WHAT'S NEW IN ATRIAL FIBRILLATION

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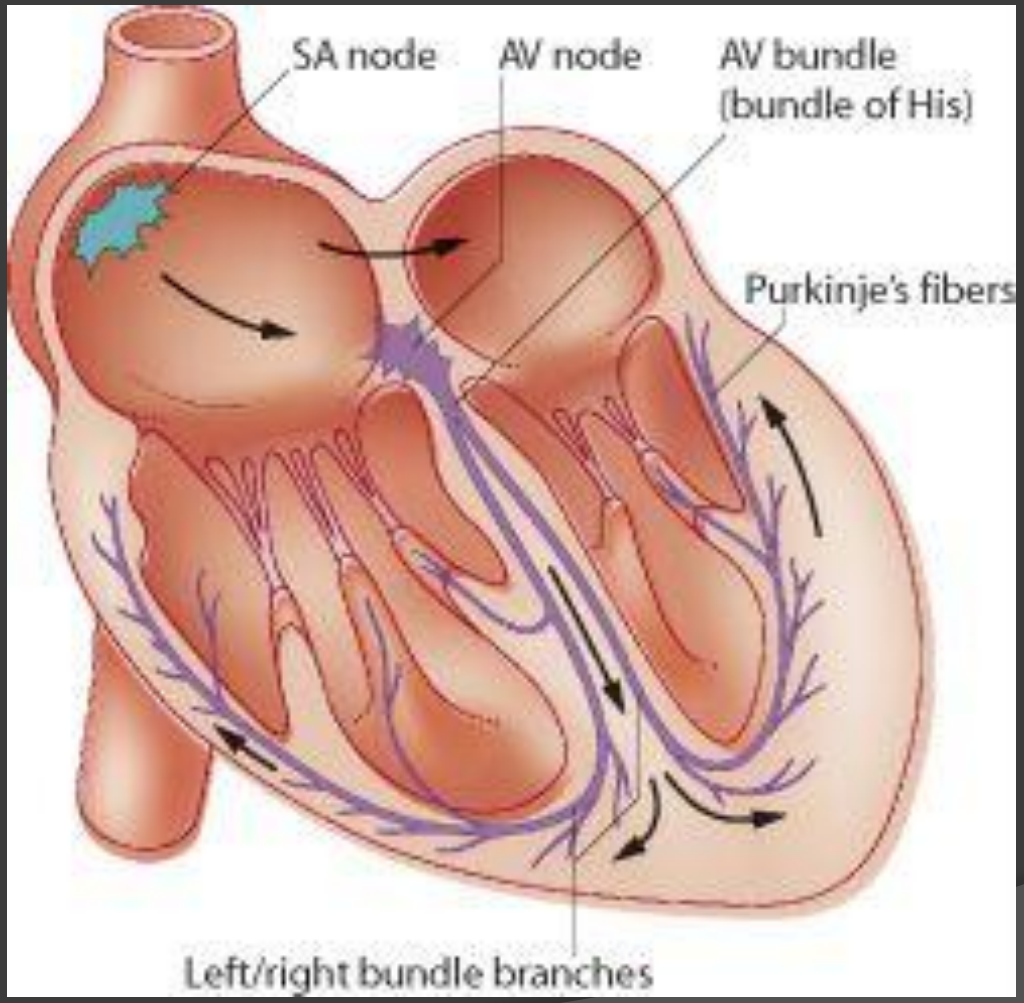
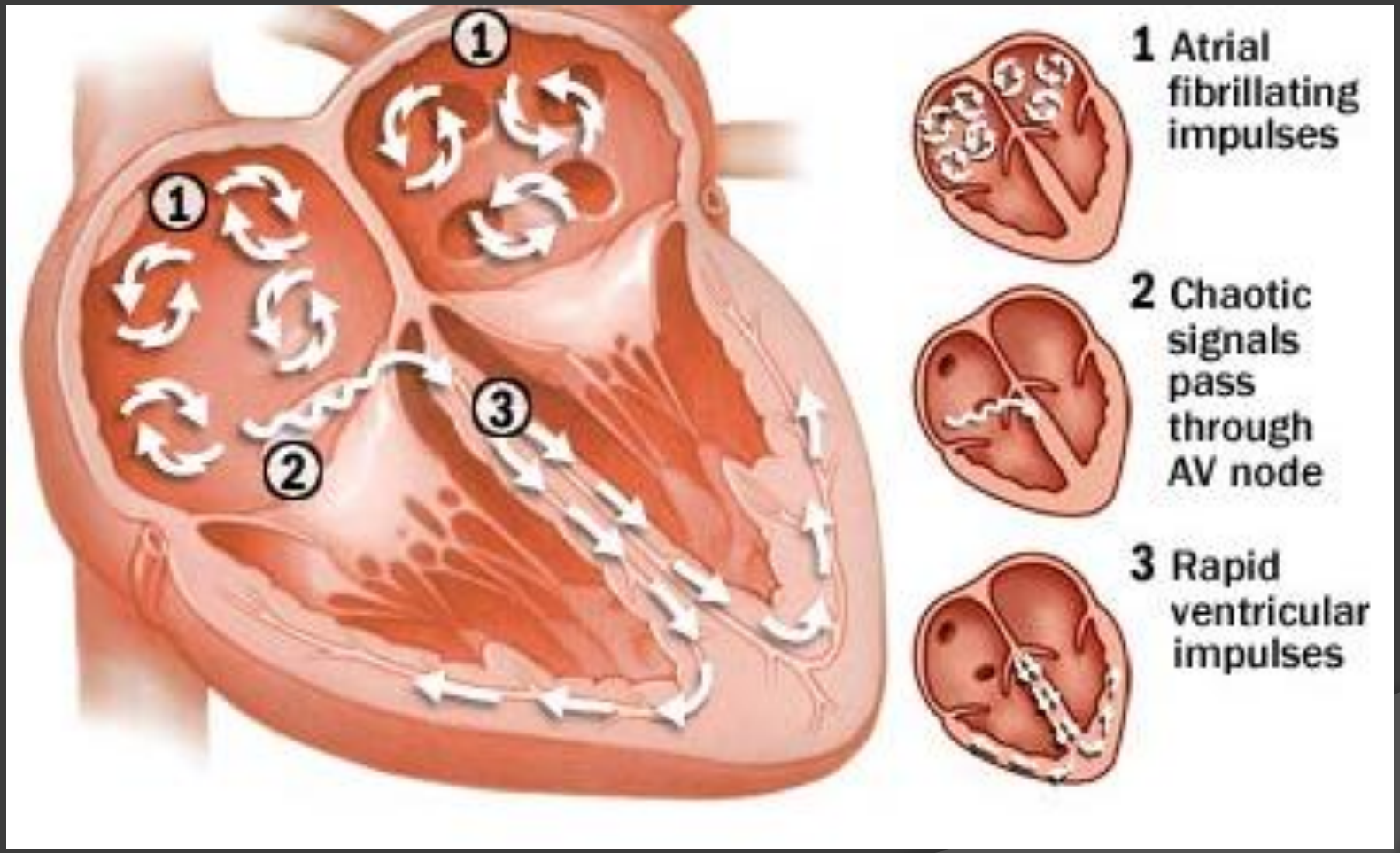
What is AFib?

