.H. Birnie, G. Boriani, A.J. Camm, D. Conen, J.W. Erath, M.R. Gold, S.H. Hohnloser, J. Ip, J. Kautzner, V. Kutyifa, C. Linde, P. Mabo, G. Mairesse, J. Benezet Mazuecos, J. Cosedis Nielsen, F. Philippon, M. Proietti, C. Sticherling, J.A. Wong, D.J. Wright, I.G. Zarraga, S.B. Coutts, A. Kaplan, M. Pombo, F. Ayala-Paredes, L. Xu, K. Simek, S. Nevills, R. Mian, and S.J. Connolly, for the ARTESIA Investigators*

NOAH-AFNET 6



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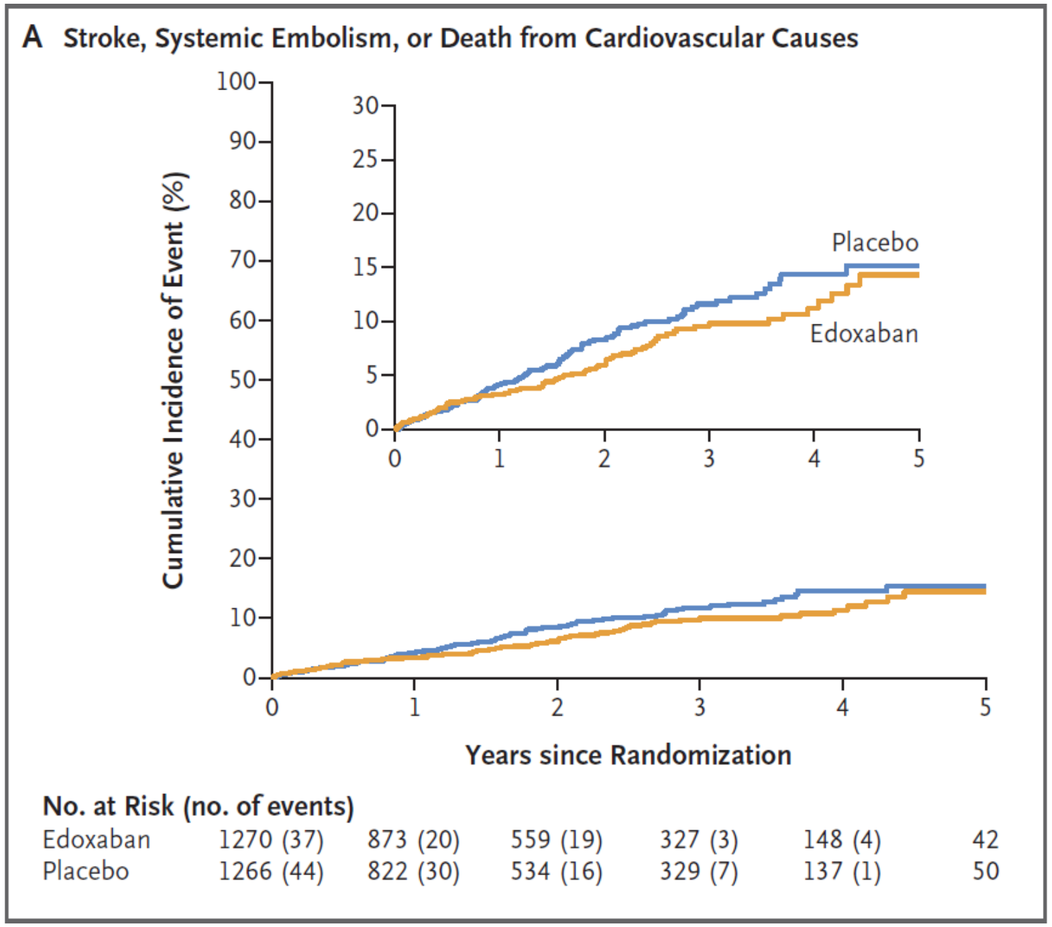
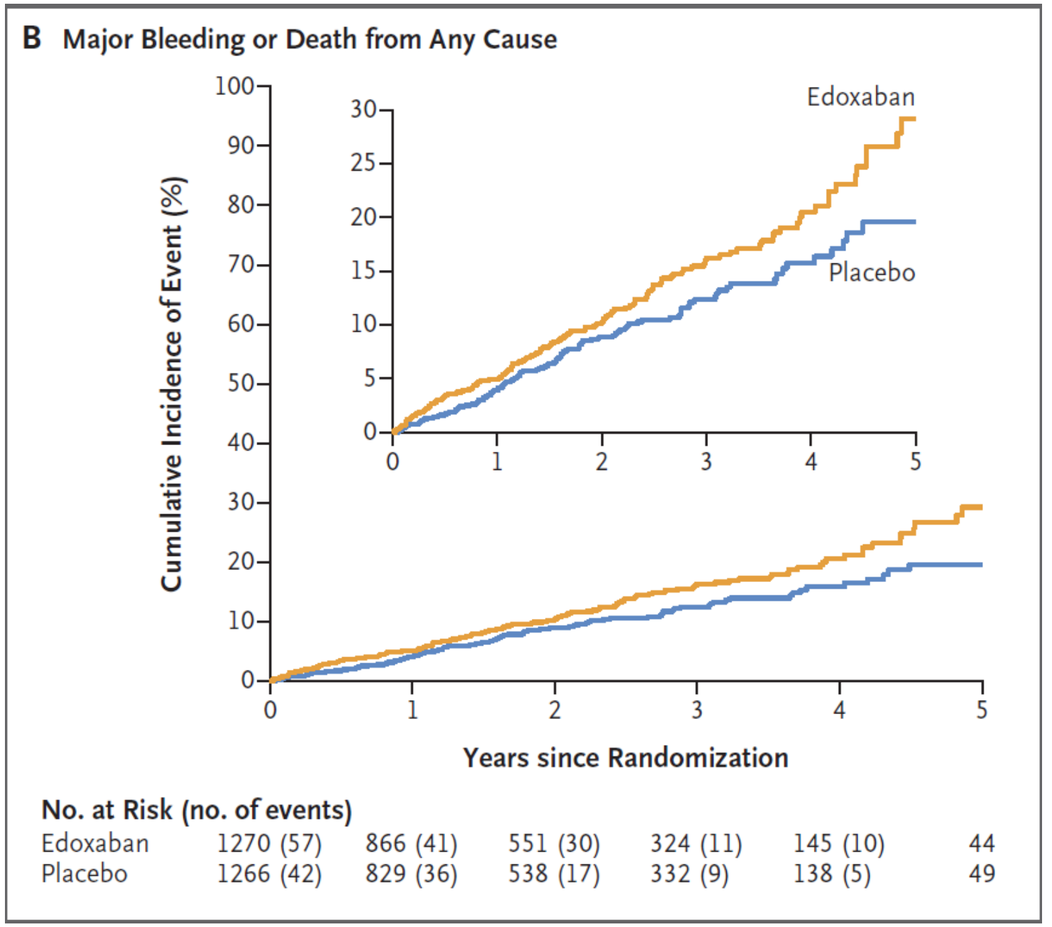
- Terminated early owing to safety concerns and futility.

