

Stroke Prevention in AF

OAC for everyone?

Forever?

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YES!

But there are nuances...



Presenter Disclosure

Dr. Victoria Korley– Presenter

Topic: Stroke Prevention in Atrial Fibrillation:

Relationships with commercial interests:

- **Grants/Research Support: None**
- **Speakers Bureau/Honoraria: CHRC**
- **Consulting Fees: None**
- **Other: None**



Objectives

Indications for anticoagulation

Agents for oral anticoagulation

Rhythm Control patients – can we stop anticoagulation after ablation?

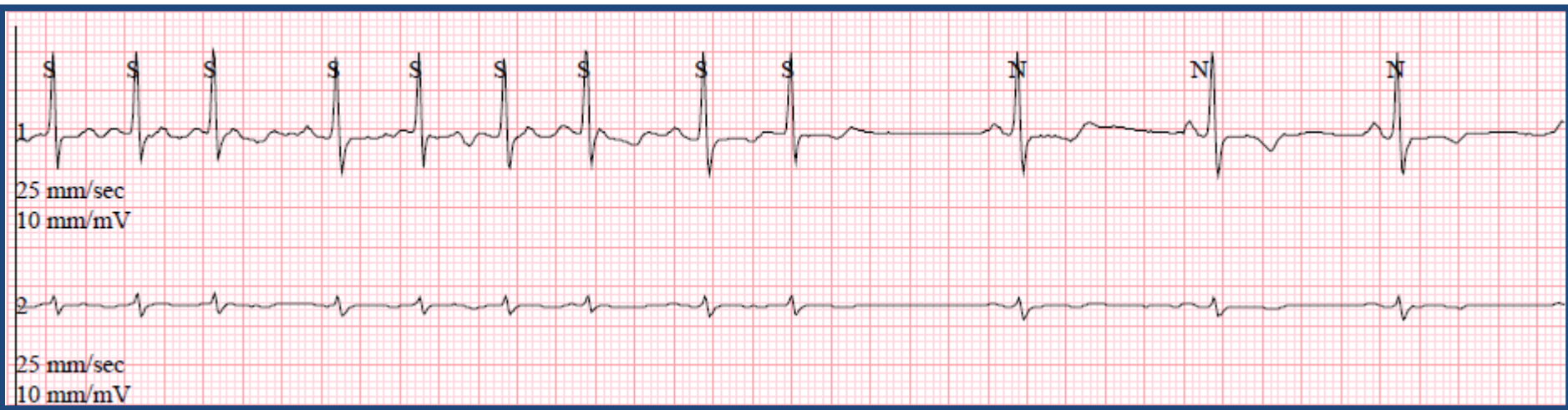
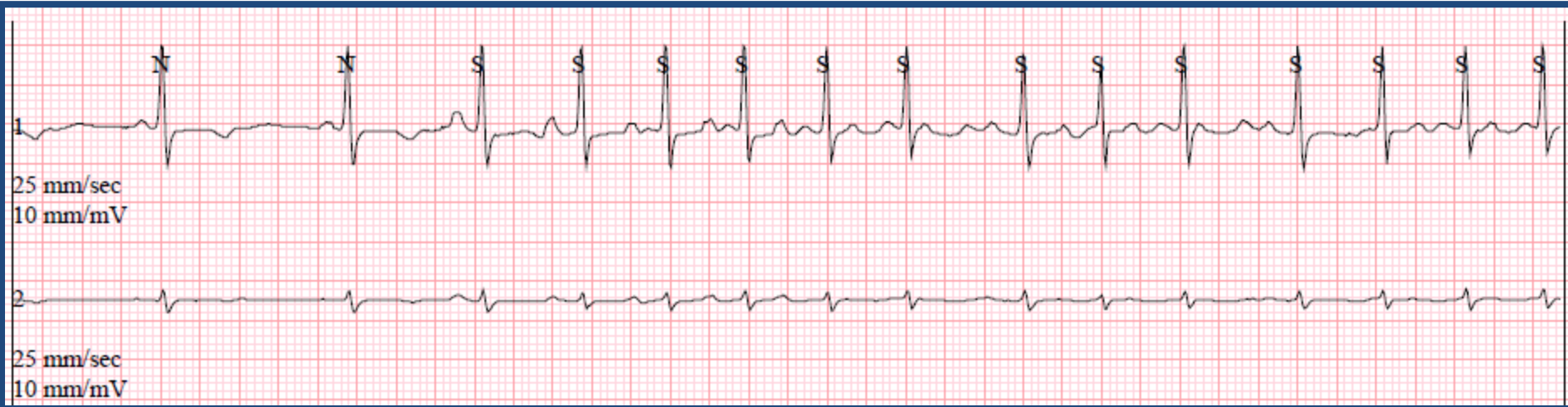


Case

- 75 year old man with HTN and DM
 - Asymptomatic
 - Normal EF
 - No other comorbidities
 - No medications
 - Normal exam
 - Normal renal function
- He had an executive assessment which included a screening Holter.



Holter: AF lasts for 10secs



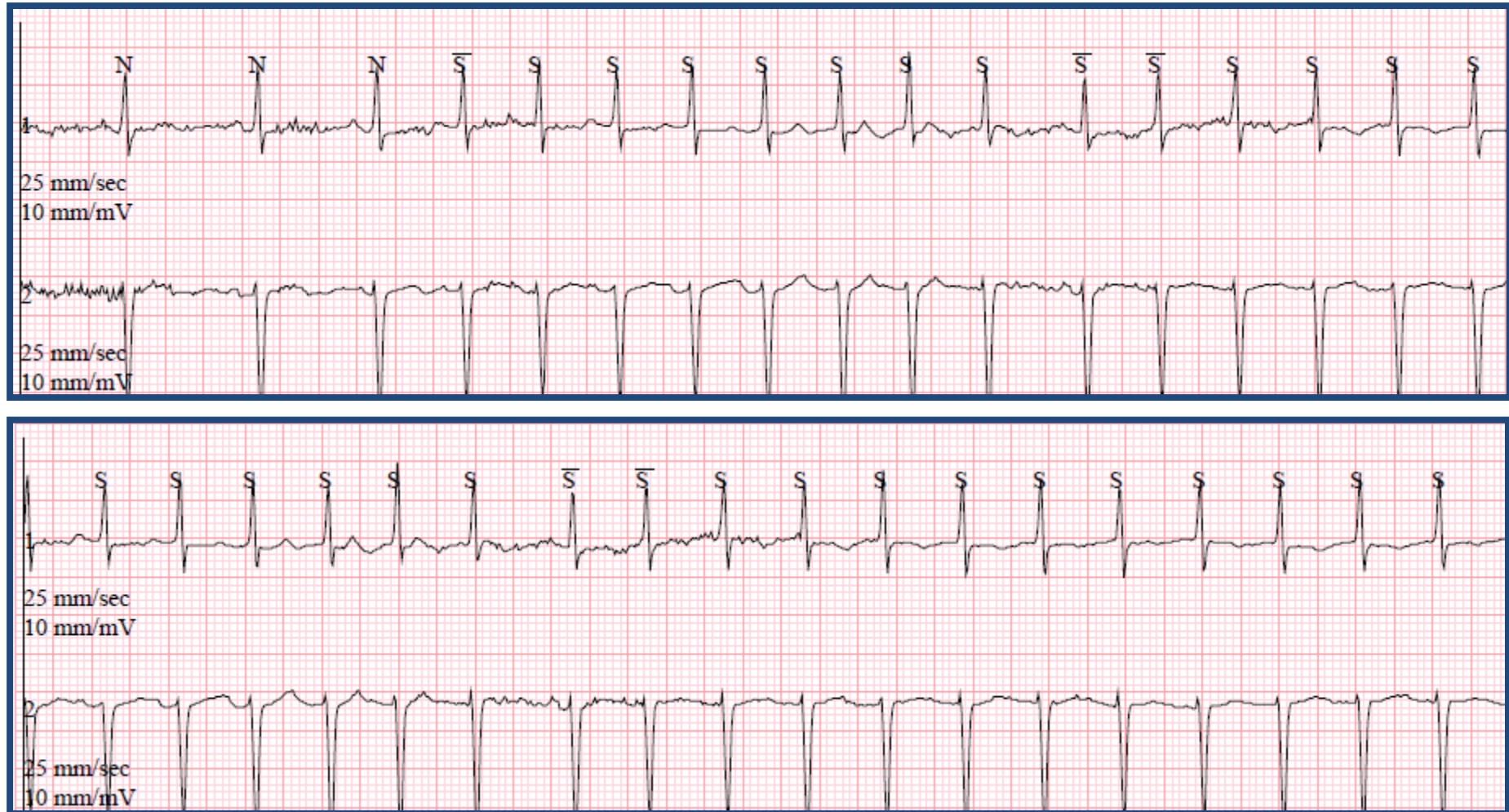
Regarding anticoagulation

What would you do now?

