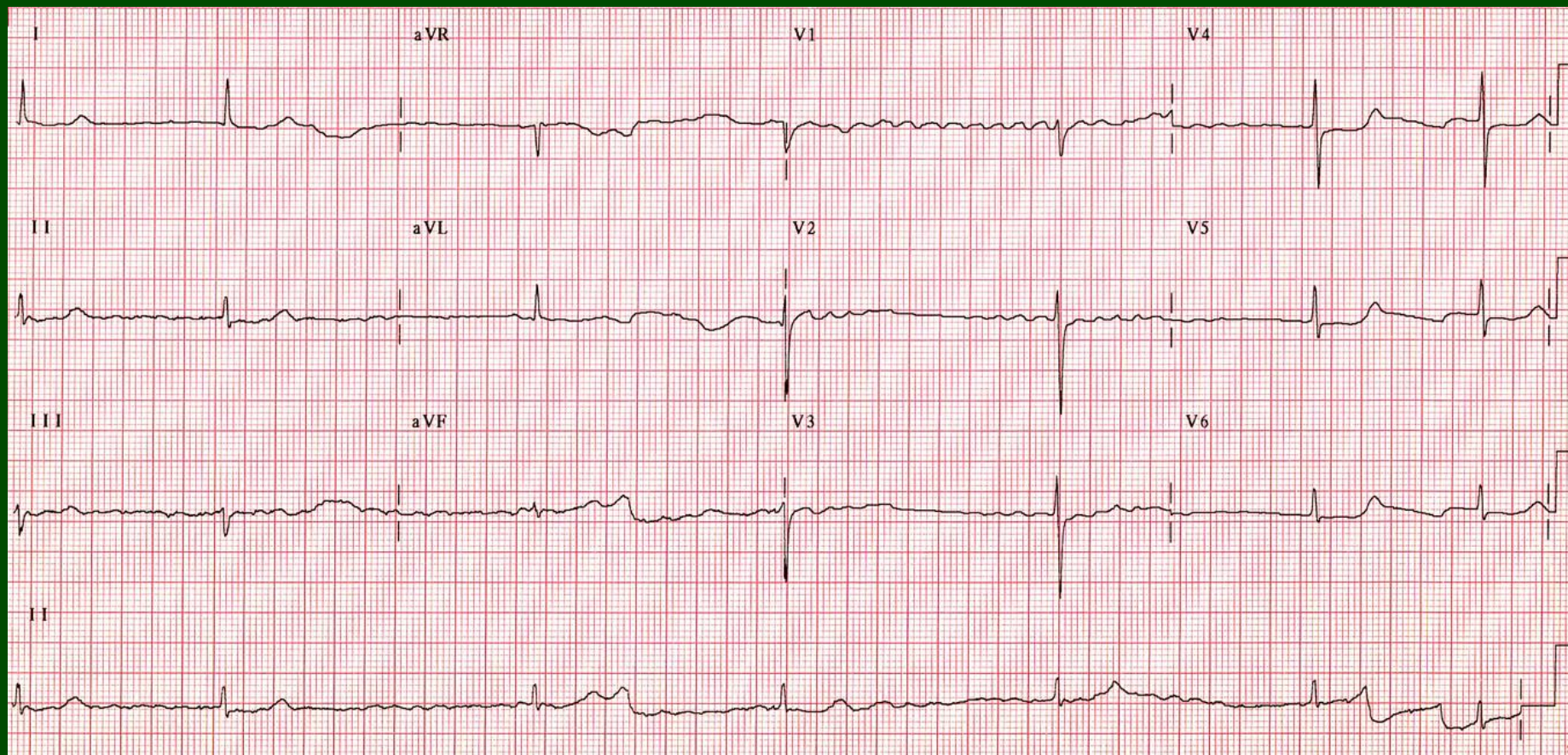