Kirchhof P, et al. N Engl J Med 389;13: 1167-79

NOAF-AFNET 6

Among patients with AHREs detected by implantable devices, anticoagulation with edoxaban did not significantly reduce the incidence of a composite of cardiovascular death, stroke, or systemic embolism as compared with placebo, but it led to a higher incidence of a composite of death or major bleeding





Kirchhof P, et al. N Engl J Med 389;13: 1167-79

NOAH-AFNET 6: AHRE>24 hours

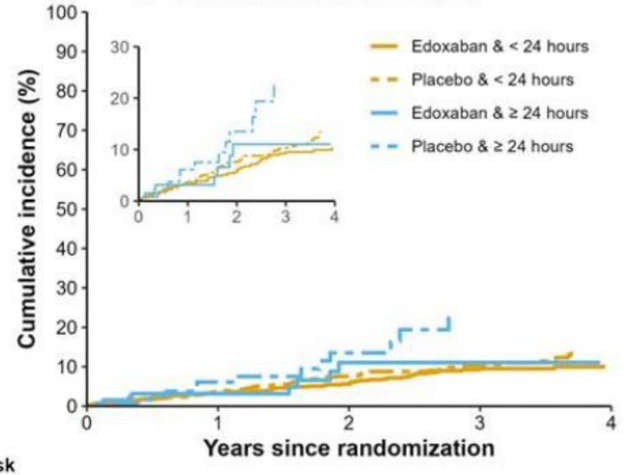
Anticoagulation in patients with long Atrial High-Rate Episodes (AHRE) ≥ 24 hours