- An irregular, sometimes rapid, heart rhythm
- Identified on an EKG

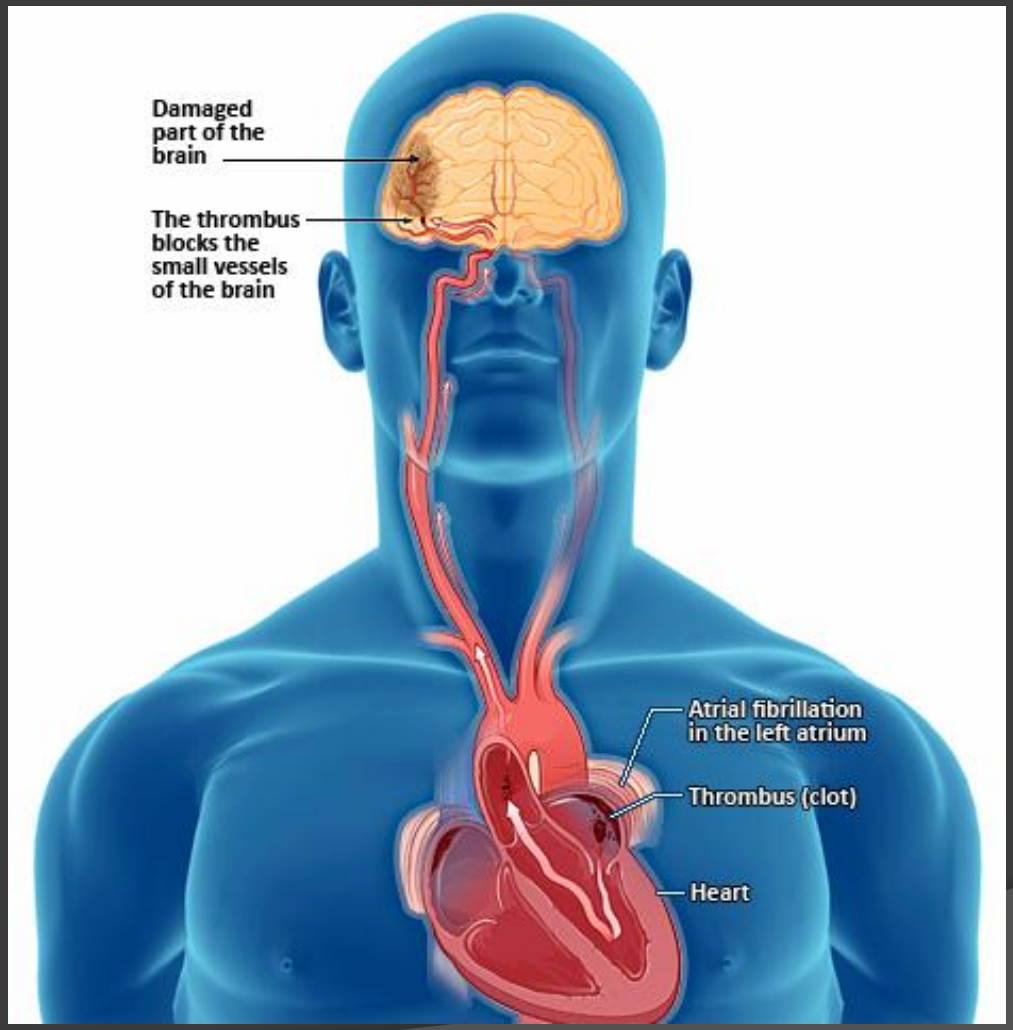
How electricity flows in your heart



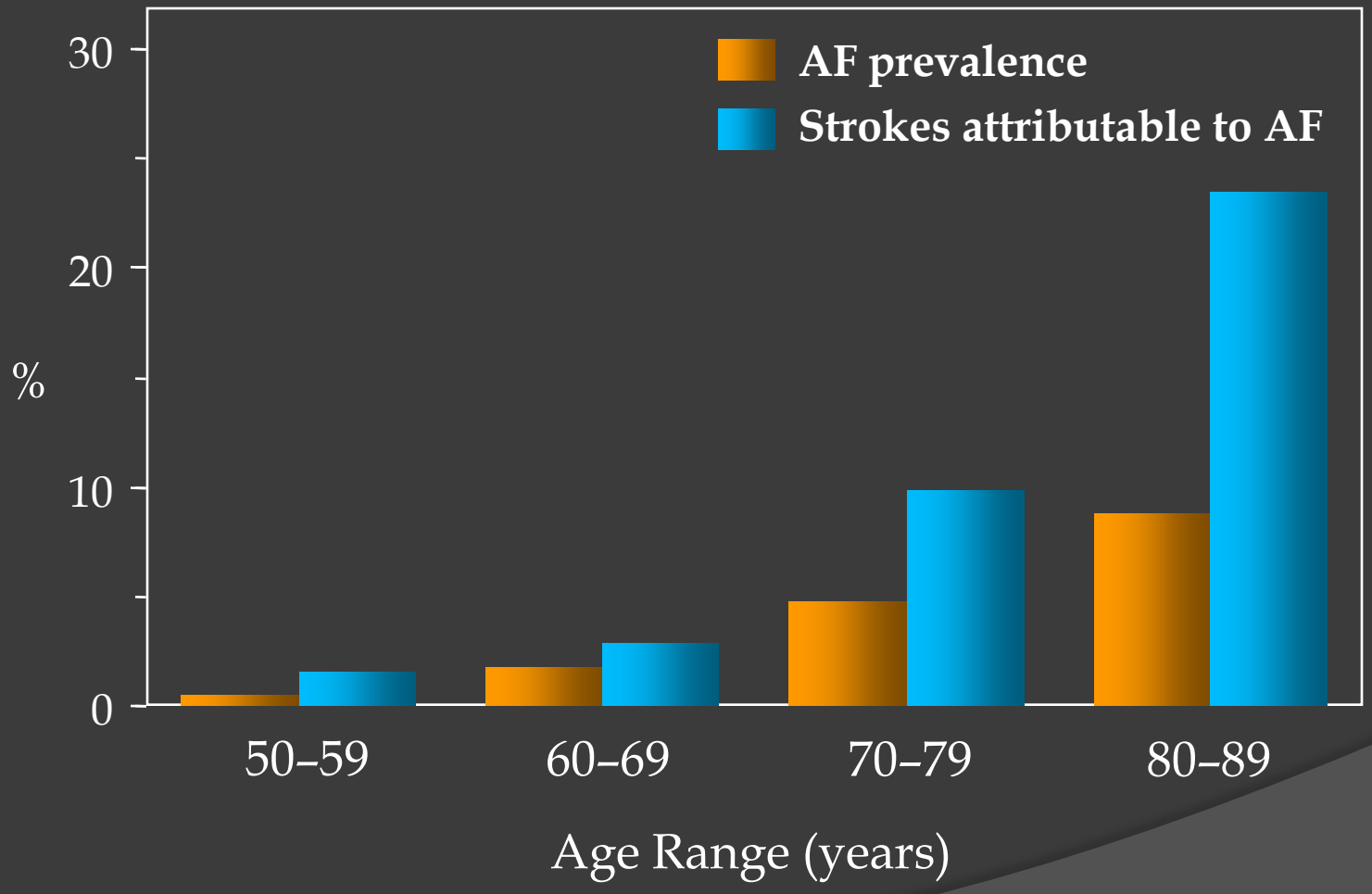
Atrial fibrillation



Why we worry about atrial fibrillation

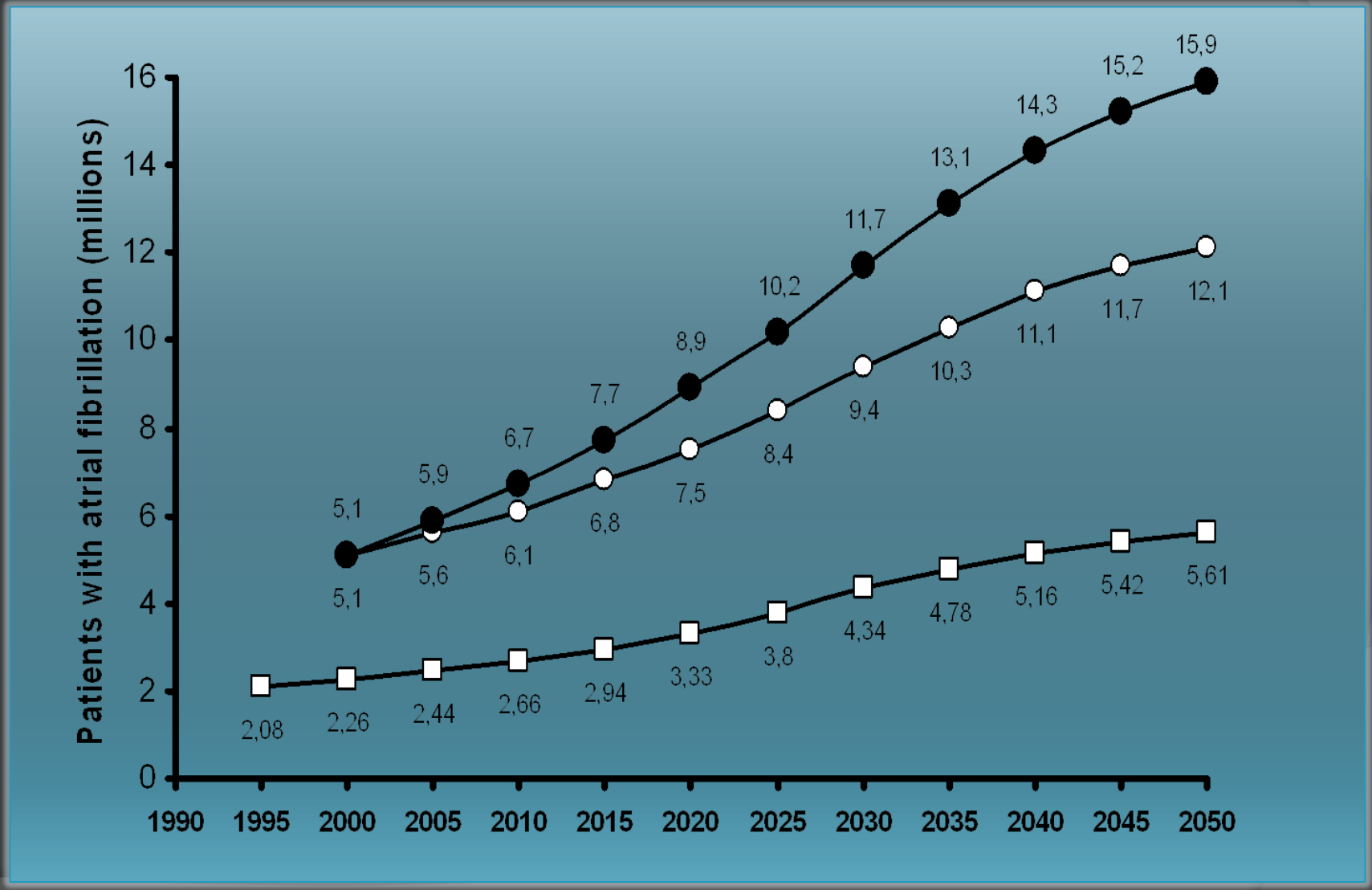


The prevalence increases with age



Wolf et al. Stroke 1991;22:983-988.

The Afib epidemic



Slide by J Camm

What are the risk factors for AFib

- Age
- Obesity
- Hypertension
- Sleep apnea
- Other heart disease
- Alcohol consumption