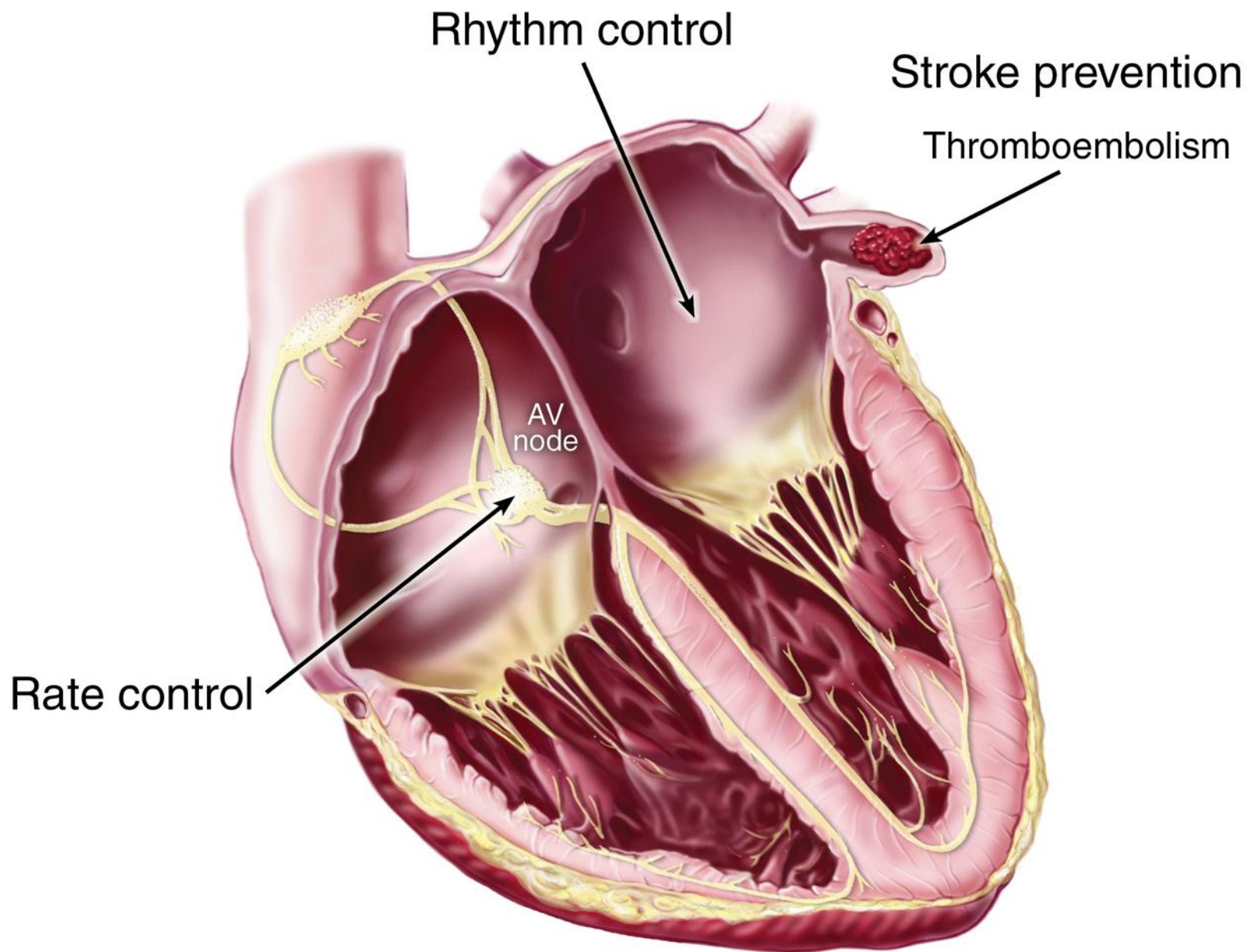