A subanaylsis of the **N**on-vitamin K antagonist **O**ral anticoagulation in patients with **A**trial High rate episodes (NOAH-AFNET 6) trial

259/2389 patients with device-detected AHRE ≥24 hours
(78 years old, 37% women, median CHA_2DS_2-VASc score 4)

AHRE reviewed by Corelab

Incidence of Stroke, Systemic Embolism, or Cardiovascular Death



Number at risk					
< 24 hours					
Edoxaban	1062	748	497	292	134
Placebo	1067	709	464	289	126
≥ 24 hours					
Edoxaban	132	83	36	19	8
Placebo	127	71	41	21	8

Ischemic Stroke Rate by AHRE Duration and Treatment*

AHRE < 24 hours events/N (%/patient-years)			AHRE ≥ 24 hours events/N (%/patient-years)		
Anticoagulation	Placebo	HR (95% CI)	Anticoagulation	Placebo	HR (95% CI)
20/1062 (0.90)	21/1068 (0.96)	0.92 (0.50, 1.70)	2/132 (0.95)	2/127 (0.97)	1.03 (0.14, 7.32)

*p-interaction=0.89

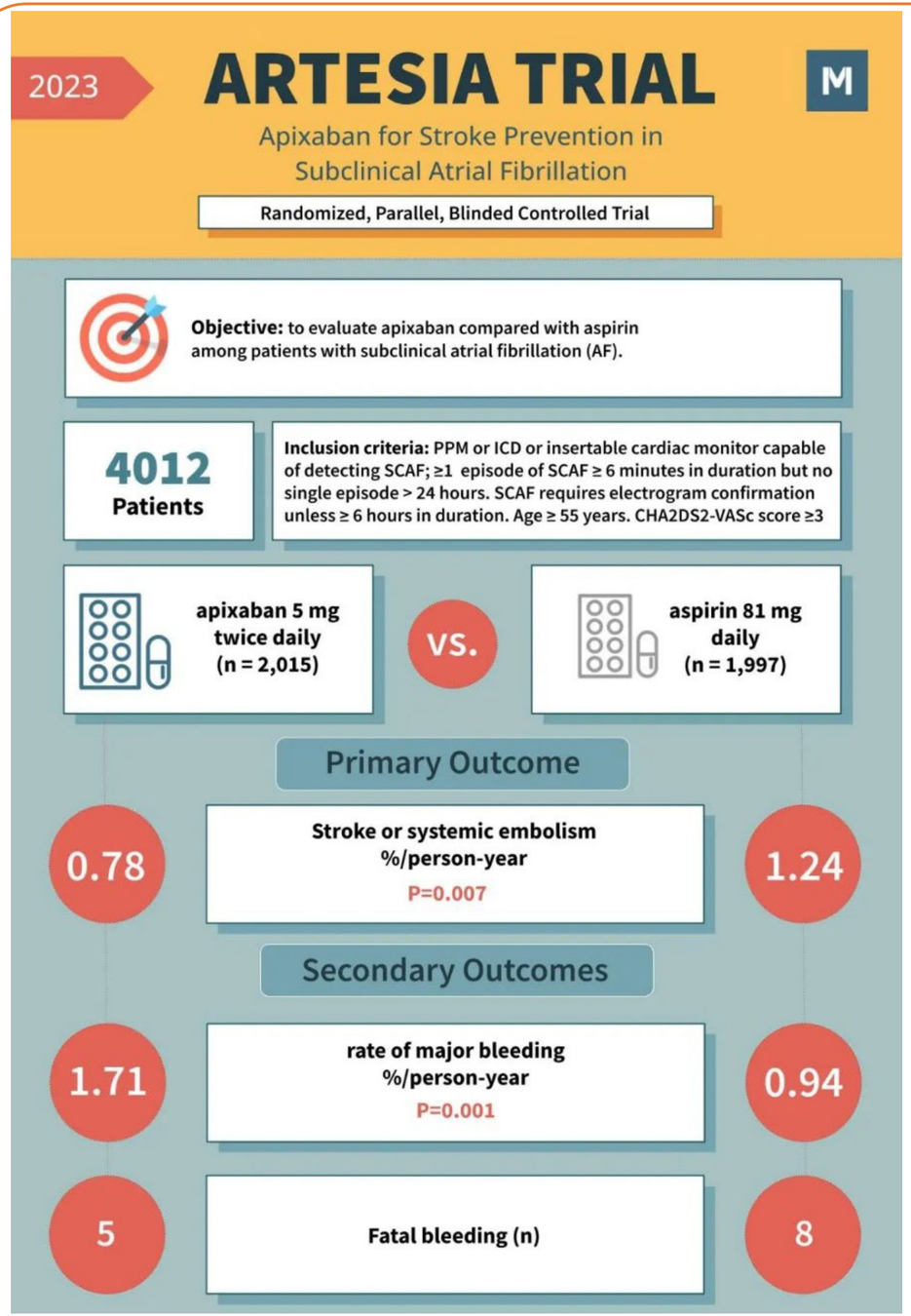
Long durations of device-detected AHRE, including durations ≥24 hours, did not interact with the treatment effect of anticoagulation in the NOAH-AFNET 6 trial.