- Thyroid disease
- Endurance exercise

How do we diagnose the problem?

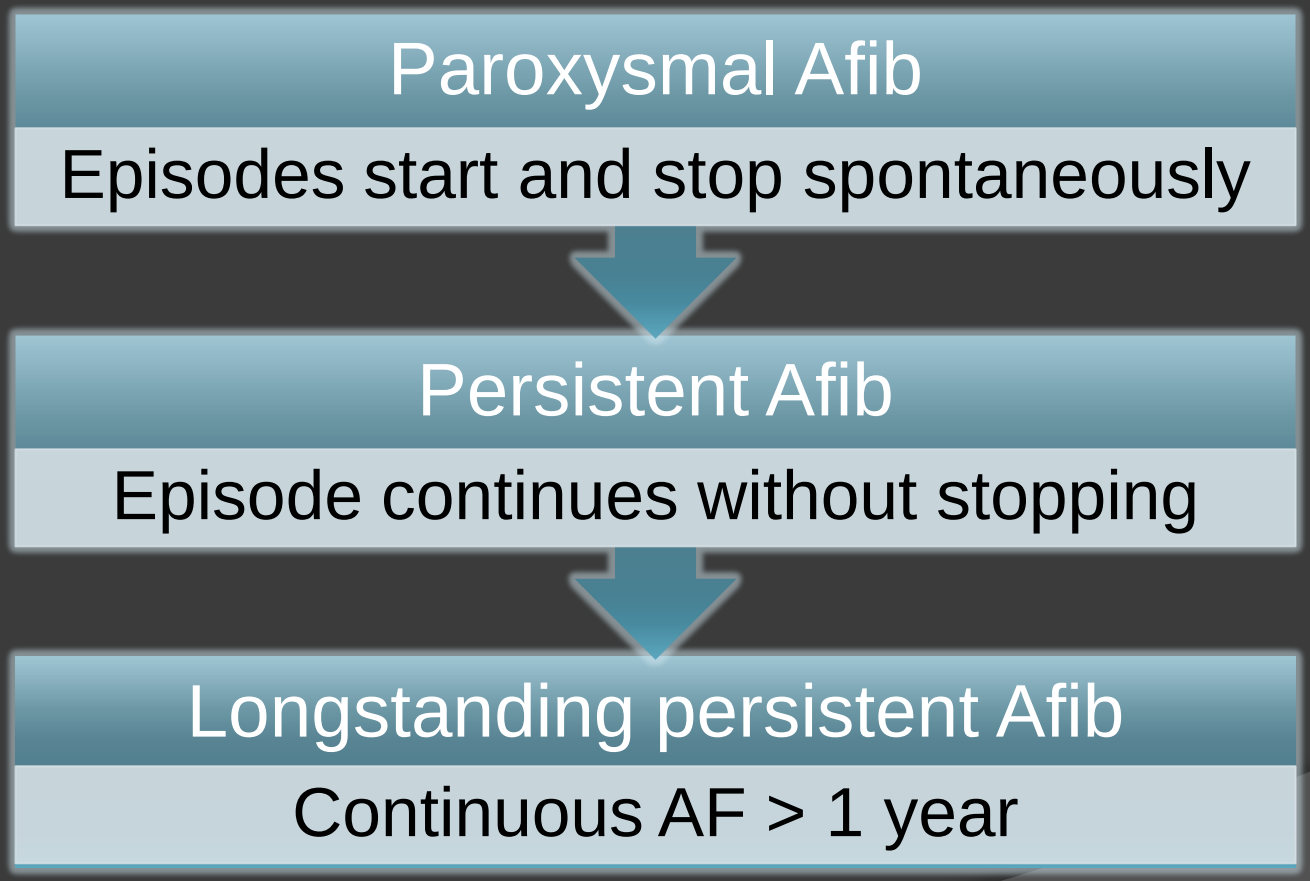
- ECG (in the office or ER)
- Inpatie
- 24-48 h
- 2-4 we
- Small i
- Patient
  - BP cu
  - Exerci
  - Fitbit/S
  - App o

rs

Screening patients with stroke

- If no other cause has been found, we know up to 30% of stroke of unknown origin are due to Afib
  - The longer we screen, the more Afib we find…
- Our practice, based on current evidence, is to offer all of these patients long term monitoring

Is all Afib the same?