- A) Start ASA
- B) Start a NOAC
- C) Two week external loop monitor
- D) 30 day monitor
- E) Refer for an implantable loop monitor (ILR)
- F) nothing



Holter – AF lasts for 24 hours



Regarding Anticoagulation

What would you do now?

- A) Start ASA
- B) Start a NOAC
- C) Two week external loop monitor
- D) 30 day monitor
- E) Refer for an implantable loop monitor (ILR)
- F) nothing

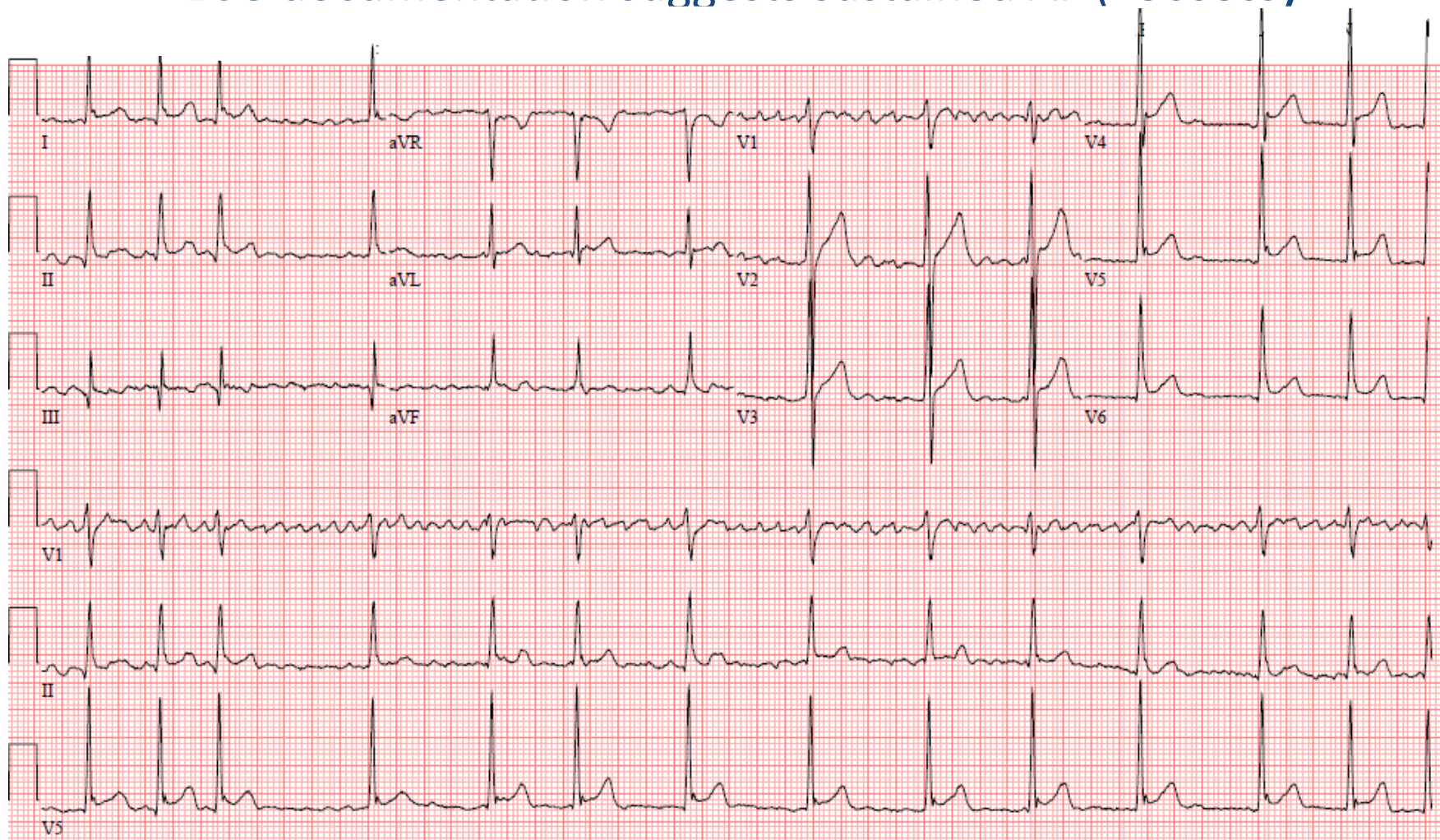


What is sustained atrial fibrillation?