Similarly, there was no interaction between the effect of anticoagulation therapy and AHRE duration used as a continuous variable.

Stroke rate appeared low (1%/patient-year) without oral anticoagulation.

Patients with AHRE ≥24 hours developed more ECG-diagnosed atrial fibrillation over time compared to those with shorter AHRE durations.

European Heart Journal, ehad771, https://doi.org/10.1093/eurheartj/ehad771



ARTESIA

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Healey JS, et al. N Engl J Med 390;2: 107-117

ARTESIA

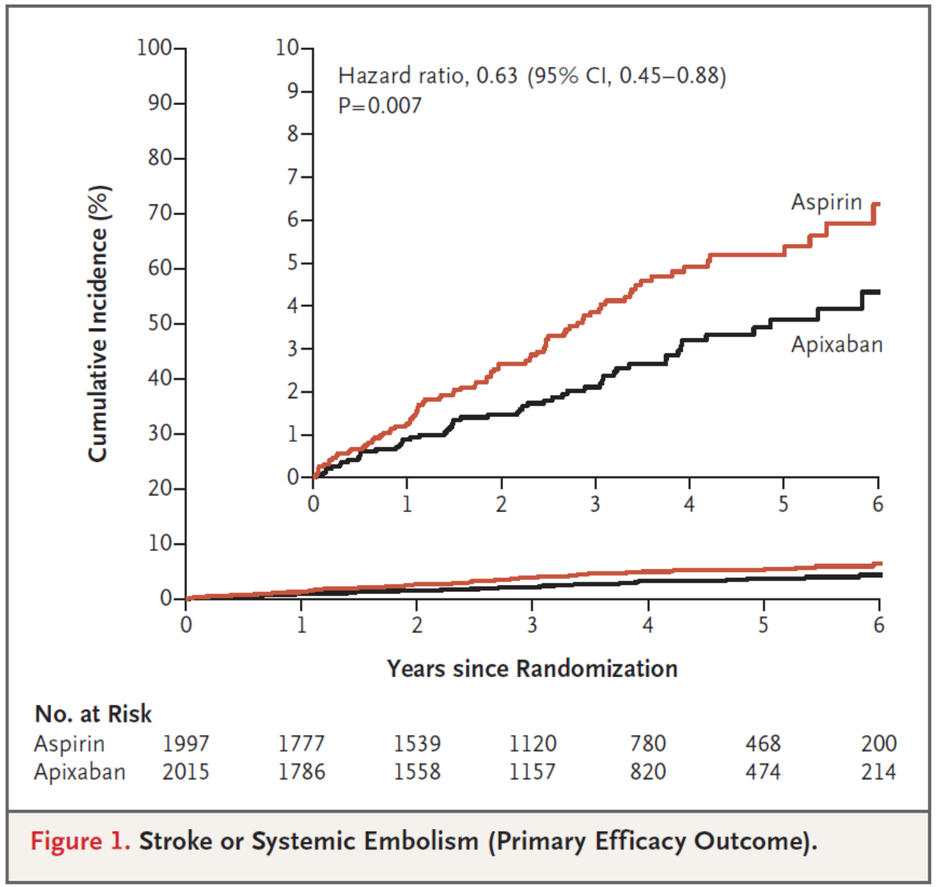

Figure 1. Stroke or Systemic Embolism (Primary Efficacy Outcome).

Among patients with subclinical AF, apixaban resulted in a lower risk of stroke or systemic embolism than aspirin but a higher risk of major bleeding.

Table 2. Clinical Outcomes (Intention-to-Treat Population).*

Outcome	Apixaban (N=2015)		Aspirin (N=1997)		Hazard Ratio (95% CI)	P Value
	no. of patients with event	%/patient-yr	*no. of patients with event*	%/patient-yr		
Stroke or systemic embolism	55	0.78	86	1.24	0.63 (0.45–0.88)	0.007
Stroke	55	0.78	84	1.21	0.64 (0.46–0.90)	
Ischemic or unknown type†	45	0.64	71	1.02	0.62 (0.43–0.91)	
Hemorrhagic	10	0.14	13	0.18	0.76 (0.33–1.73)	
Severity according to score on modified Rankin scale‡						
0–2	31	0.44	45	0.65	0.68 (0.43–1.07)	
3–6	19	0.27	37	0.53	0.51 (0.29–0.88)	
Missing data	5	0.07	2	0.03	2.48 (0.48–12.80)	
Systemic embolism	0		2	0.03	NA	
Stroke, TIA, or systemic embolism§	82	1.17	107	1.56	0.75 (0.56–1.00)	
Stroke, systemic embolism, or death from cardiovascular causes	148	2.10	171	2.47	0.85 (0.68–1.06)	
Stroke, myocardial infarction, systemic embolism, or death	419	6.01	418	6.10	0.98 (0.86–1.12)	
Myocardial infarction	37	0.52	41	0.59	0.89 (0.57–1.40)	
Death	362	5.06	341	4.82	1.04 (0.90–1.21)	
Death from cardiovascular causes	105	1.47	108	1.53	0.96 (0.73–1.25)	
Major bleeding¶	106	1.53	78	1.12	1.36 (1.01–1.82)	0.04
Fatal bleeding	10	0.14	14	0.20	0.70 (0.31–1.57)	
Symptomatic intracranial hemorrhage	17	0.24	23	0.33	0.73 (0.39–1.36)	
Gastrointestinal bleeding	55	0.78	31	0.44	1.76 (1.13–2.74)	
Transfusion performed	35	0.49	31	0.44	1.11 (0.68–1.80)	