AFib begets AFib

- Afib electrically alters your heart to make itself dominant
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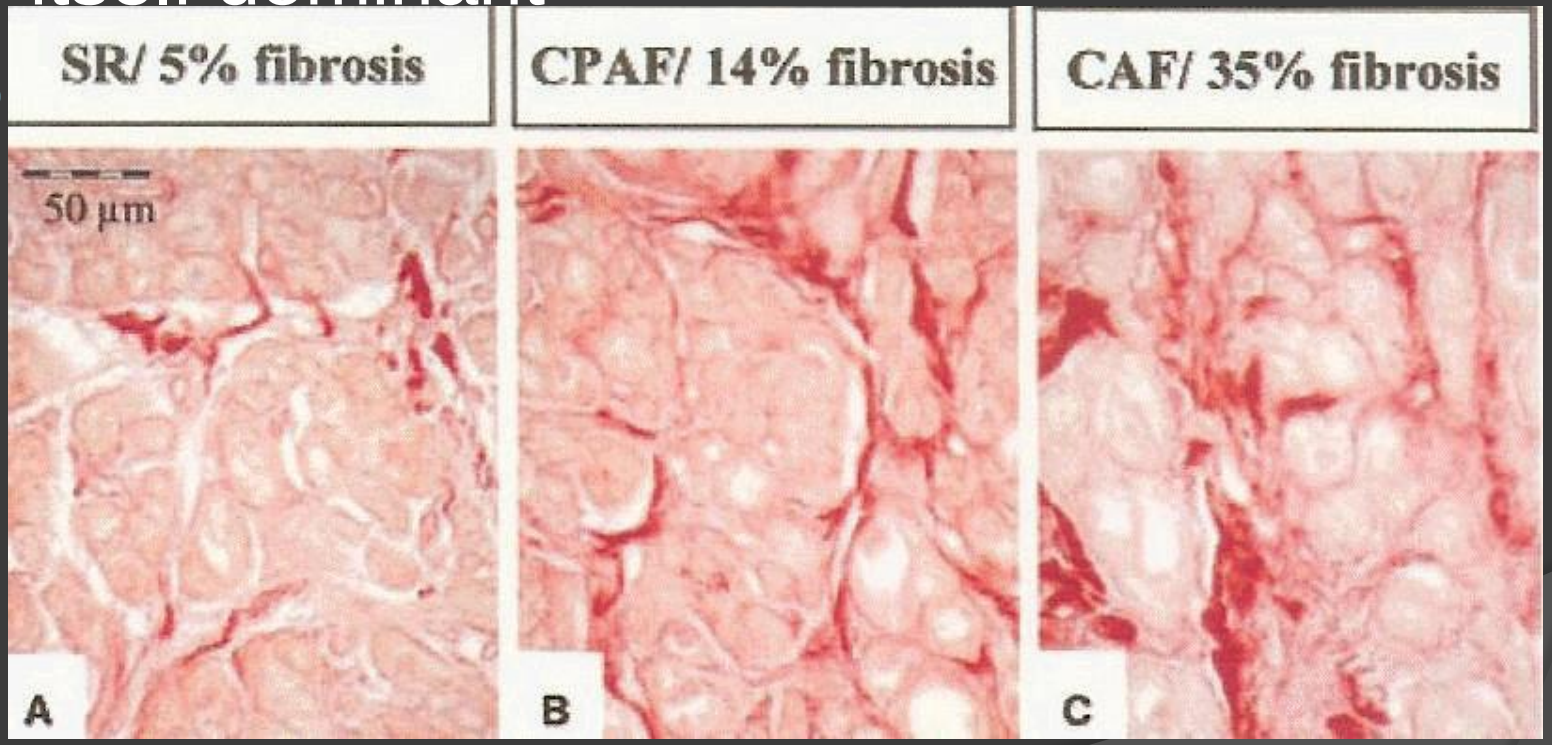

The problem with AF

- Increased heart rate
- Risk of blood clots and stroke
- Symptoms
  - Fatigue!!
  - Palpitations
  - Shortness of breath
  - “Anxiety attacks”
  - Swollen legs
  - Dizziness/Lightheadedness
  - (Nothing at all)

Know your risk

	Condition	Points
C	**Congestive heart failure** (or LV dysfunction) ⊞	1
H	**Hypertension** BP>140/90 or treated hypertension on medication ⊞	1
A_2	**Age** ≥ 75 years	2
D	**Diabetes Mellitus**	1
S_2	**Prior Stroke** or **TIA** or **Thromboembolism** ⊞	2
V	**Vascular disease** (e.g. MI, PVD, Aortic plaque)	1
A	**Age 65-74 years**	1
S_c	**Sex category** (female gender)	1

CHADS2-VASc score

- An
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- Th
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Stroke risk by CHA_2DS_2-VASc		
CHA_2DS_2-VASc score	Patients (n=7329)	Adjusted stroke rate (%/year)
0	1	0%
1	422	1.3%
2	1230	2.2%
3	1730	3.2%
4	1718	4.0%
5	1159	6.7%
6	679	9.8%
7	294	9.6%
8	82	6.7%
9	14	15.2%

But what if I only had it once?

- There are very few “one time” causes for Afib
- If you’ve had it once, then you have it
- Studies show NO difference in stroke risk between people with paroxysmal versus persistent Afib
- Recent data look at the risk of silent strokes with an elevated risk compared with controls
  - No difference between paroxysmal vs. persistent
- Similar data exist with risk of cognitive dysfunction

Anticoagulation medications

- AKA “Blood thinners”
- Warfarin (Coumadin)
  - Tried and true
  - Needs frequent blood checks
  - Varying doses to achieve the proper effect
  - About 40% of the time, the blood is over or under thinned even with frequent monitoring
- Newer anticoagulants (Pradaxa, Xarelto, Eliquis, Savaysa)
  - No blood tests needed to monitor the effect
  - Some are not easily reversed in case of bleeding
  - Cost!

Anticoagulation

- 2016 European guidelines for Afib have placed the new oral anticoagulants as first line therapy due to ease of use, less intracranial bleeding, and superiority over warfarin in some cases
- This will become more feasible with the release of universal antidote and lowering of cost of medication

Problems with anticoagulation

- Compliance
  - 30% of patients have stopped taking blood thinners 2 years after starting
- Bleeding
  - Though it turns out that the patients at highest risk of bleeding or adverse events on medication are also those at the highest risk of stroke

Do we fear bleeding too much?

- We overestimate the risk of major bleeding
- Fatal bleeds or head bleeds about 0.5%/yr

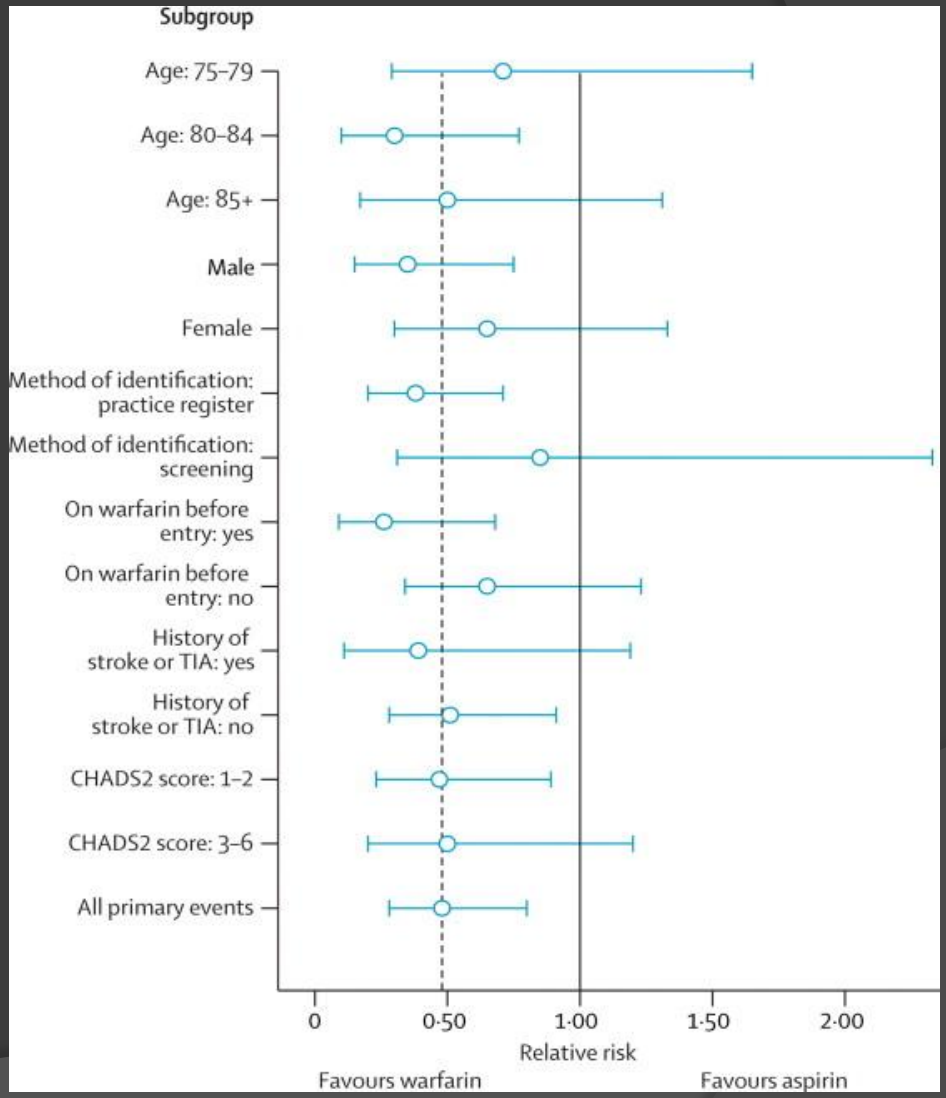
Table 1: Major bleeding and Intra-cranial bleeding – ROCKET AF, RE-LY, ARISTOTLE