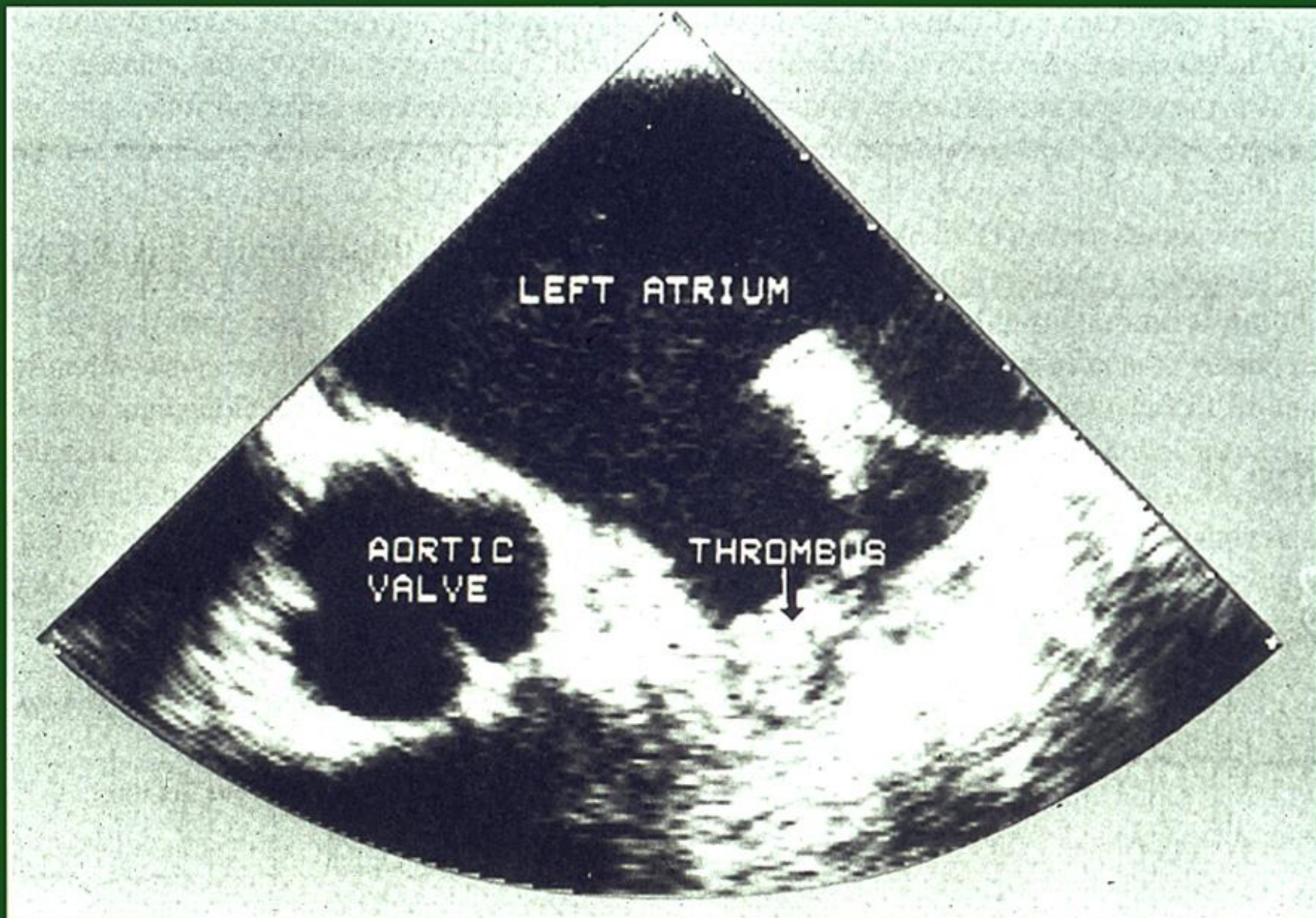


