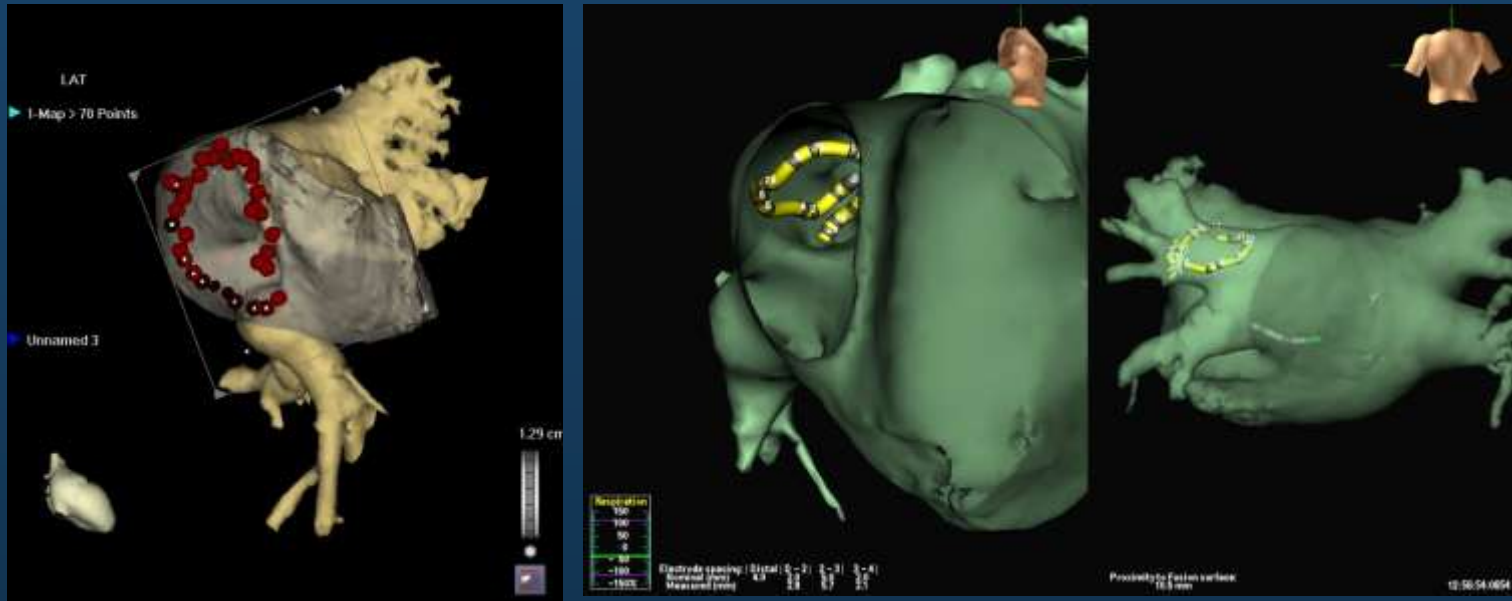
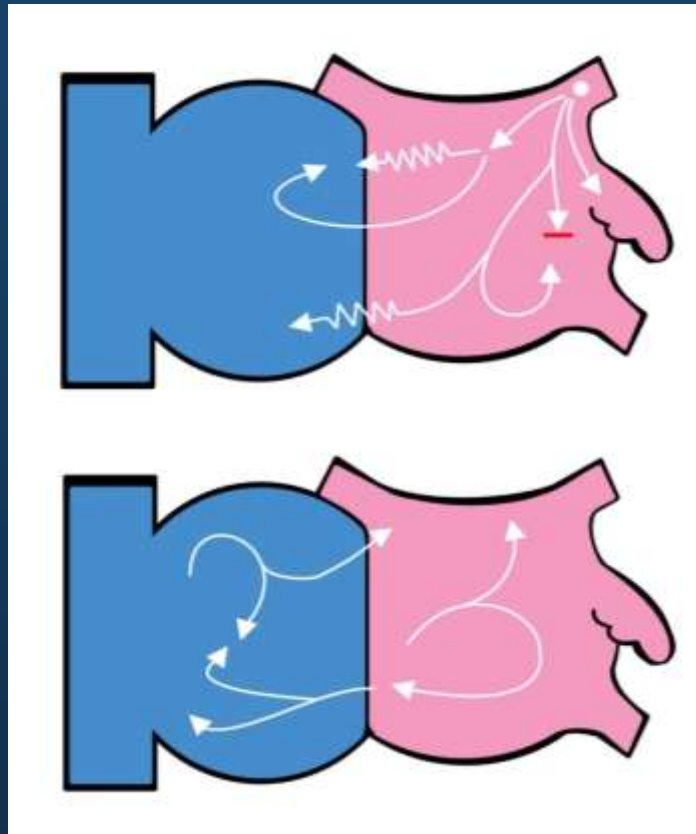