	ROCKET AF		RE-LY				ARISTOTLE	
Major bleeding	Rivaroxaban	Warfarin	Dabigatran 110	Warfarin	Dabigatran 150	Warfarin	Apixaban	Warfarin
	Event rate		Event rate		Event rate		Event rate	
	3.6	3.4	2.71	3.76	3.13	3.76	2.13	3.09
	HR 1.04(0.90-1.20)		*HR 0.80(0.69-0.93)*		*HR 0.93(0.81-1.07)*		*HR 0.69(0.60-0.80)*	
	p- value 0.58		*p- value 0.03*		*p- value 0.31*		*p- value <0.01*	
Intra-cranial bleeding	Rivaroxaban	Warfarin	Dabigatran 110	Warfarin	Dabigatran 150	Warfarin	Apixaban	Warfarin
	Event rate		Event rate		Event rate		Event rate	
	0.5	0.7	0.23	0.74	0.30	0.74	0.33	0.80
	HR 0.67(0.47-0.93)		*HR 0.31(0.20-0.47)*		*HR 0.40 (0.27-0.60)*		*HR 0.42(0.30-0.58)*	
	p- value 0.02		*p- value <0.01*		*p- value <0.01*		*p- value <0.01*	

Event rates are per 100 patients- years, based on first event in the safety population during treatment

Is aspirin good enough?

- BAFTA was a large English study looking at aspirin vs. warfarin in older patients >75 yrs with Afib
  - Worse stroke protection
  - Equal bleeding events



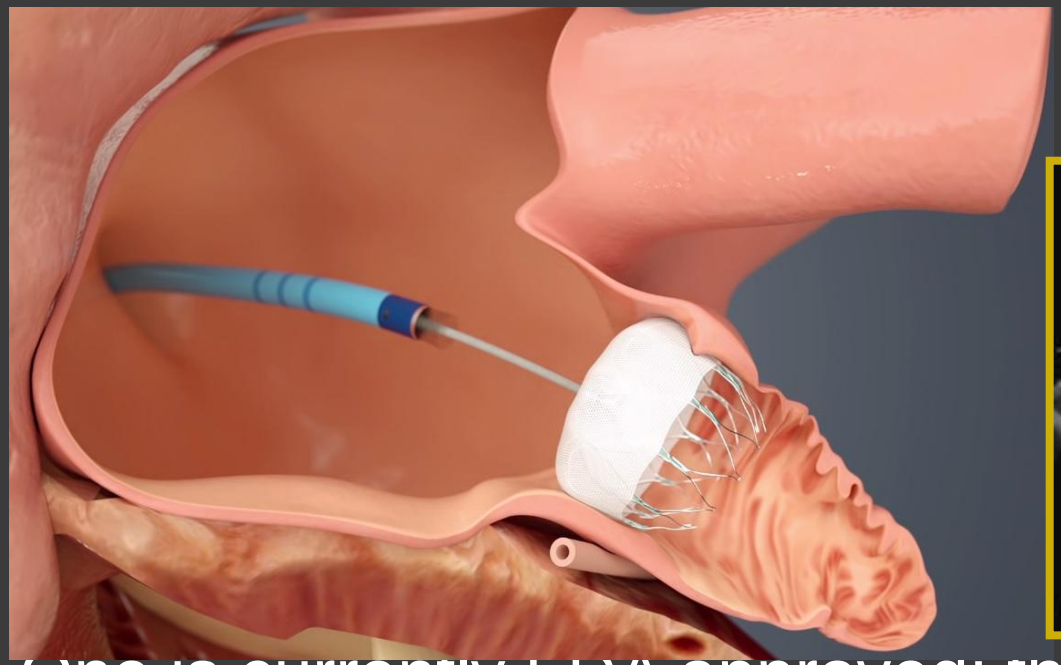
Mant et al., Lancet, 2007

People who can’t take a blood thinner

- Recurrent significant bleeding
- Recurrent falls with high risk of head trauma
- Hobbies with high risk of trauma (skiing, football)

People who can't take a blood thinner

- Multiple efforts are underway to
- One is currently FDA approved: the WATCHMAN device



Patient selection

The WATCHMAN™ Device is indicated to reduce the risk of thromboembolism from the left atrial appendage in patients with non-valvular atrial fibrillation who:

- Are at increased risk for stroke and systemic embolism based on $CHADS_2$ or CHA_2DS_2-VASc scores and are recommended for anticoagulation therapy;
- Are deemed by their physicians to be suitable for warfarin; and
- Have an appropriate rationale to seek a non-pharmacologic alternative to warfarin, taking into account the safety and effectiveness of the device compared to warfarin.

Is it safe to live in AFib?

- Multiple trials have shown that older (>70) patients with asymptomatic atrial fibrillation (provided adequate heart rate control and stroke prevention) have not done better than patients who are tried to be brought back to normal rhythm
  - Unknown if this is true for young patients or those with impaired heart function
  - Unknown if same is true if NSR restored via an ablaton

But I don’t feel good!

- Or… heart rate poorly controlled despite medication
- Or… heart function worsening
- Or… poor blood flow from loss of atrial contraction