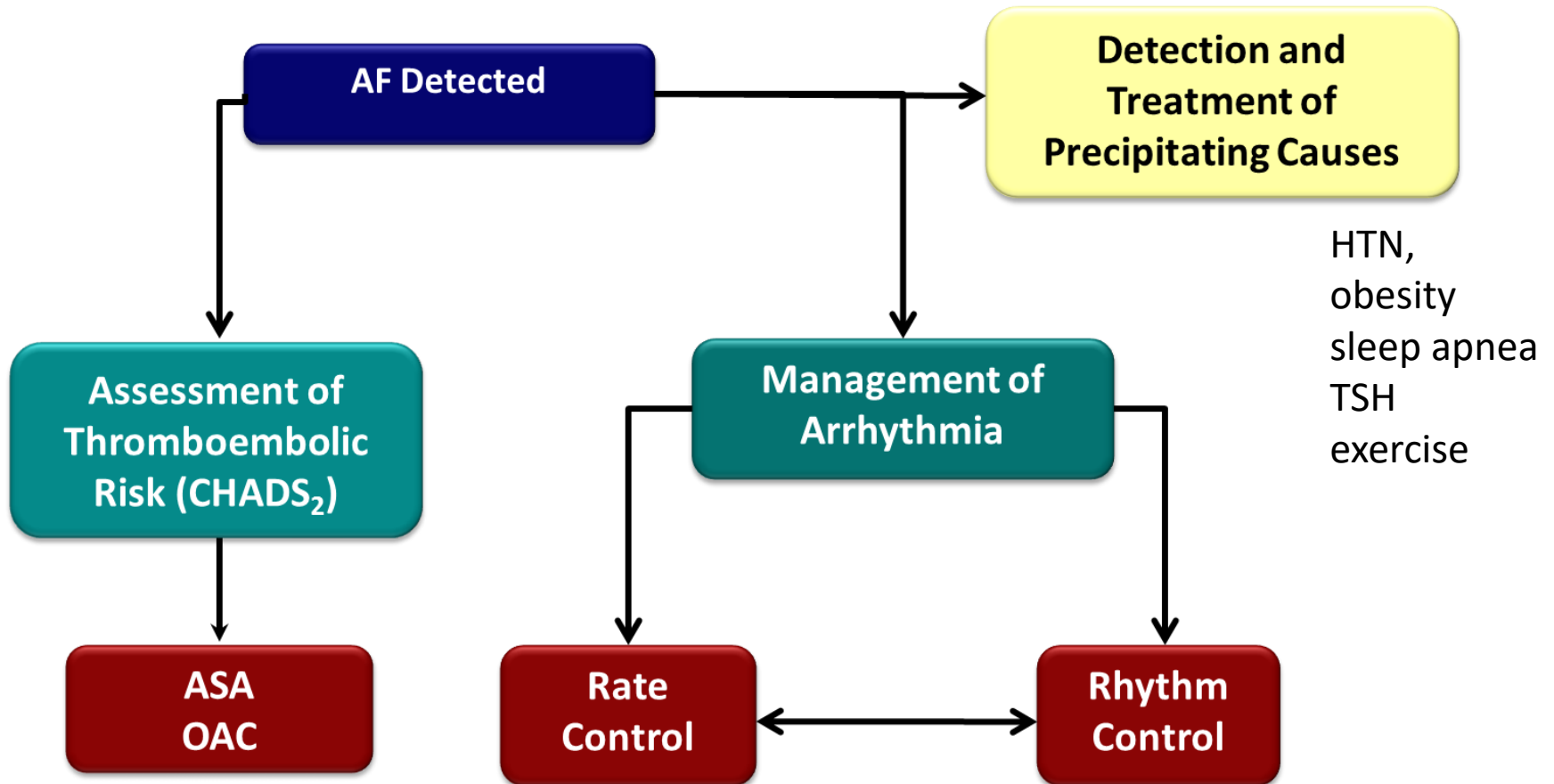


Clinical Atrial Fibrillation

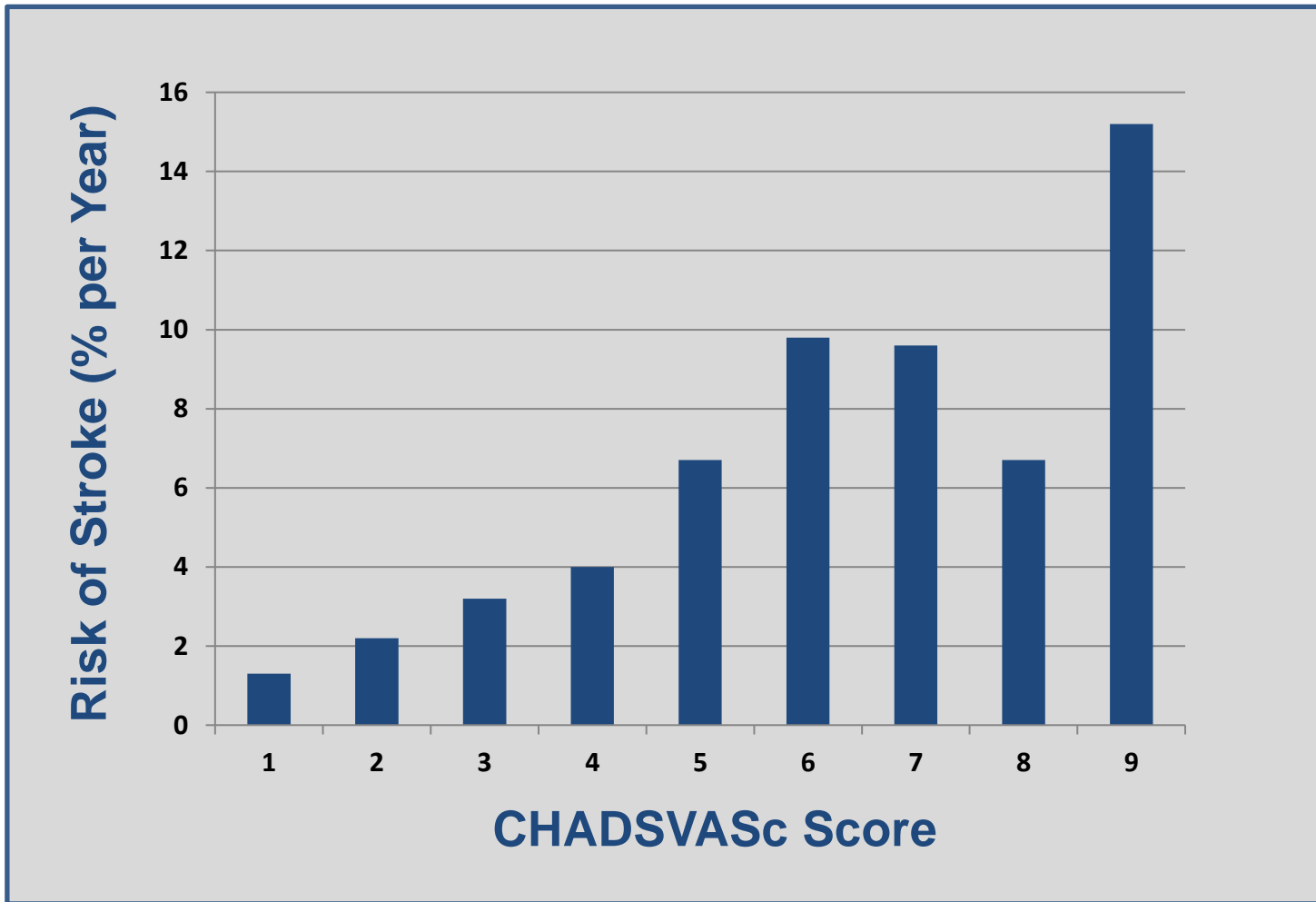
ECG documentation suggests sustained AF (>30secs)



Overview of AF Management



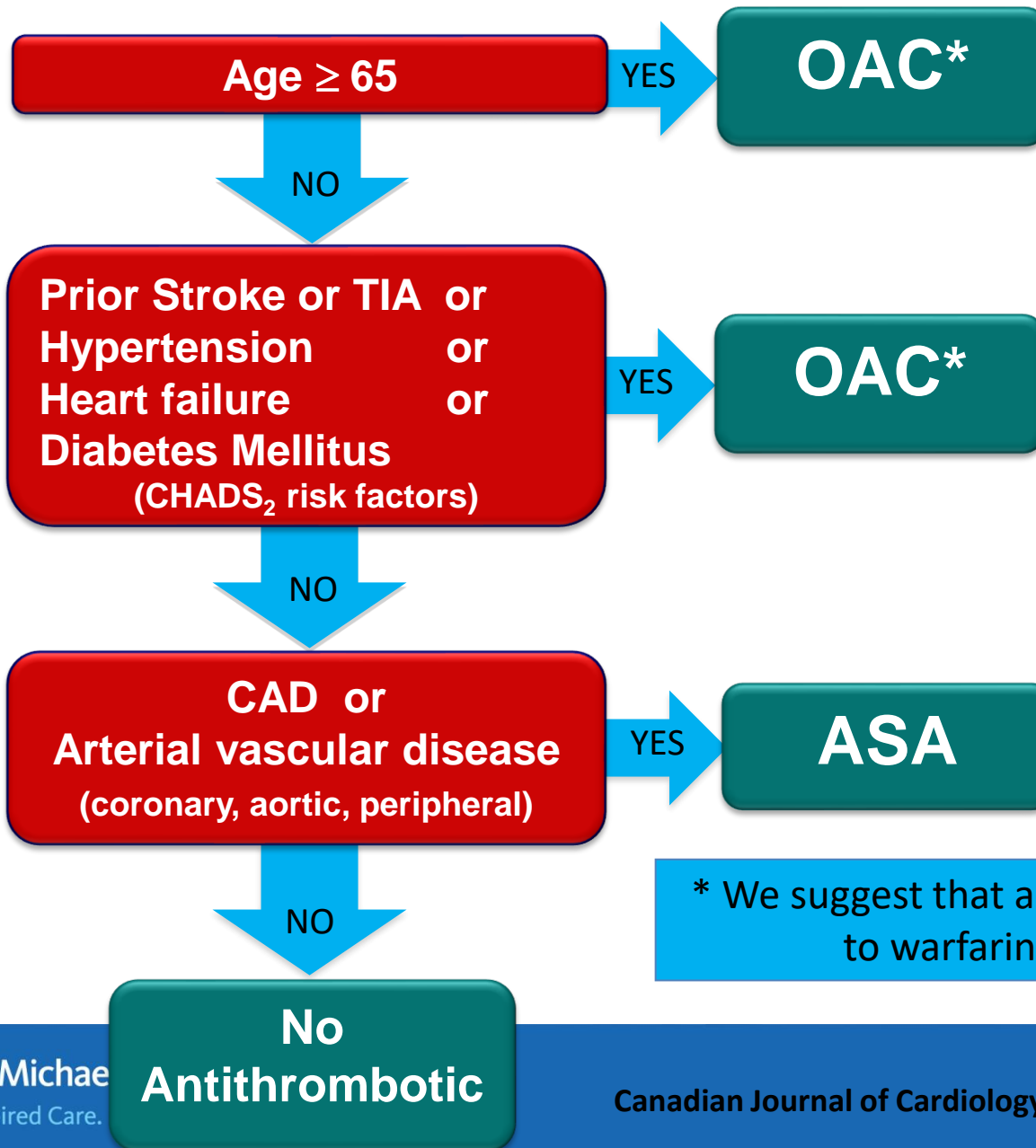
Annual Risk of Stroke with Clinical AF



CHF
HTN
Age>65
DM
Stroke 2



“CCS Algorithm” for OAC Therapy in AF



Consider and modify (if possible) all factors influencing risk of bleeding on OAC (hypertension, antiplatelet drugs, NSAIDs, excessive alcohol, labile INRs) and specifically bleeding risks for NOACs (low eGFR, age ≥ 75, low body weight)**