Rhythm control for persistent AF: ablation is best



Mark Earley
St Bartholomew's Hospital

AF natural history



Paroxysmal



Persistent



Permanent

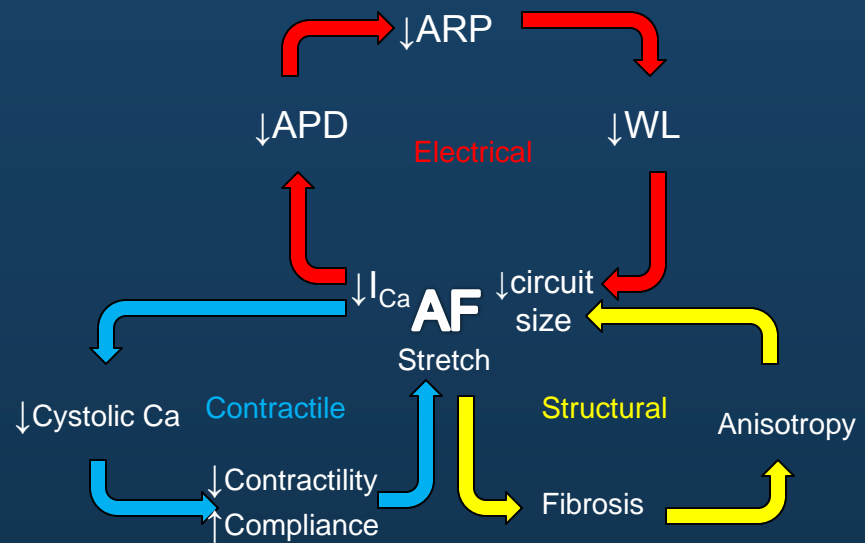
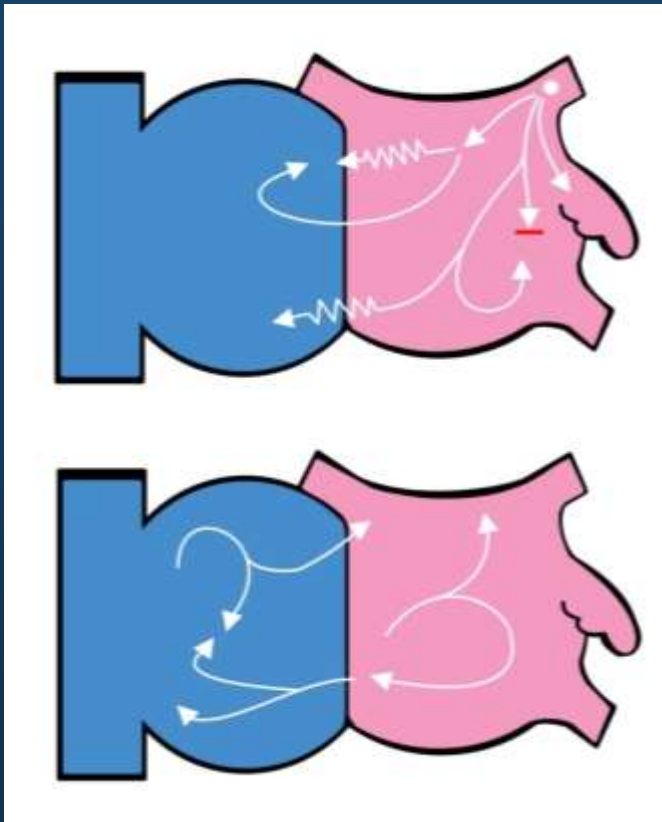
CV →