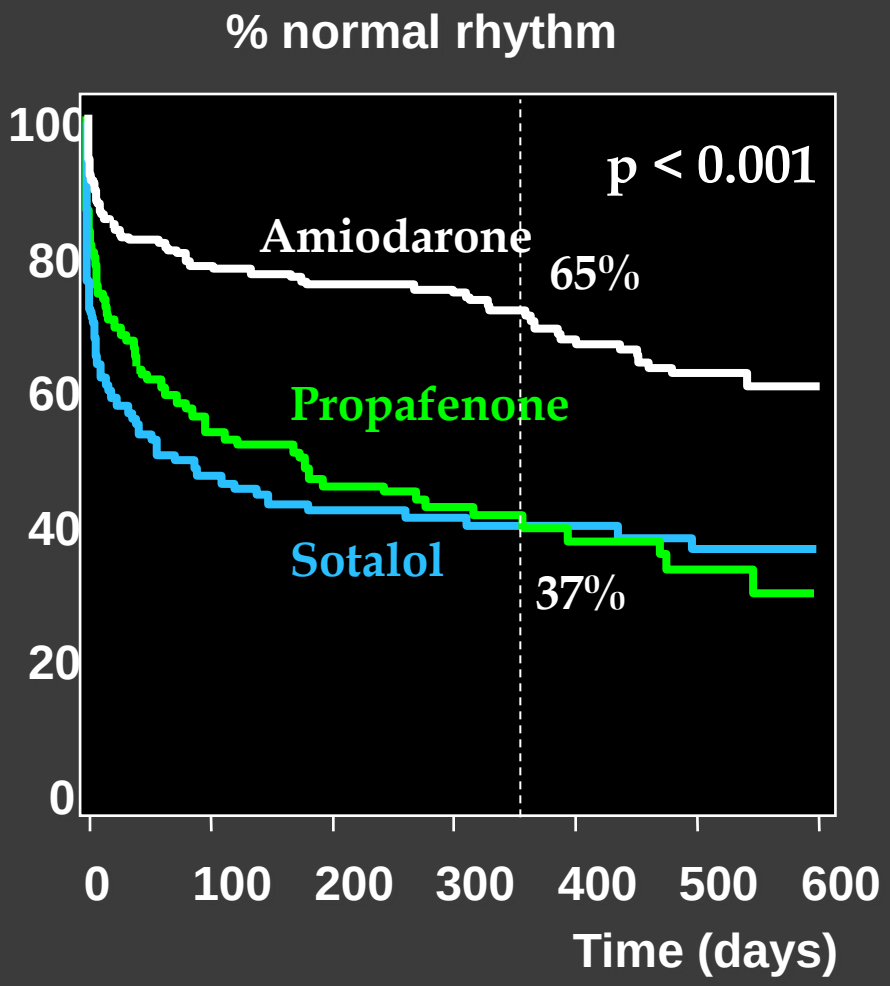
Trying to restore normal rhythm

- Medications
- Electrical cardioversion (a small shock to restore normal rhythm)
- Ablation

Antiarrhythmic medications

- Medications we use to restore normal rhythm when patients suffer from symptomatic rhythm disturbances
- Different and more potent from medications we use to simply slow the heart rate
- Typically prescribed by cardiologists or electrophysiologists