**may require lower dosing

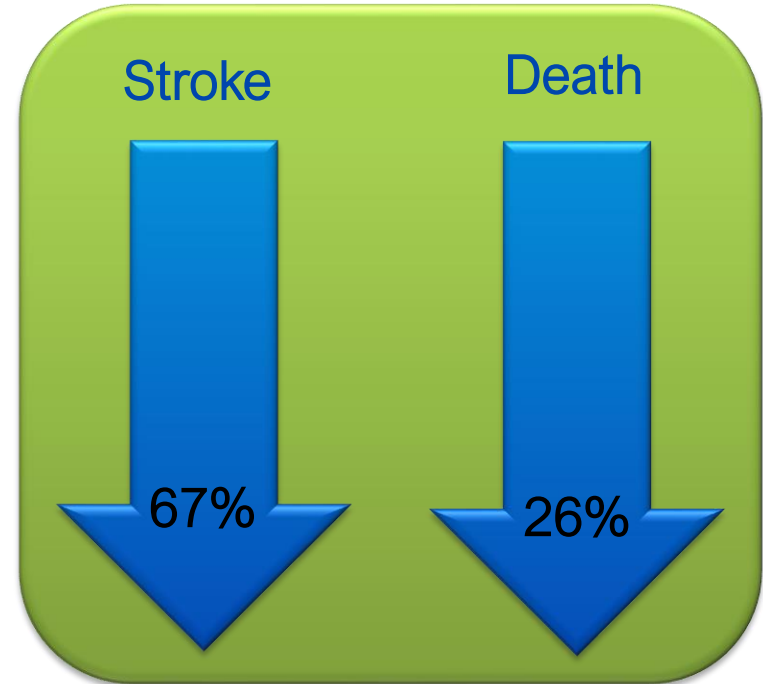
* We suggest that a NOAC be used in preference to warfarin for non-valvular AF.



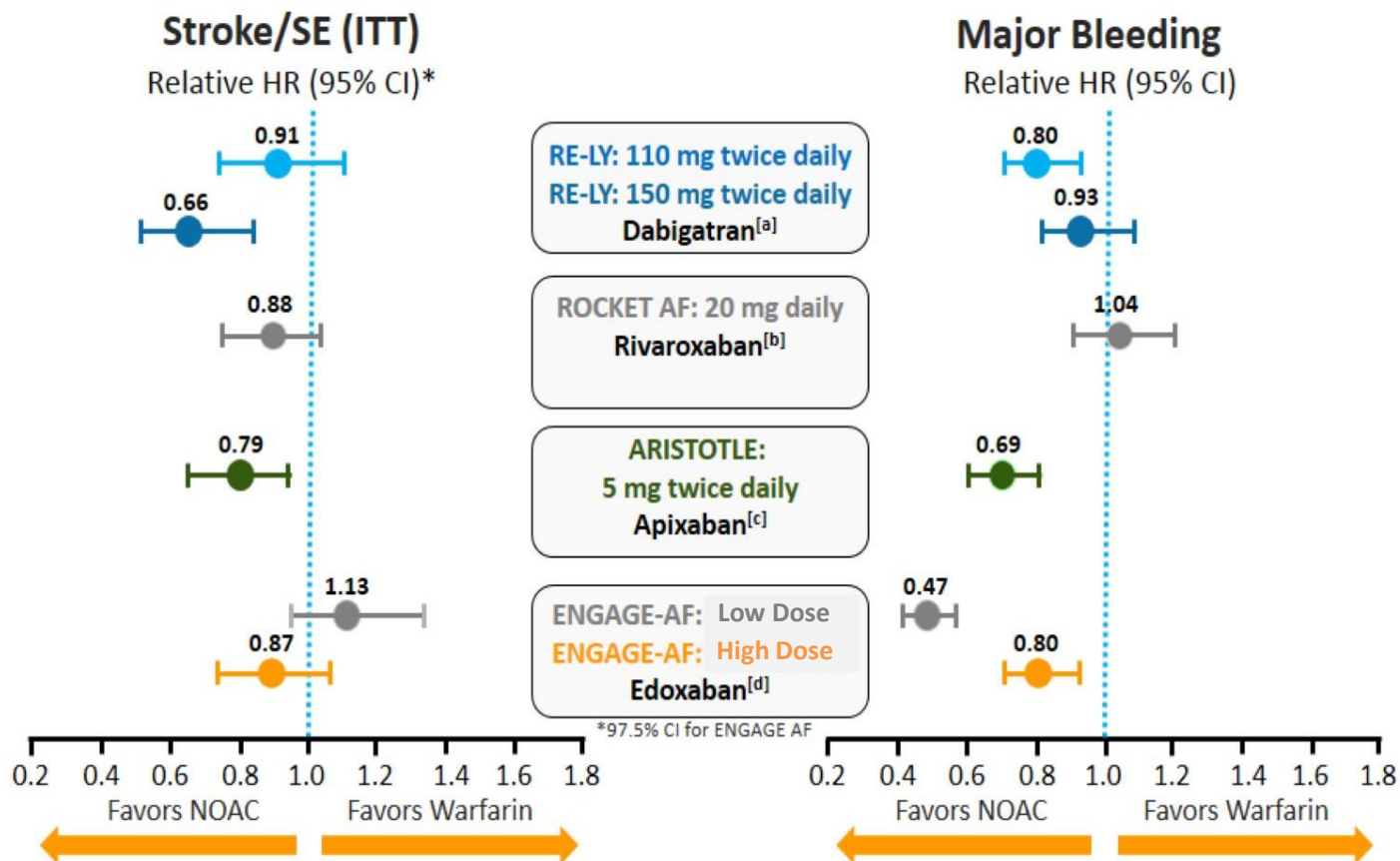
AF-related stroke is preventable

Effect of VKA compared to placebo

- A meta-analysis of 29 trials in 28,044 patients showed that adjusted-dose warfarin results in a reduction in ischaemic stroke and in all-cause mortality¹



AF NOAC Trials: Summary of Results



a. Connolly SJ, et al., NEJM 2009;361:1139-51; b. Patel MR, et al. NEJM 2011;365:883-91

b. Granger CB, et al. NEJM 2001;365:981-92; d. Giugliano RP, et al. NEJM 2013;369:2093-2104.



DOAC Dose Reduction

- Cr Cl 30-50
 - Edoxaban 30mg bid
 - Wt <60kg
 - Rivaroxaban 15 mg qd
 - Dabigatran 110mg bid
 - Age >80
 - Age > 75 w bleeding risk

Cr Cl 15-30

Apixaban 2.5 bid

**two of the following

weight <60kg

age >80

Cr > 133



Subclinical AF

Incidental discovery of sustained atrial fibrillation (>30 seconds) in an asymptomatic patient which is of uncertain clinical significance.