Conflict of Interest

- Consultant: Medtronic; Stereotaxis; Topera-Abbott EP; CardioNet
- Board of Directors: Stereotaxis
- Stock: Stereotaxis
- Institutional Fellowship support: Boston Scientific; Medtronic; St Jude







Prime Directive in Management of Atrial Fibrillation

**PRESERVE
THE BRAIN**

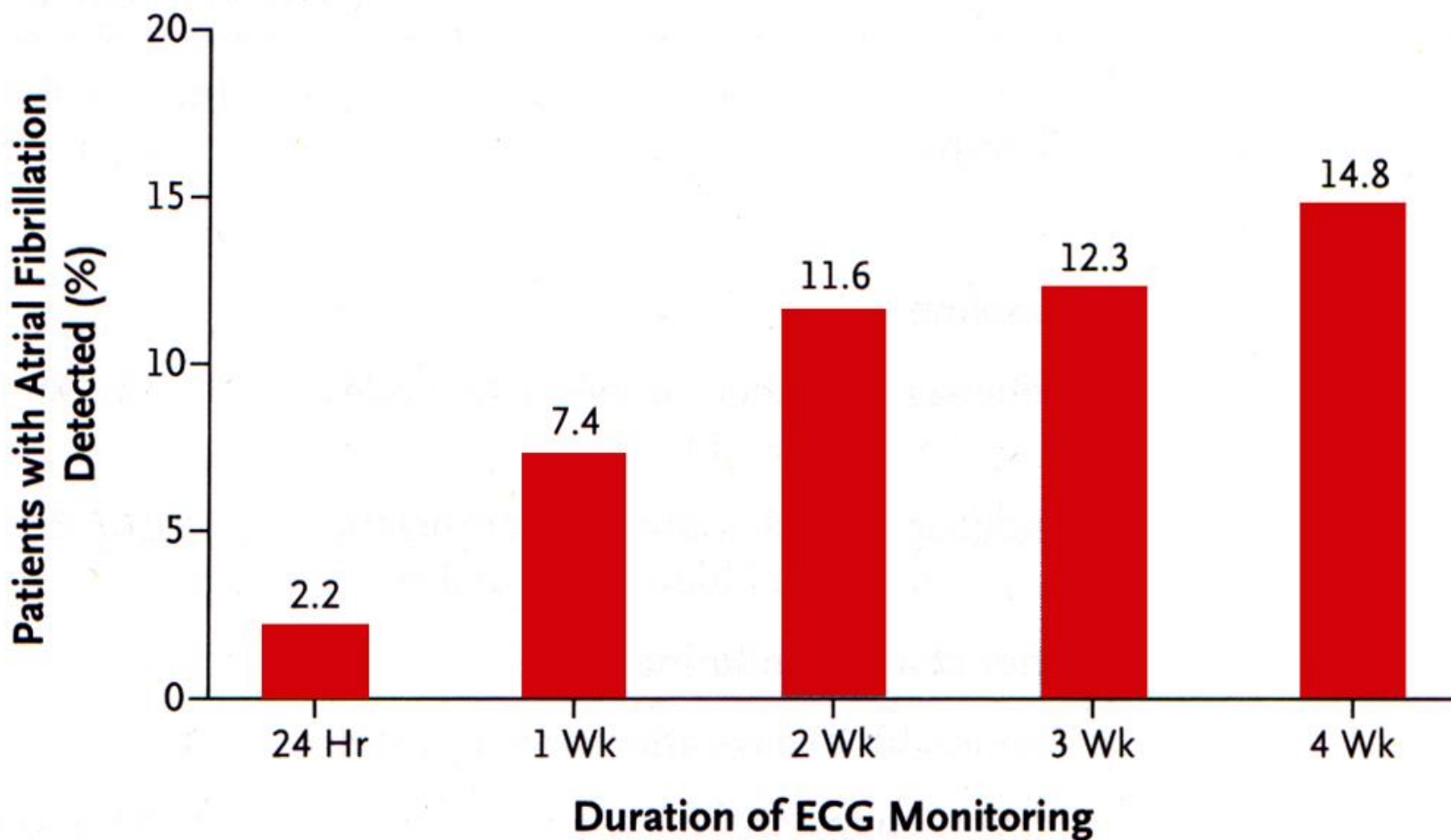
Use of 72-hour Holter ECG to Detect AF after Ischemic Stroke

- 1135 patients with acute stroke given a 72-hour Holter ECG before hospital discharge
- Unknown AF detected in 49 (4.3%) of patients
- Patient age with / without AF: 76 vs. 67 ($p < 0.0001$)

Use of ECG Monitoring to Detect AF in Patients after Cryptogenic Stroke (EMBRACE)