CV →

CV →

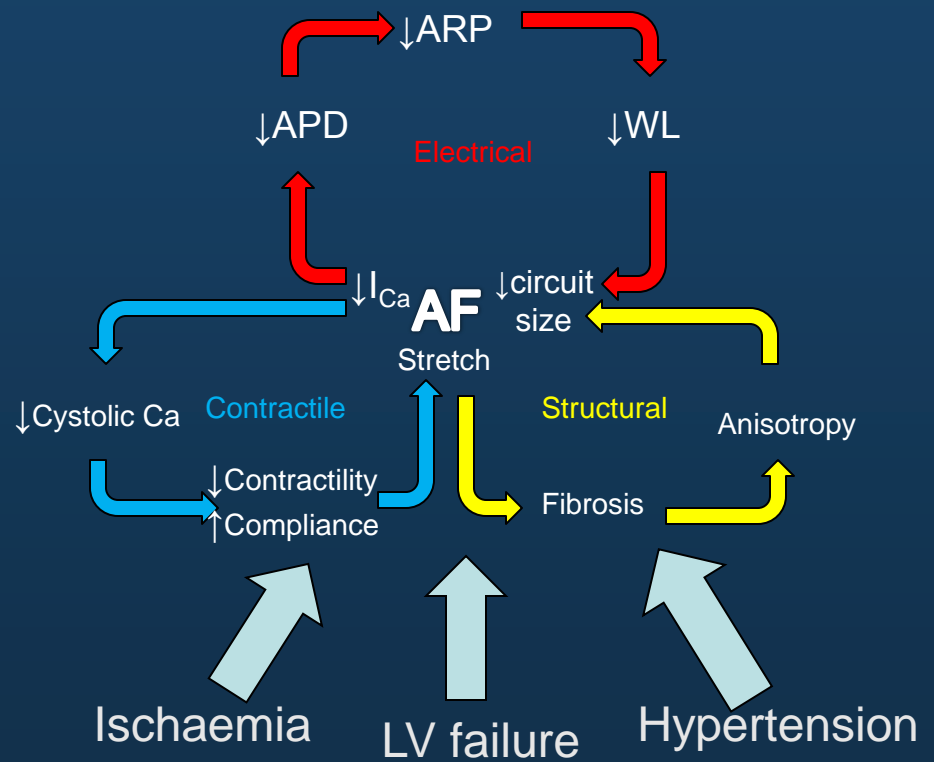
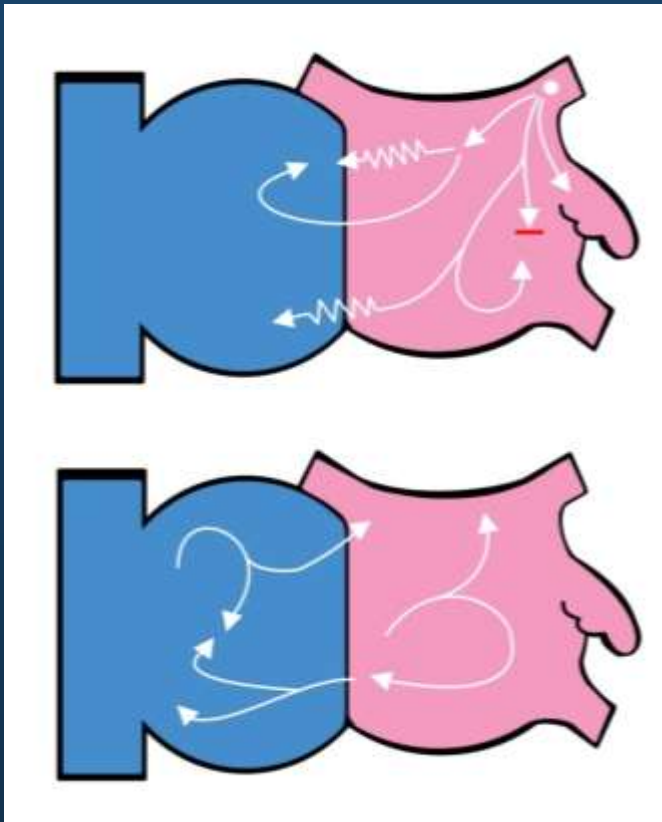