Do device detected episodes of AF increase risk of stroke when AF has NOT been documented on 12 lead ECG?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Subclinical Atrial Fibrillation and the Risk of Stroke

Jeff S. Healey, M.D., Stuart J. Connolly, M.D., Michael R. Gold, M.D.,
Carsten W. Israel, M.D., Isabelle C. Van Gelder, M.D.,
Alessandro Capucci, M.D., C.P. Lau, M.D., Eric Fain, M.D., Sean Yang, M.Sc.,
Christophe Bailleul, M.D., Carlos A. Morillo, M.D., Mark Carlson, M.D.,
Ellison Themeles, M.Sc., Elizabeth S. Kaufman, M.D.,
and Stefan H. Hohnloser, M.D., for the ASSERT Investigators*

NEJM 2012;366:120-9



ASSERT Trial

HTN + ≥ 65 yrs + new Dual chamber PM/ICD

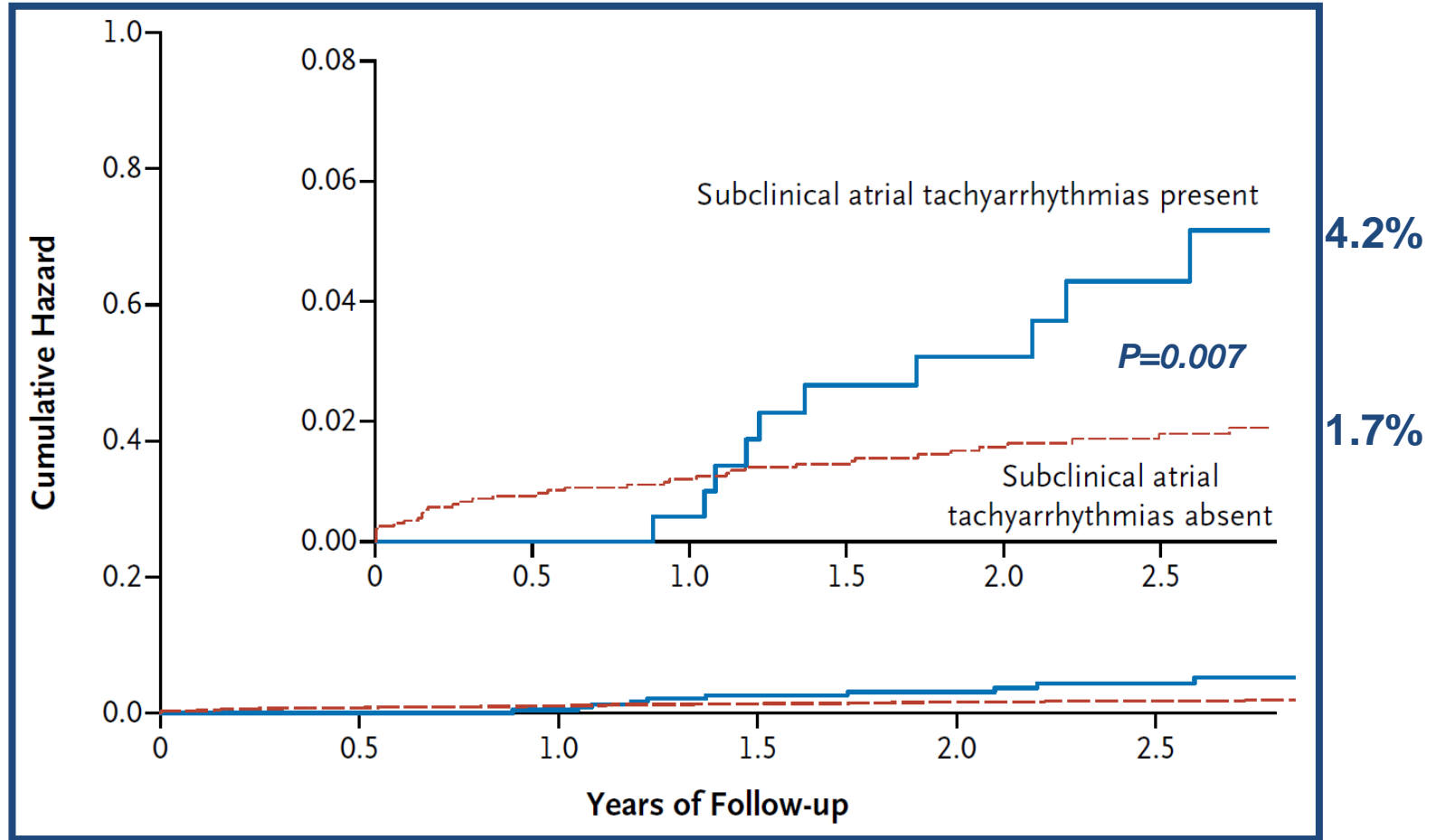
- No prior documented AF or AFL**
- No clinical indication for OAC**
- 2 groups based on presence or absence of subclinical AA (SCAA) at 3 months**

SCAA: Over 190bpm, lasting AT LEAST 6 minutes

PRIMARY OUTCOME: Ischemic Stroke & Systemic Embolism



ASSERT: Stroke & Systemic Thromboembolism



Healey J et al, NEJM 2012;366:120-9c



Assert Subanalysis

Duration of afib and stroke risk

Duration of afib (hours)	Yearly stroke or embolism risk	95% CI
<0.86	1.23	0.15-4.46
0.87-3.6	0	0-2.08
3.6-17.7	1.18	0.14-4.28
>17.7	4.89	1.96-10.07



ARTESIA STUDY

INCLUSION

Dual PM or ICD
SCAF > 6min
No Documented AF
CHADSVASc > 3
Not on OAC

randomized

Apixaban

ASA

Primary Outcome:

Composite of ischemic stroke and
systemic thromboembolism



PI: Dr. Jeff Healey – PHRI, Hamilton

St. Michael's

Inspired Care. Inspiring Science.

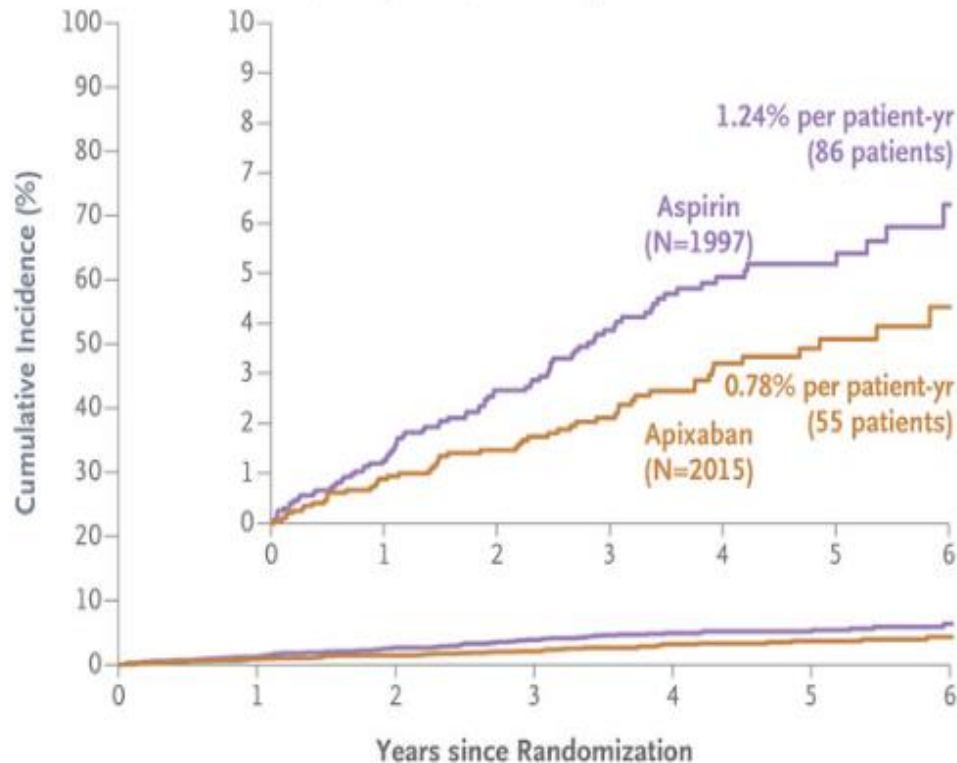


ARTESIA

Apixaban for Stroke Prevention in Subclinical Atrial Fibrillation

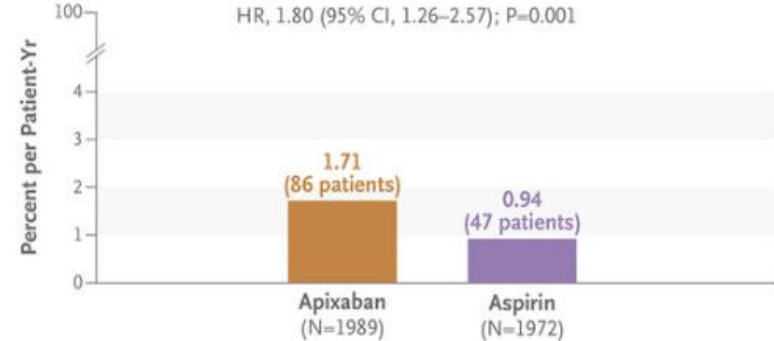
Stroke or Systemic Embolism (Intention-to-Treat Population)

HR, 0.63 (95% CI, 0.45–0.88); P=0.007



Major Bleeding (On-Treatment Population)

HR, 1.80 (95% CI, 1.26–2.57); P=0.001



CONCLUSIONS

Among patients with subclinical atrial fibrillation, apixaban lowered the risk of stroke or systemic embolism but increased the risk of major bleeding.