- 572 patients after cryptogenic stroke randomized to 30-day event recorder versus 24-hour Holter monitor
- Event monitor (Braemar) with autodetect AF capability (over a period of 30 beats)
- Mean age 72 years
- Randomization mean of 75 days after stroke
- 82% of monitored patients completed ≥ 3 weeks

Atrial Fibrillation Detected During Prolonged Ambulatory Monitoring in Patients with Cryptogenic Stroke (EMBRACE)



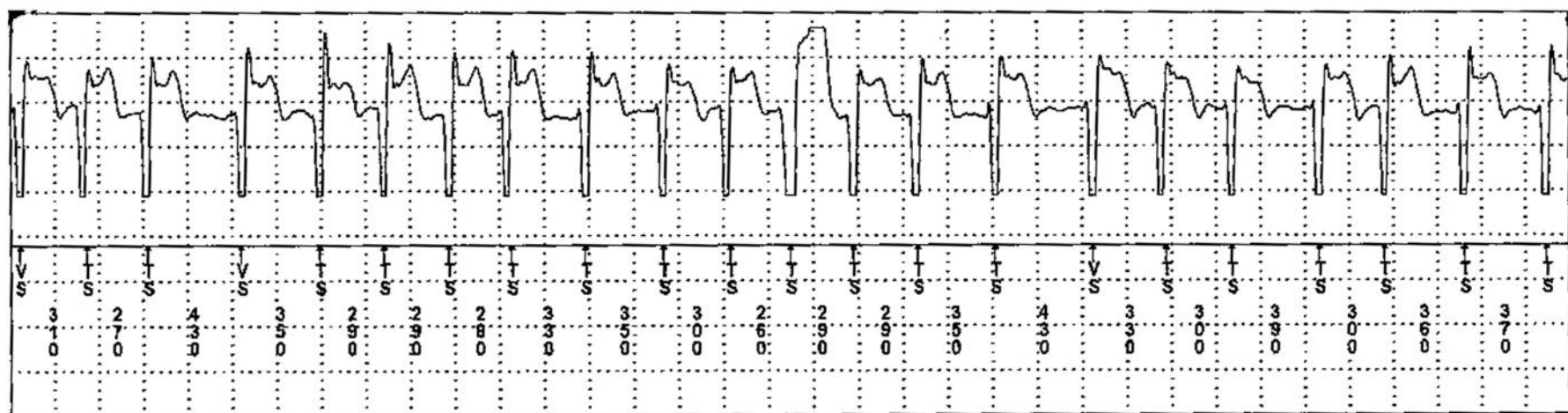
Detection of AF after Cryptogenic Stroke Using 28-day MCOT Monitoring

- Retrospective cohort of 227 patients
- MCOT started median 64 days after stroke
- AF in 31 (14%) patients (3 with symptoms)
- AF Duration:

≥ 30 seconds	58%
< 30 seconds	42%
- Age with / without AF: 69.1 vs. 61.9 yrs. $p = 0.005$