Remodelling

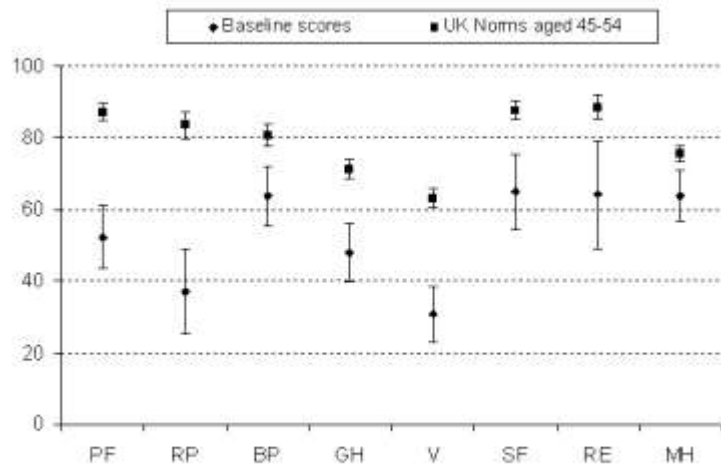


Allesie et al. CV Research 54 (2002) 230 –246

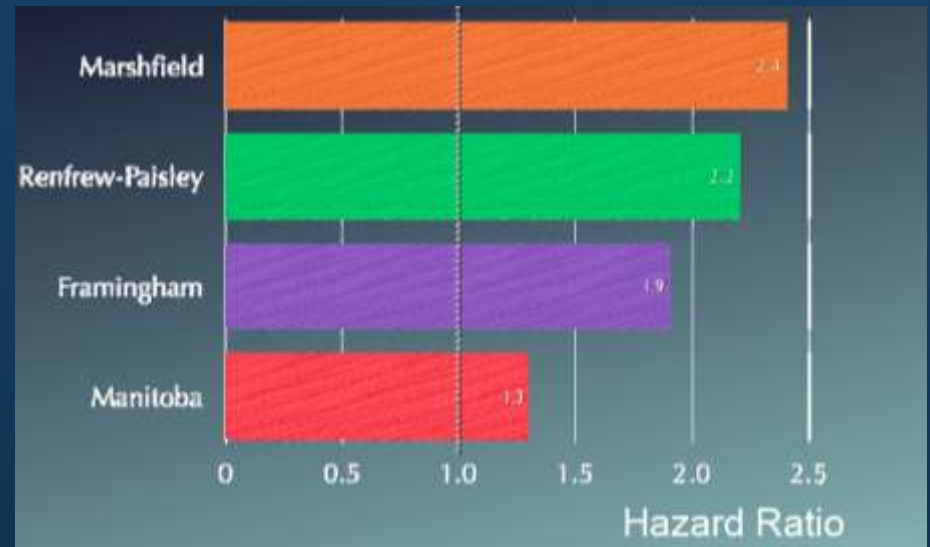
Remodelling