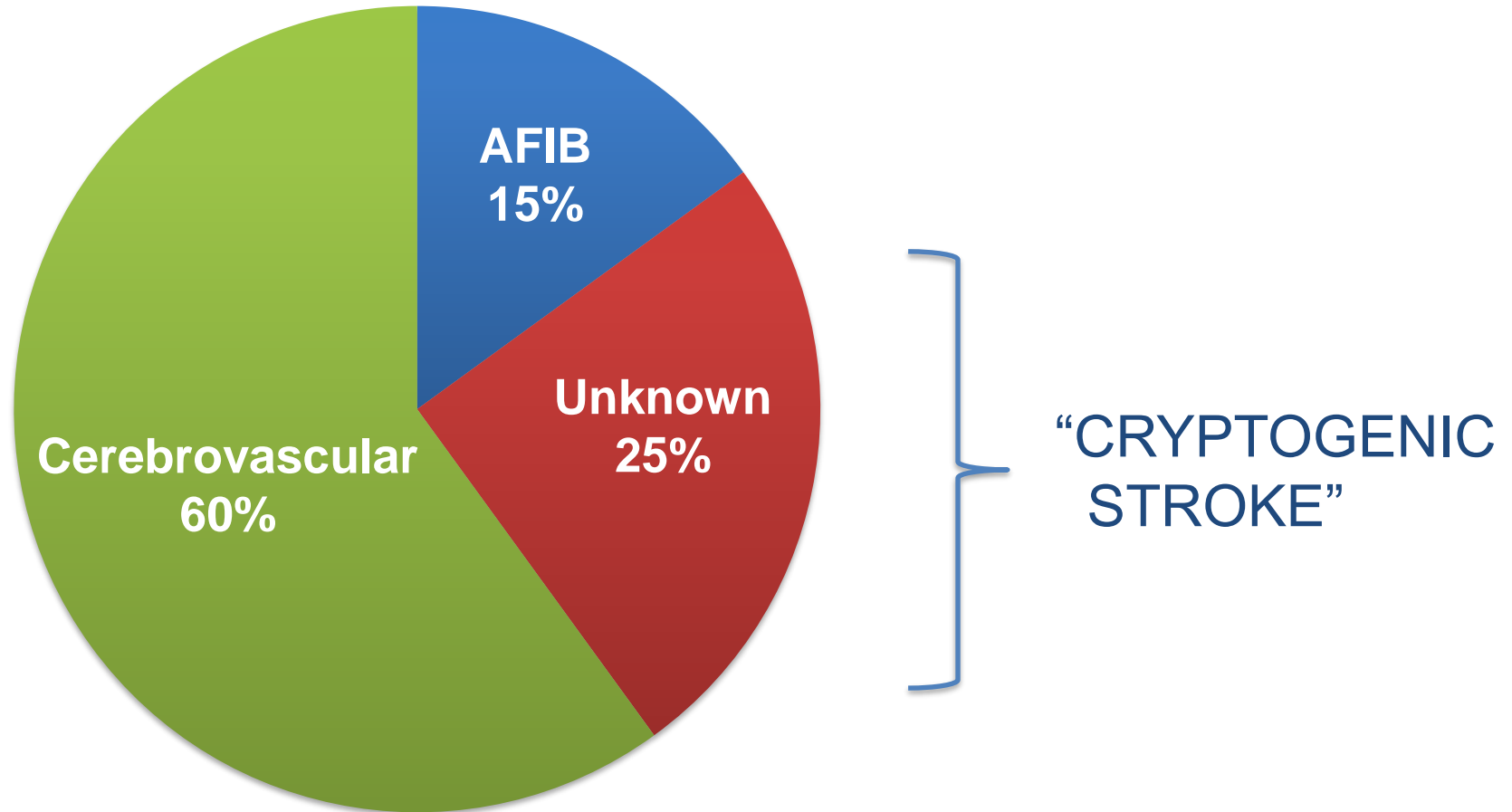


Subclinical AF   **Stroke**  **DOAC** 

Stroke  **Subclinical AF**



Identified Causes of Stroke



EMBRACE STUDY



Gladstone DJ et al, *NEJM* 2014;370:2467-77



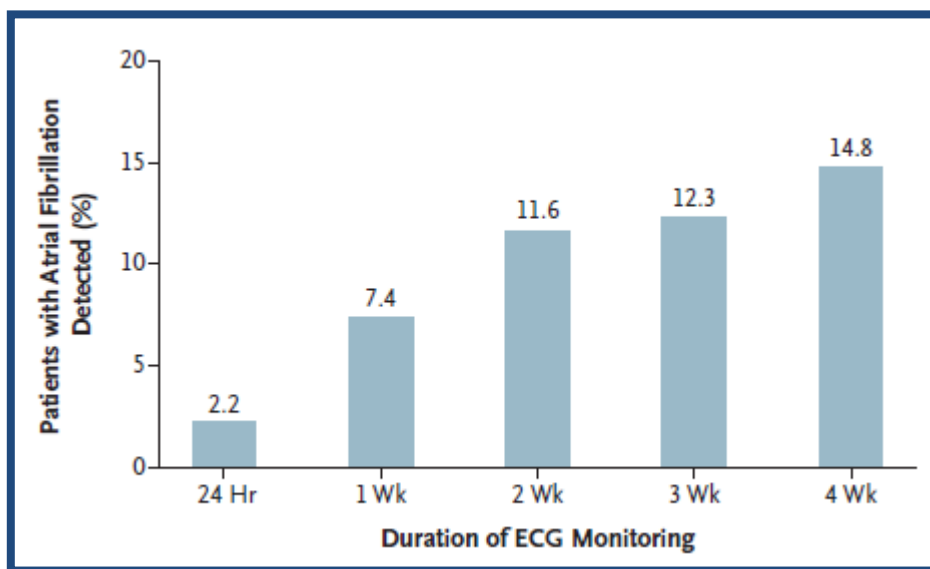
EMBRACE STUDY – Main Points

Patients at Baseline

Age: 73yrs
Median CHADS: 3
HTN: 70%
DM: 19%
Index Stroke: 63%
Index TIA: 37%

Primary Outcome:

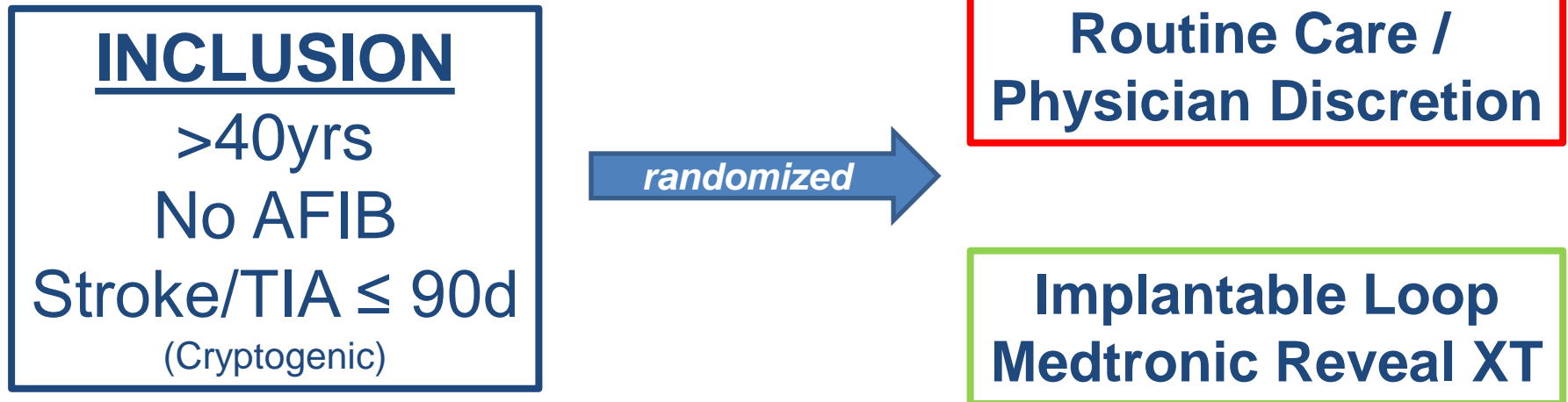
Usual Care (n=277): 3% AF Detected
30d Monitor (n=280): **16% AF Detected**