Antiarrhythmic medications



Roy et al NEJM 2000

Newer treatments for atrial fibrillation

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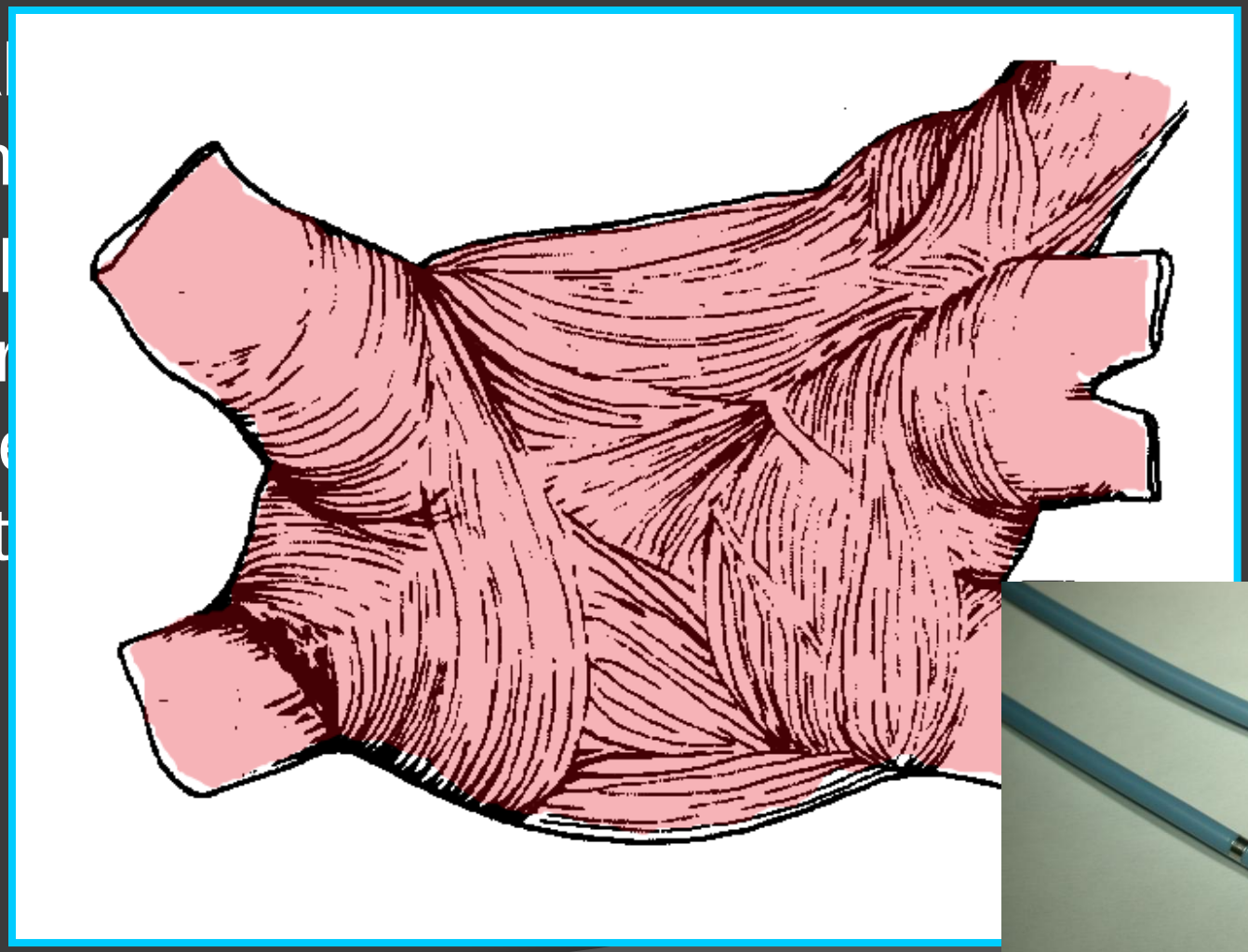
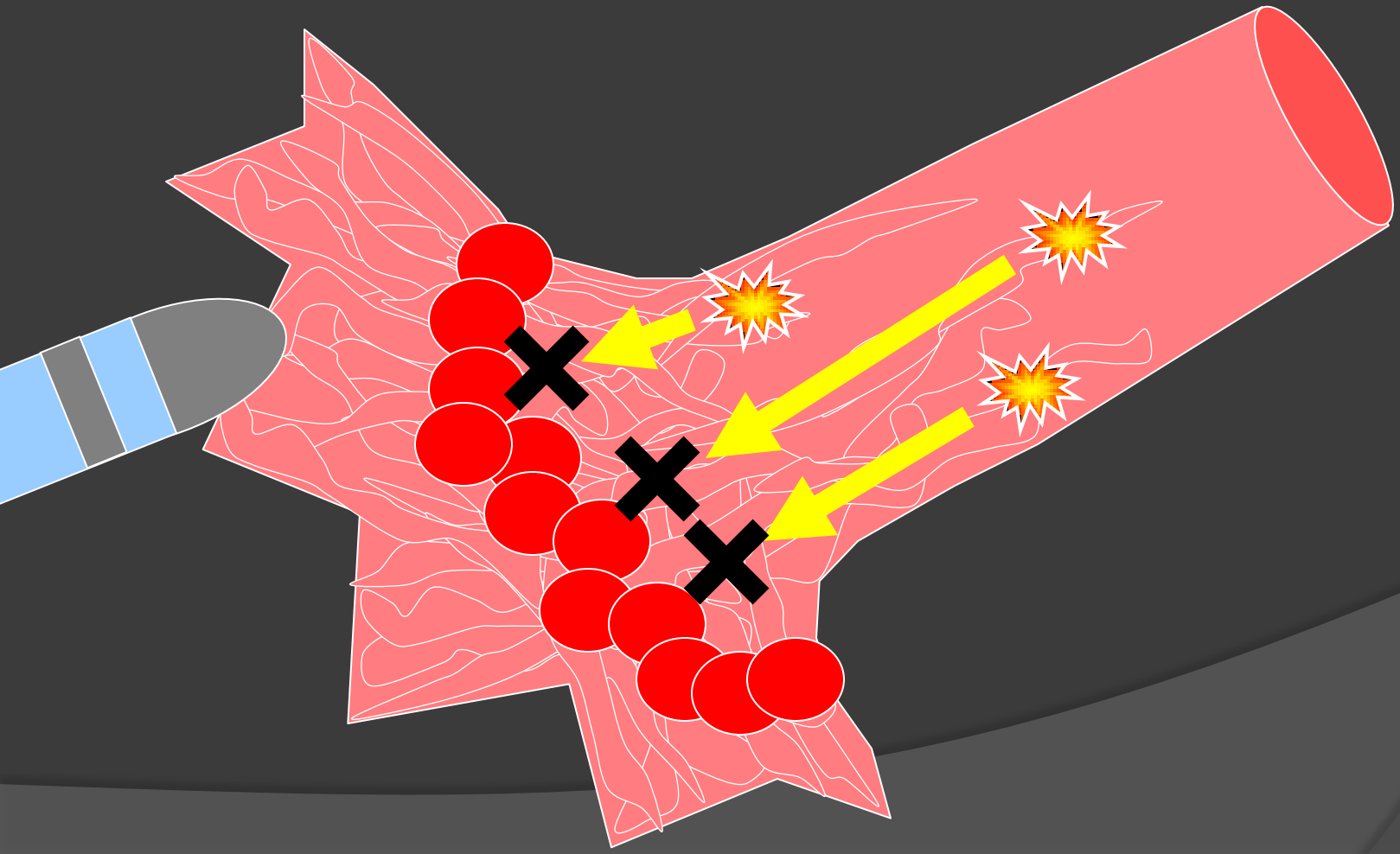
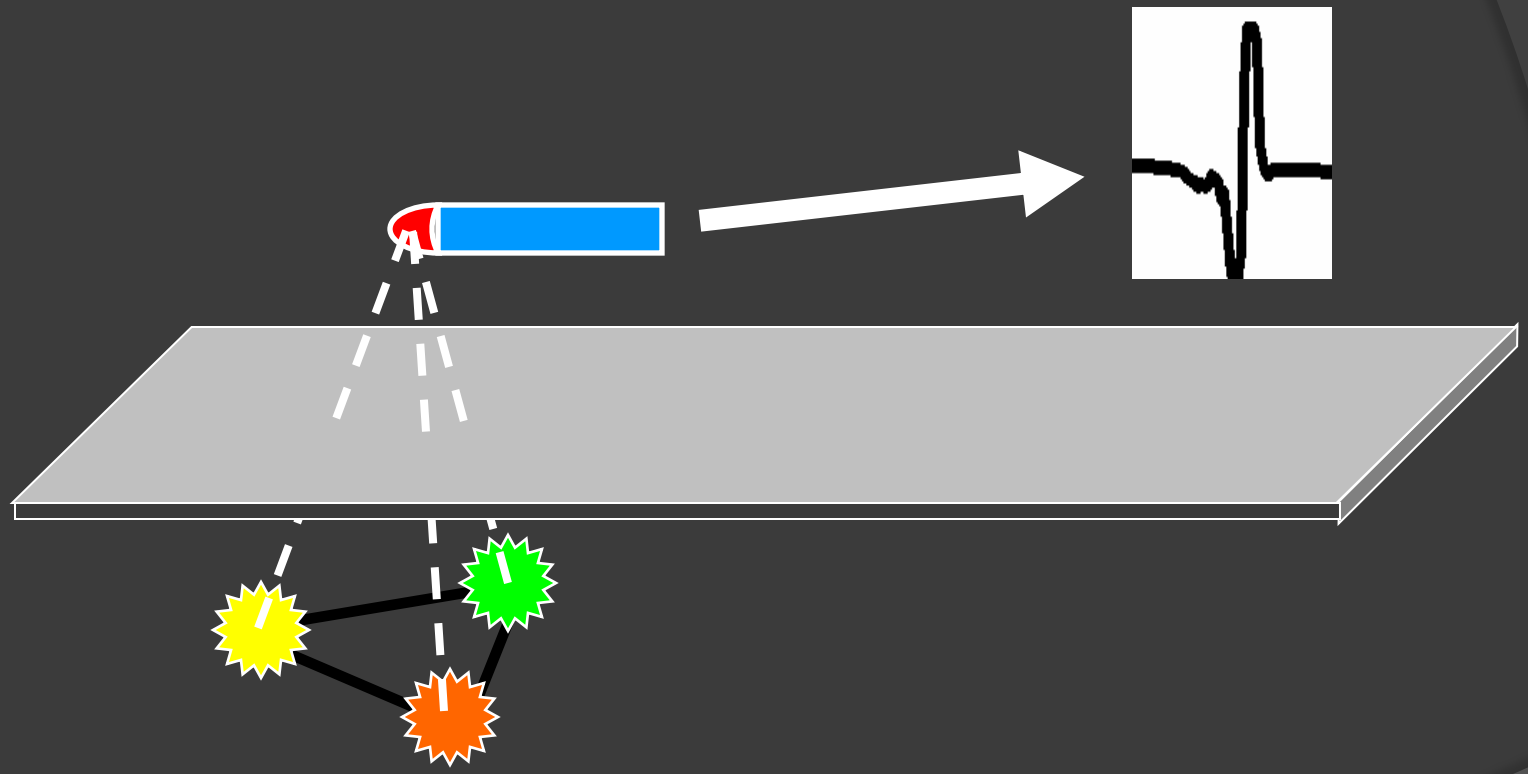