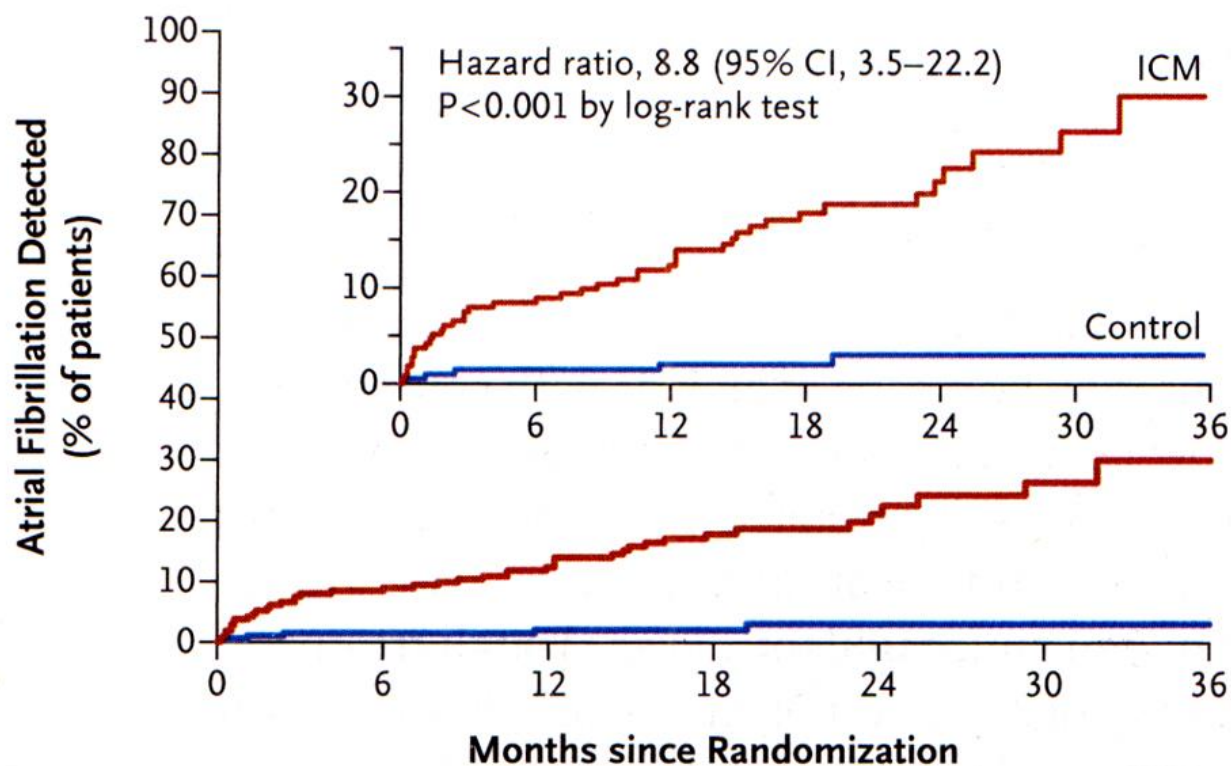
Use of Insertable Cardiac Monitor (ICM; REVEAL XT) to Detect AF in Patients after Cryptogenic Stroke (CRYSTAL AF)

- 441 patients randomized to ICM versus routine follow-up (control)
- Time from stroke to randomization was a mean 38 days
- AF at 6 months:
 - ICM 8.9% $p < 0.001$
 - Control 1.4%



Atrial Fibrillation Detected by Implantable Cardiac Monitor in Patients With Cryptogenic Stroke (**CRYSTAL AF**)

C Detection of Atrial Fibrillation by 36 Months



No. at Risk

Control	220	194	167	114	72	36	7
ICM	221	191	173	102	57	29	8

Temporal Relationship between subclinical AF (SCAF) and embolic events in **ASSERT**

- 51/2580 (2%) had stroke or systemic emboli (SE)
- Subclinical AF in 26/51 (51%)
- SCAF in 18 patients detected before stroke/SE
- 4/18 patients had SCAF w/n 30 days before event
- 14/18 patients had SCAF median 339 days pre event