Gladstone DJ et al, *NEJM* 2014;370:2467-77



Crystal AF Study



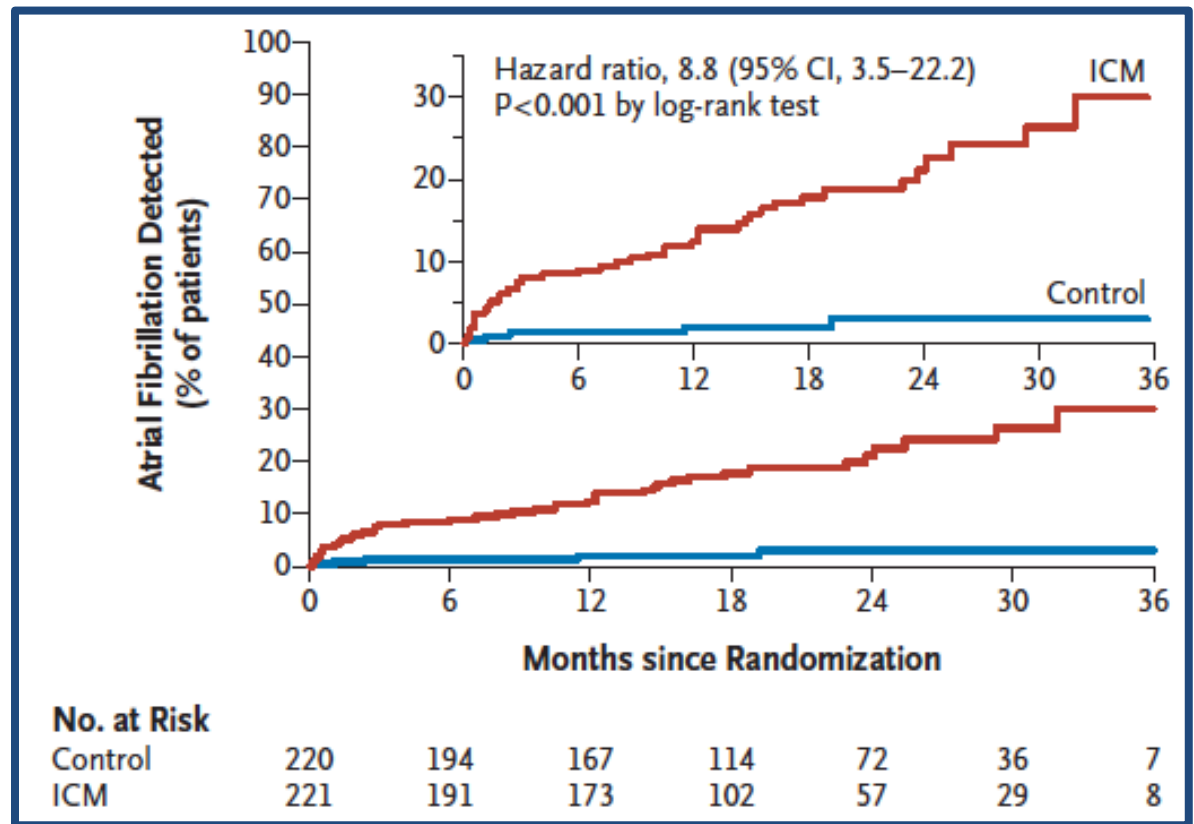
Sanna T et al, *NEJM* 2014;370:2468-86



Crystal AF Study – Main Points

Patients at Baseline

Age: 61yrs
Median CHADS: 3
HTN: 62%
DM: 16%
Index Stroke: 91%
Index TIA: 9%



6 mos: 8.9% vs 1.4%

12 mos: 12.4% vs 2%

36 mos: **30%** vs 3%

Sanna T et al, *NEJM* 2014;370:2468-86



KEY POINT

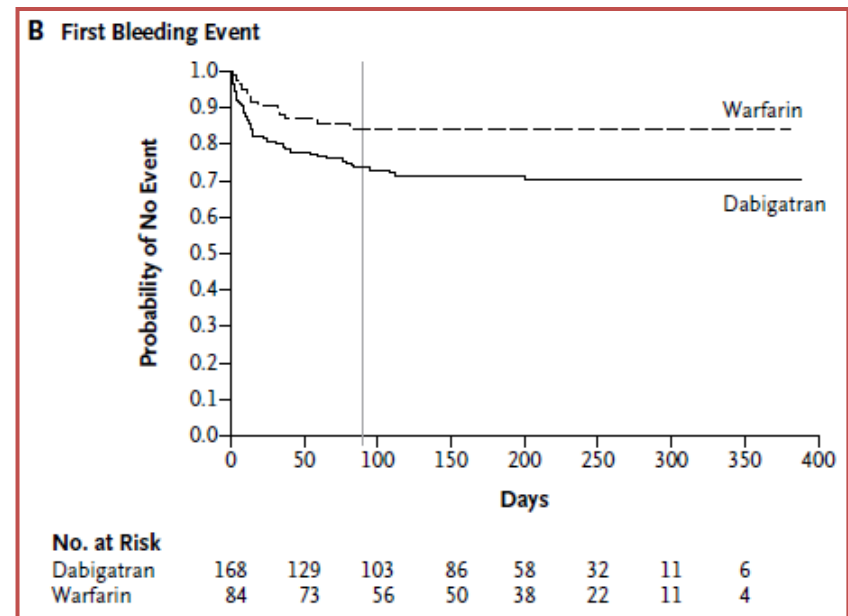
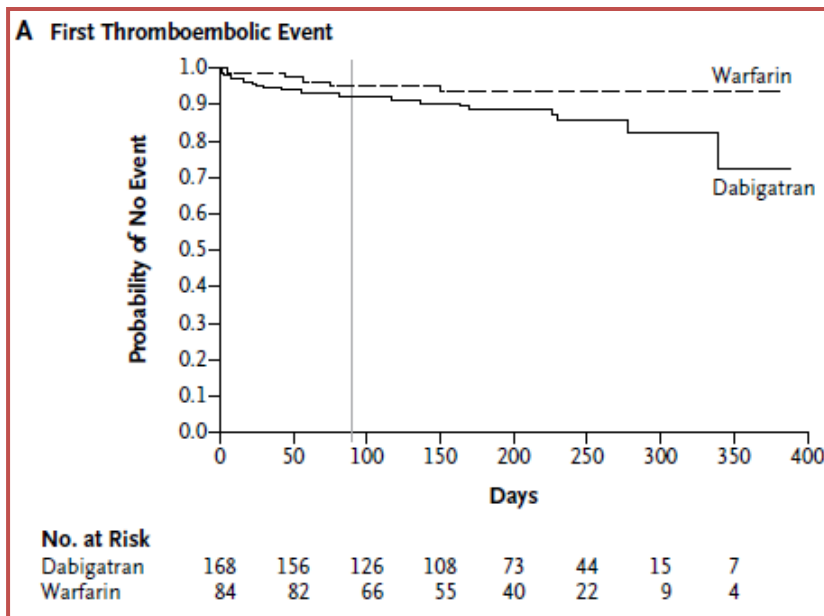
**Prolonged Cardiac Monitoring
After Cryptogenic Stroke
Is Essential for Detection of
Asymptomatic Atrial Fibrillation**



OAC and Mechanical Valves

- The **only** OAC approved for use in patients with mechanical heart valves or significant rheumatic mitral stenosis is **Warfarin**

RE-ALIGN Study



N=252, 70% Aortic, 30% Mitral

Dabigatran 150-300 BID based on CrCl

Eikelboom et al, *NEJM* 2013;369:1206-14



When should we choose warfarin?