Ablation of the Atrial Fibrillation Triggers

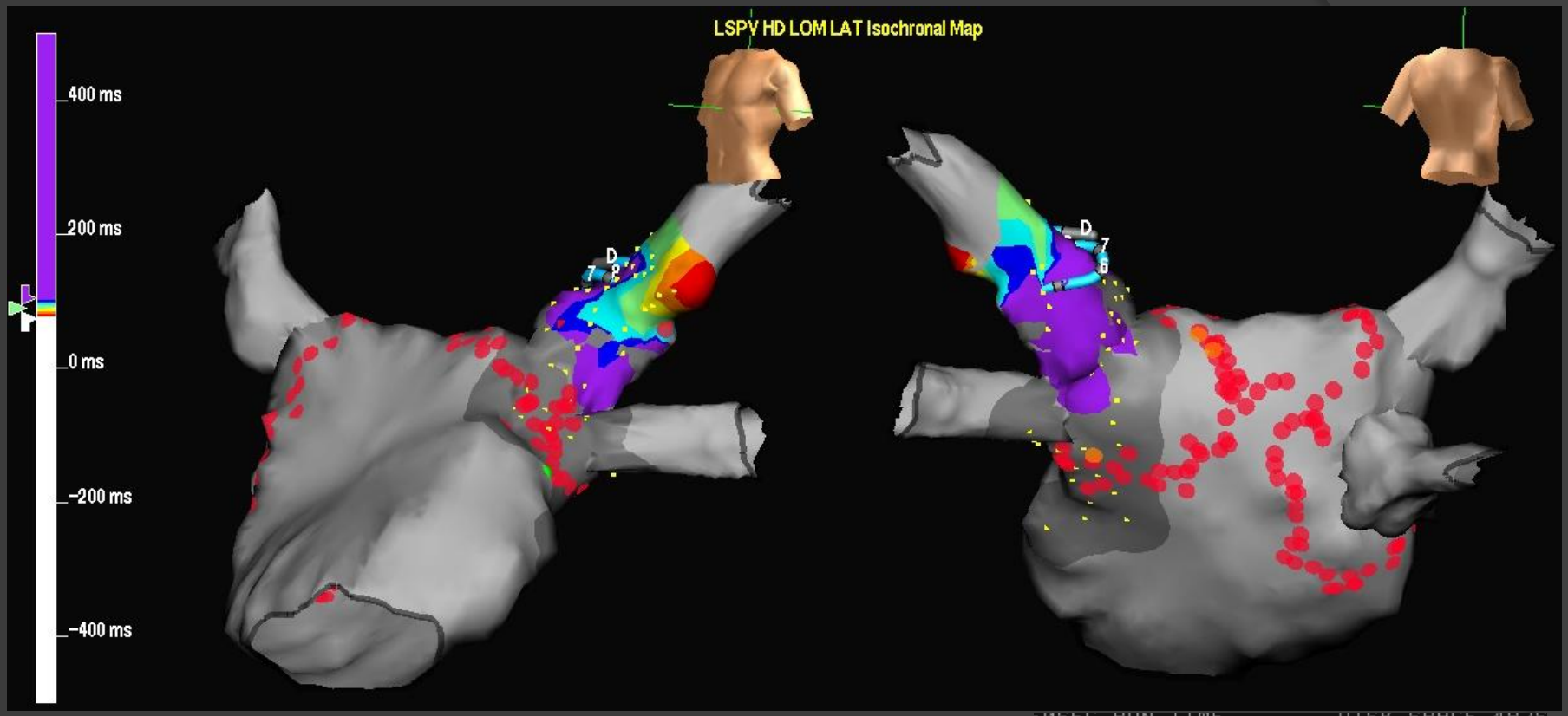


Cryotherapy

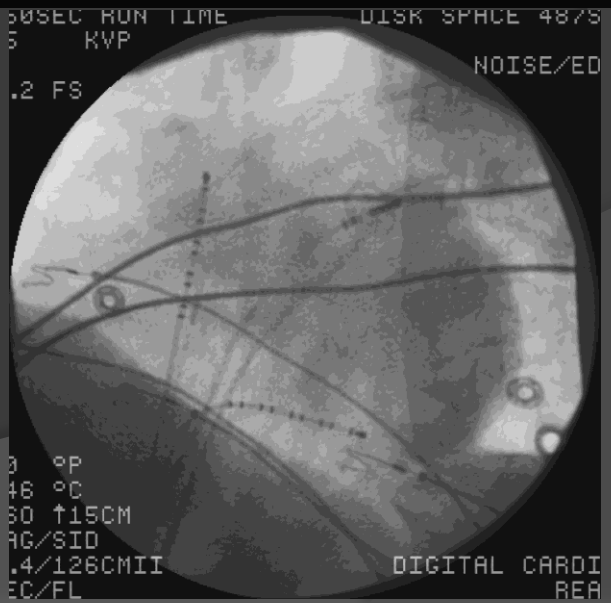
3-D Electroanatomic Mapping



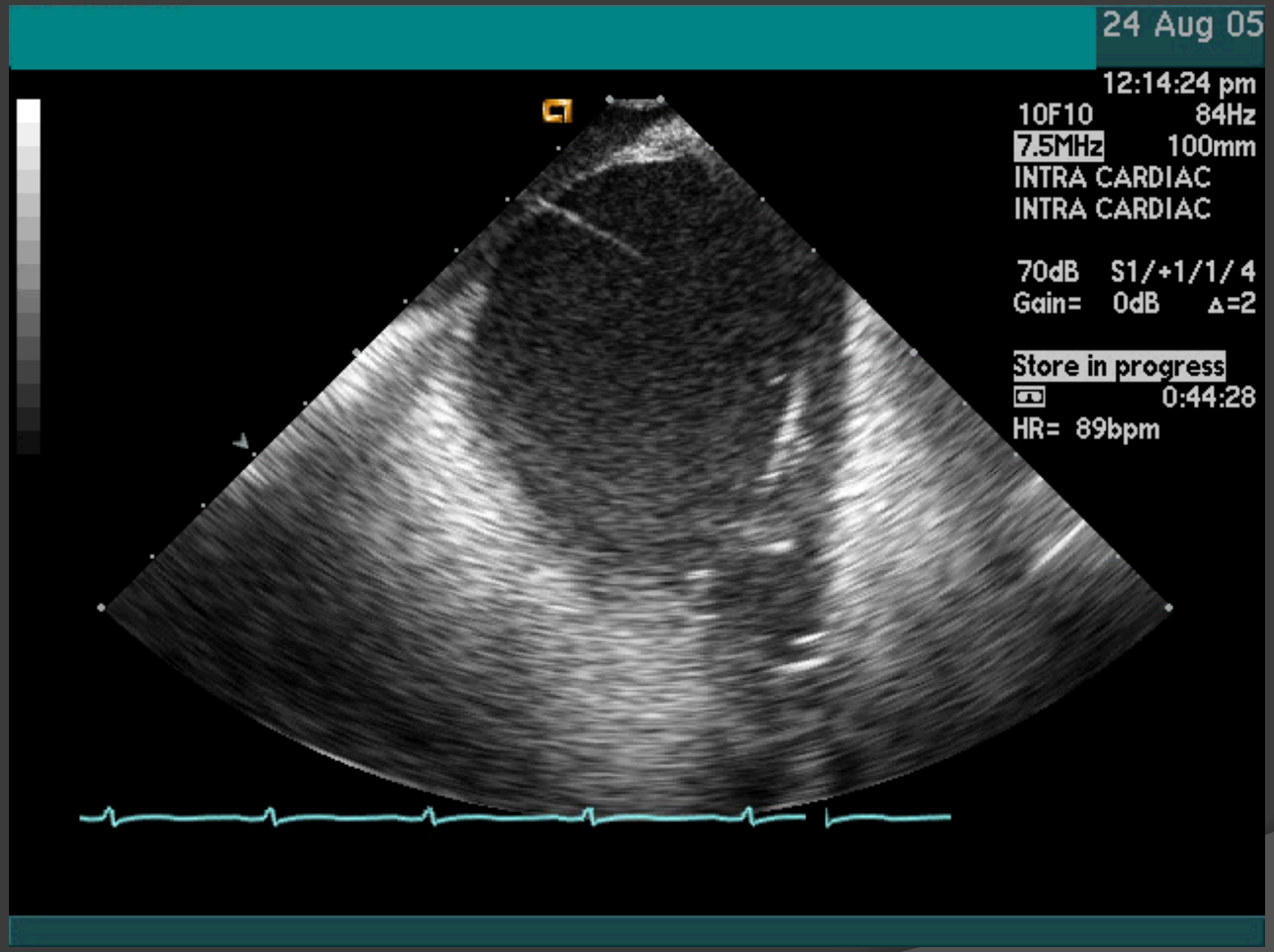
3 Magnetic Fields



3D Mapping System



Intracardiac echocardiogram



Ablation

- A good option for anyone still experiencing bothersome symptoms despite good medical treatment of their atrial fibrillation
  - Not perfect: Success is about 75-80% for single procedure
- New data emerging which shows that it potentially safe and effective as a first line therapy

Less State of the Art….

- 149 patients with obesity referred for ablation were offered aggressive risk factor modification
  - Weight loss
  - Exercise
  - Sleep apnea screening and treatment
  - Cessation of tobacco and excessive alcohol
- The group who participated enjoyed a 3 fold greater (!) improvement in success rates in curing AF compared to those who did not participate and relied on ablation alone

Pathak et al., JACC 2014

Summary

- Diagnosis of Afib is instrumental for Rx
- Every patient with Afib needs to be evaluated and protected against a stroke based on individual risk
  - New therapies available for this if appropriate
- If patients are symptomatic or have Afib which is causing problems, then we proceed to medications or ablation

Final Thoughts

- The best outcomes for health come from a partnership between patients and their physicians
- We need to continue to shift towards cure though prevention rather than intervention

Thank you!