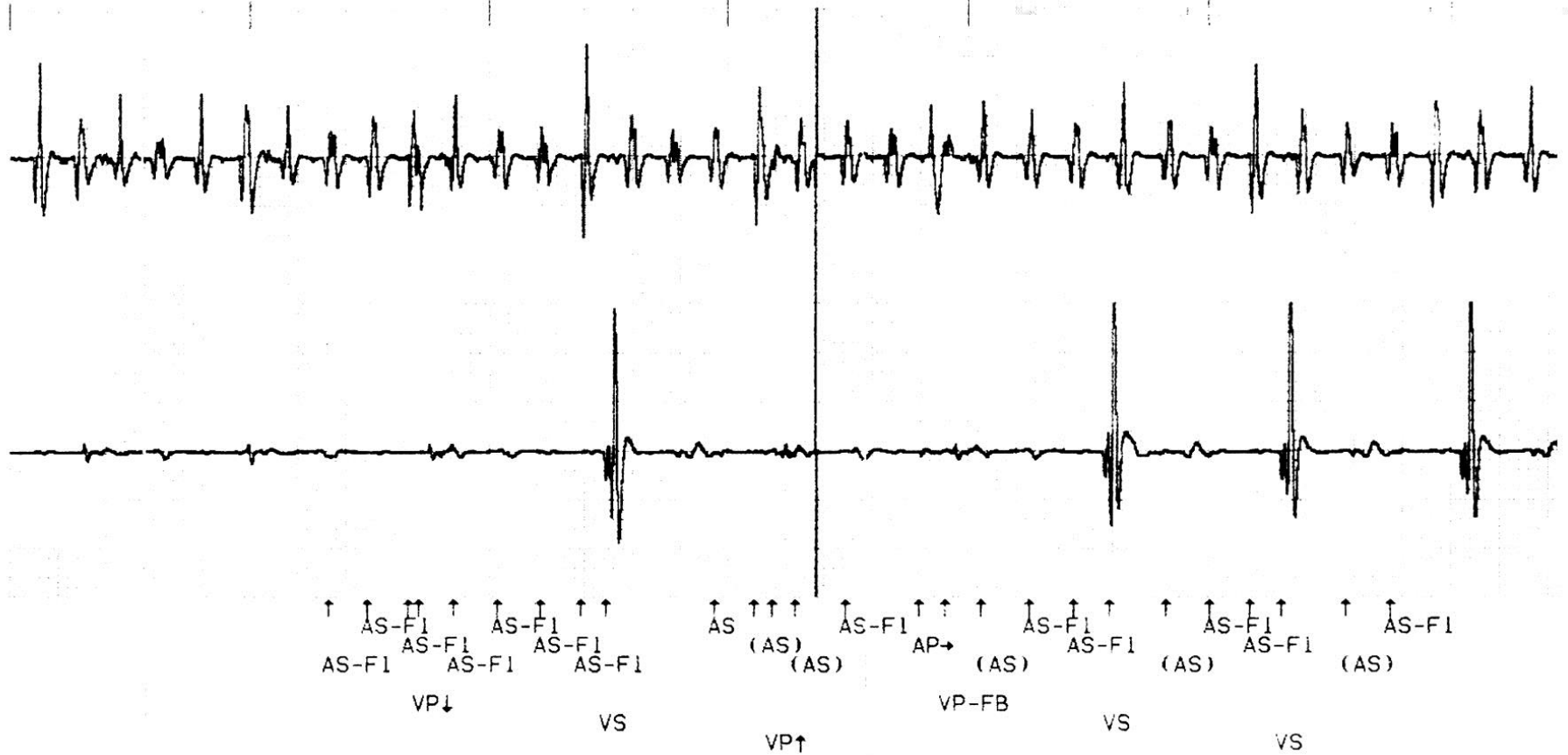
From: Brambatti M Circulation
2014;129:2094-2099

Temporal Relationship of Atrial Tachyarrhythmias and Cerebrovascular Event or Systemic Emboli in **TRENDS**

- 40/2,486 (1.6%) patients with implantable PM/ICD had CVE/SE during follow-up
- AT/AF detected anytime prior to CVE/SE in 20 (50%) patients
- 9/20 (45%) patients had no AT/AF within 30 days prior to CVE/SE
- 6 patients had AT/AF at time of CVE/SE
- 14 patients had last episode of AT/AF 168 ± 199 days (3-642 days) before CVE/SE

Identification of AF **BEFORE** a
stroke occurs

86 year old woman with syncope before,
but not after, pacemaker implanted;
220 ATRs, longest 2.4 hours; No Sx