Severe renal dysfunction: CrCl <15

Mechanical heart valves

Warfarin experienced with good TTR and patient chooses not to switch

Rheumatic heart disease – mod-severe MS

Prohibitive drug interactions with DOACs



NOACs and Valvular* HD

*AS / AI
MR and mild MS
TV disease

Stroke and Systemic Embolism

	NOAC Event Rate/Year (n)	Warfarin Event Rate/Year (n)		Hazard Ratio 95% CI	Interaction P-value
RE-LY					
Dabigatran 150 mg, VHD	1.12 (30)	1.9 (49)		0.59 [0.37, 0.93]	0.63
Dabigatran 150 mg, No VHD	1.11 (104)	1.66 (153)		0.67 [0.52, 0.86]	
Dabigatran 110 mg, VHD	1.84 (47)	1.9 (49)		0.97 [0.65, 1.45]	
Dabigatran 110 mg, No VHD	1.45 (136)	1.66 (153)		0.88 [0.70, 1.10]	
ARISTOTLE					
Apixaban 5mg, VHD	1.46 (64)	2.08 (89)		0.70 [0.51, 0.97]	0.38
Apixaban 5mg, No VHD	1.2 (148)	1.43 (176)		0.84 [0.67, 1.04]	
ROCKET AF					
Rivaroxaban 20 mg, VHD	2.01 (38)	2.43 (50)		0.83 [0.55, 1.27]	0.70
Rivaroxaban 20 mg, No VHD	1.96 (231)	2.22 (256)		0.89 [0.75, 1.07]	
ENGAGE AF – TIMI 48					
Edoxaban HD, VHD	1.39	2.02		0.69 [0.44, 1.07]	0.26
Edoxaban HD, No VHD	1.60	1.77		0.91 [0.77, 1.07]	

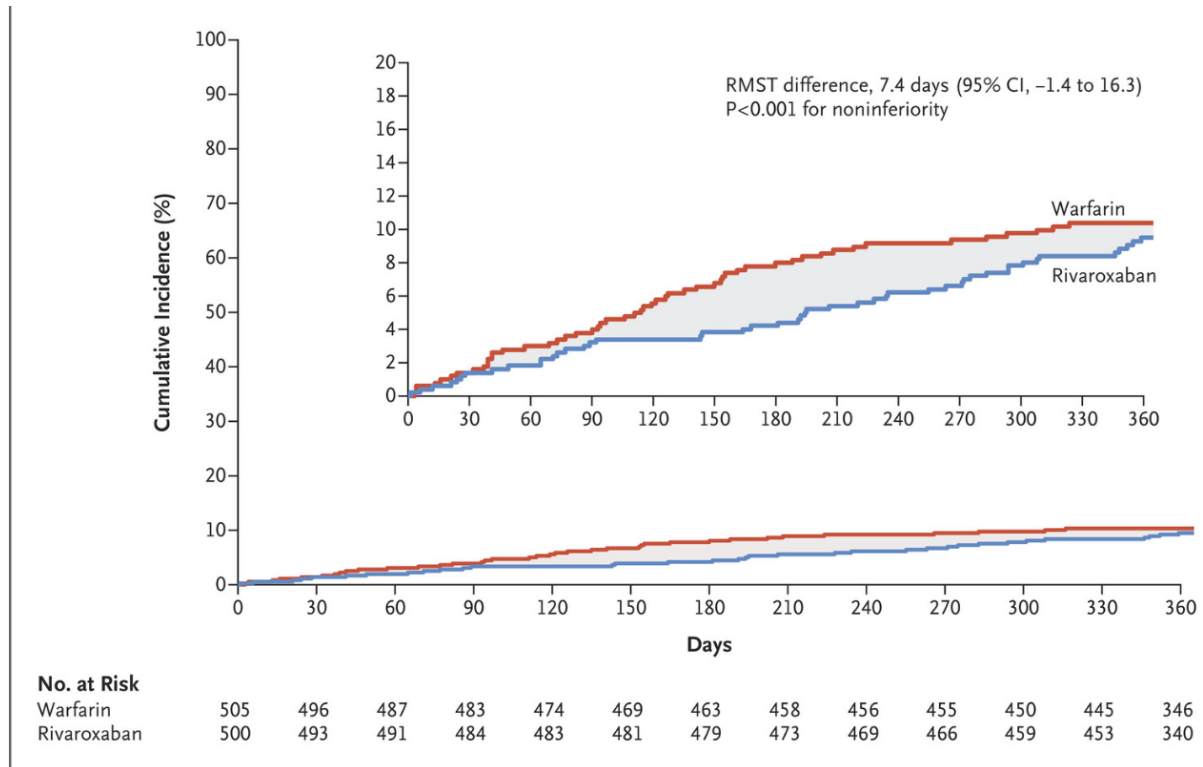
0.5 1.0 1.5 2.0
Favor NOAC Favor Warfarin



DOACs and Bioprosthetic Heart Valves

RIVER TRIAL

Rivaroxaban in Patients with Atrial Fibrillation and a Bioprosthetic Mitral Valve



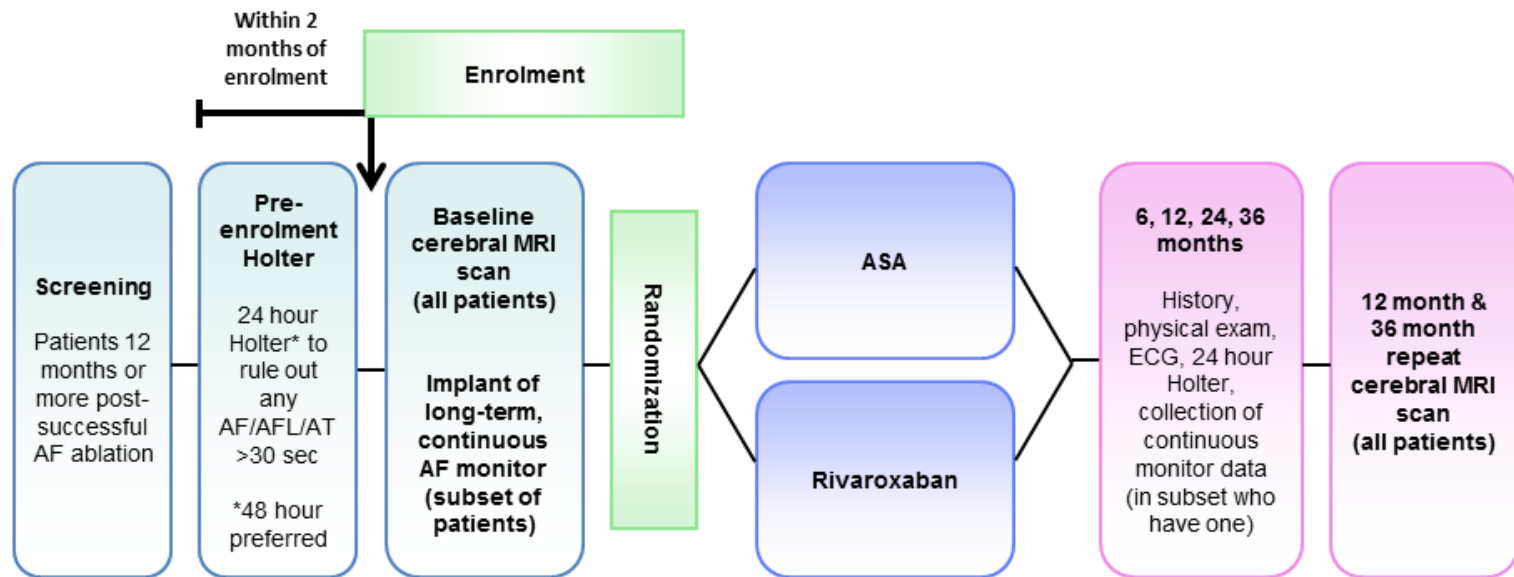
1000 patients
Rivarox 20mg vs Warfarin

Primary Outcome Composite
Death
Major CV events
Major bleeding

November 14, 2020 N Engl J Med 2020;383:2117-2126



Can we stop anticoagulation after Atrial Fibrillation ablation?



Circulation

Circulation logo

2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

Recommendations for Anticoagulation Therapy Before and After Catheter Ablation

Referenced studies that support the recommendations are summarized in the [Online Data Supplement](#).

1

B-NR

4. In patients who have undergone catheter ablation of AF, continuation of longer-term oral anticoagulation should be dictated according to the patients' stroke risk (eg, CHA²DS²-VASc score ≥ 2).¹¹⁻¹⁷



Key Take Home Messages

- Screen for atrial fibrillation in cryptogenic stroke
- OAC based on CHADS65
 - DOACS for non-valvular/mild valvular heart disease
 - Warfarin for mechanical valvular disease and rheumatic mod-severe MS
- Post ablation follow CHADS65