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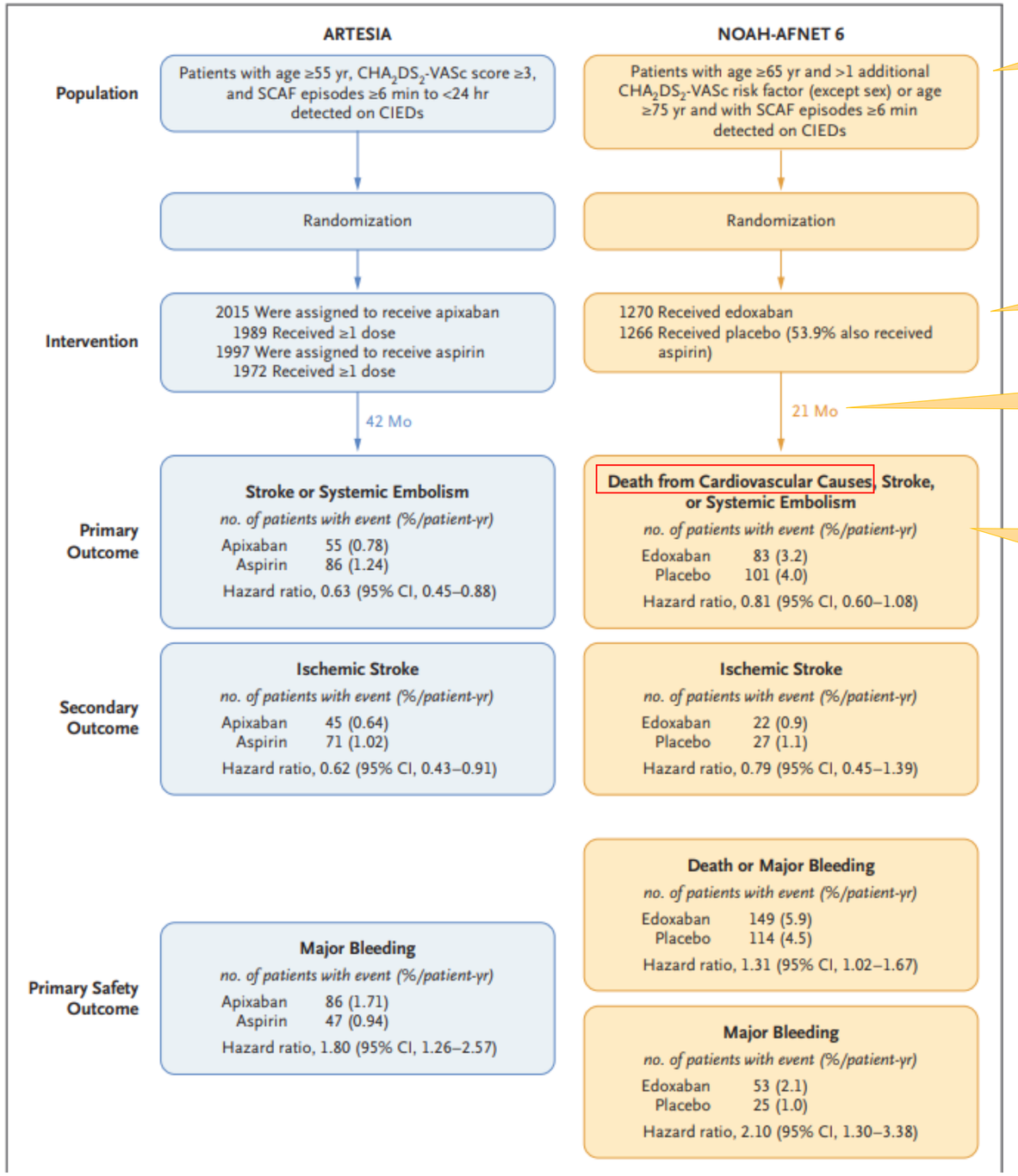
NOAH-AFNET 6 VS ARTESIA