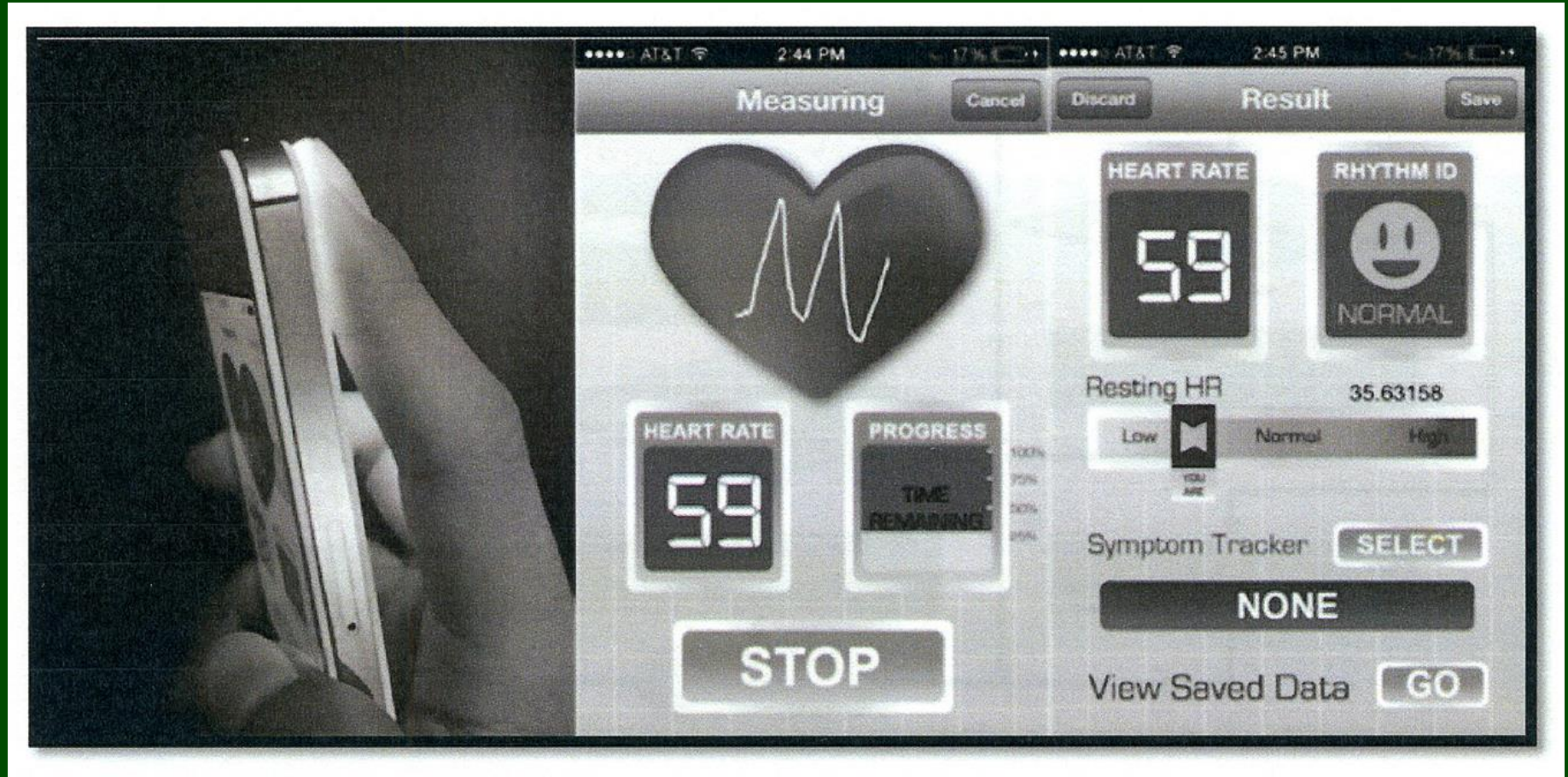
Take Your Pulse



Mass Screening for Atrial Fibrillation (**STROKESTOP** Study)

- Ongoing study to determine the value of AF screening in 75-year-old persons and anticoagulant therapy to reduce stroke over 5 years follow-up
- Monitoring with handheld ECG recorder (Zenicor)
- 30-second ECG rhythm strips twice daily for 2 weeks and with palpitations
- New AF detected in 218 (3%) of patients

Prototype of Pulse Waveform Analysis Application (iPhone 4S)



Examples of RR Intervals and Pulse Beats