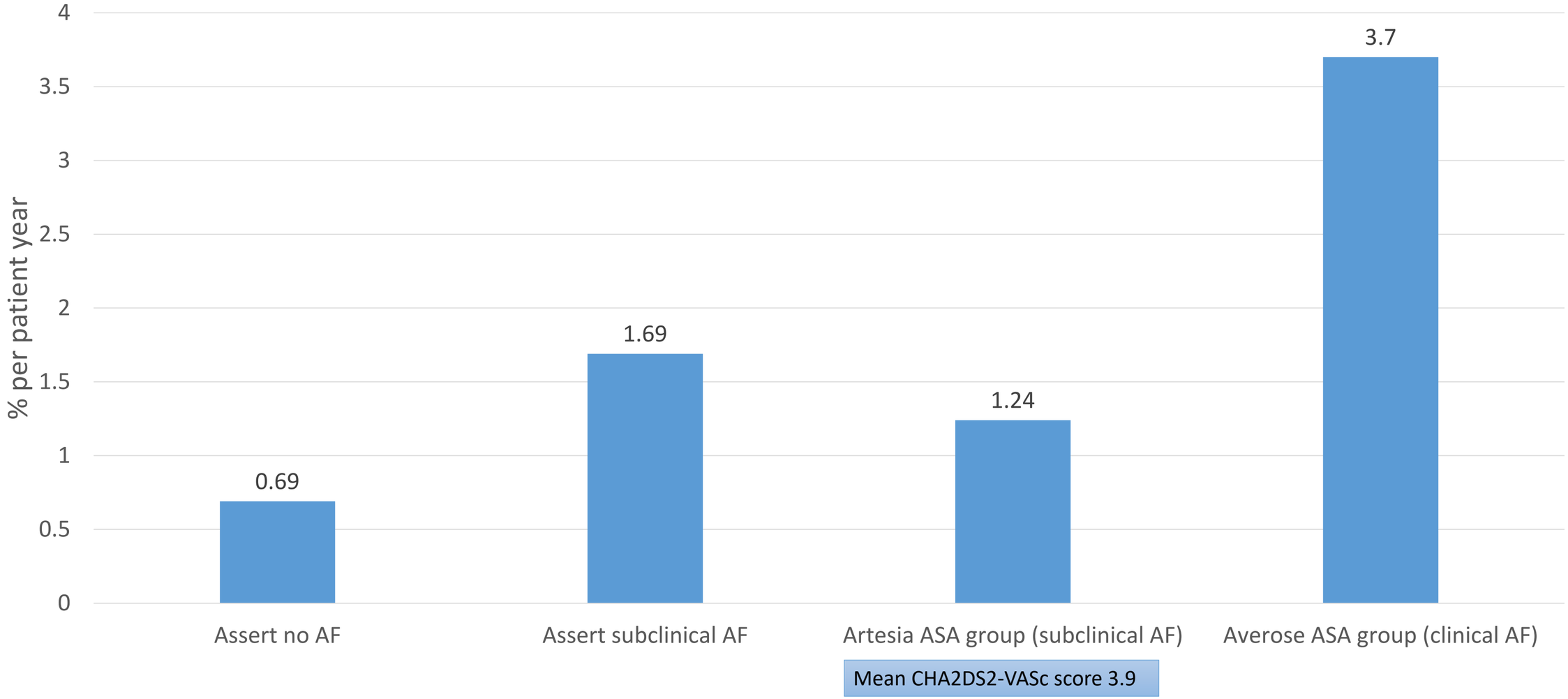
Lower risk patient

VS placebo

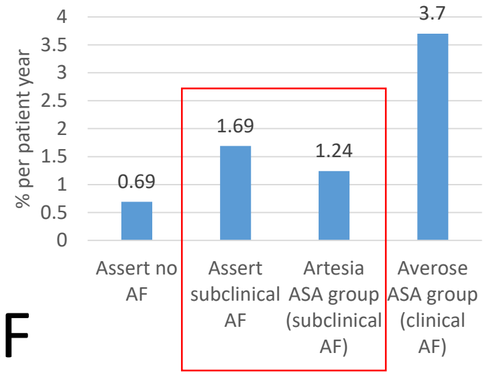
Less time F/U

1ry outcome include death from CVS causes

Stroke and SE rate in subclinical/clinical AF trial in patients with mean CHADS2 score of 2 (except ARTESIA)



Take home message



- The risk of stroke in persons with device detected subclinical AF is higher than that among persons without AHREs but lower than that among persons with clinical AF

- Subclinical AF typically progresses from low burdens to high burdens and to clinical AF

Six-month incidence of transition to higher AHRE burden[a]
(*n* = 6580, pooled from three prospective studies)[469]

	Baseline burden			
6-month progression	5 min to <1 h	1 h to <6 h	6 h to <12 h	12 h to <23 h
Transition to ≥1 h	33.5%			
Transition to ≥6 h	15.3%	42.2%		
Transition to ≥12 h	8.9%	27.5%	55.8%	
Transition to ≥23 h	5.1%	16.0%	40.6%	63.1%

- For patients with **AHRE lasting ≥24 hours** and with a **CHA2DS2-VASc score ≥2**, it is reasonable to initiate OAC

  - ASSERT >24 hour
  - Retrospective VA study

- For patients with AHRE lasting between **5 minutes-24 hours** and with a **CHA2DS2-VASc score ≥3**, it may be reasonable to initiate OAC

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Thank You