AF not a benign condition

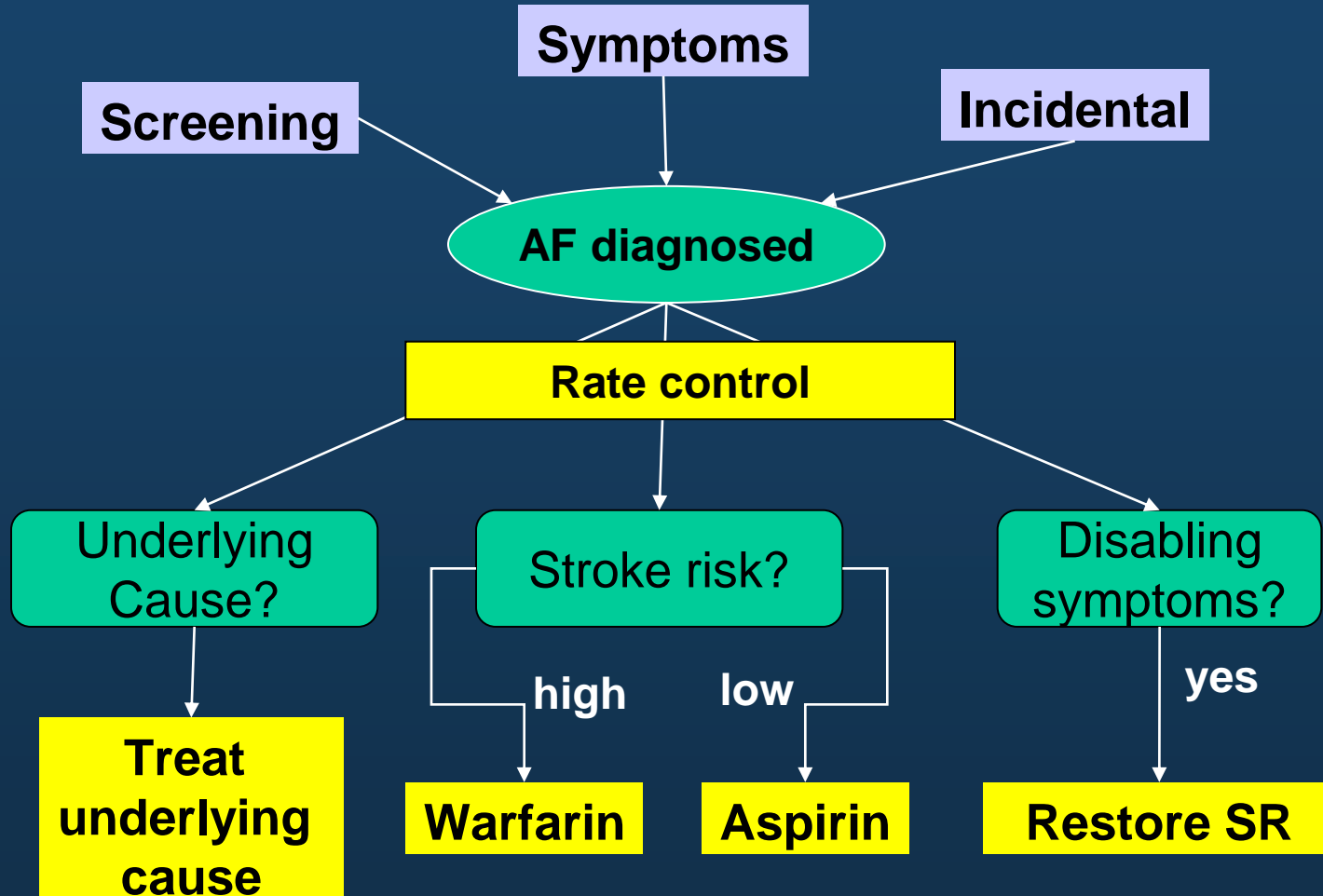


Quality of life



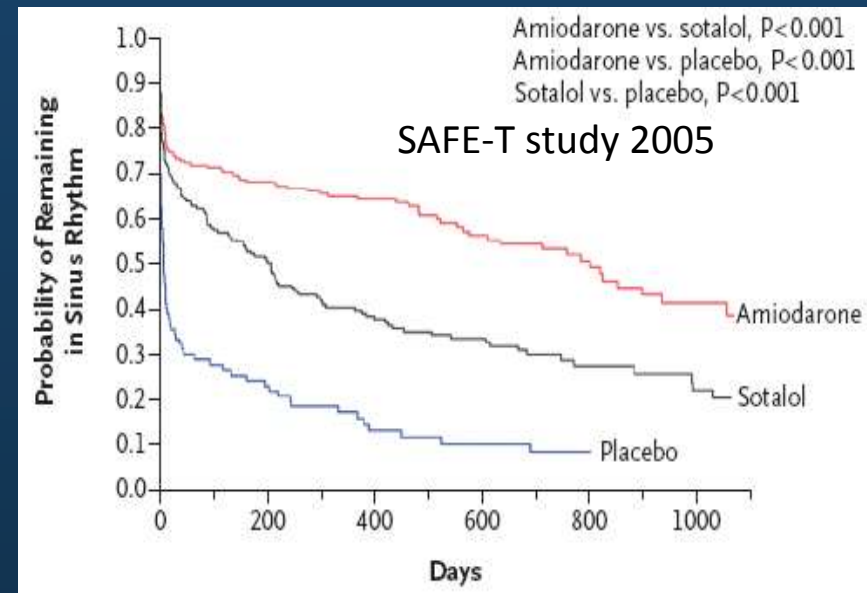
Mortality

Management of AF

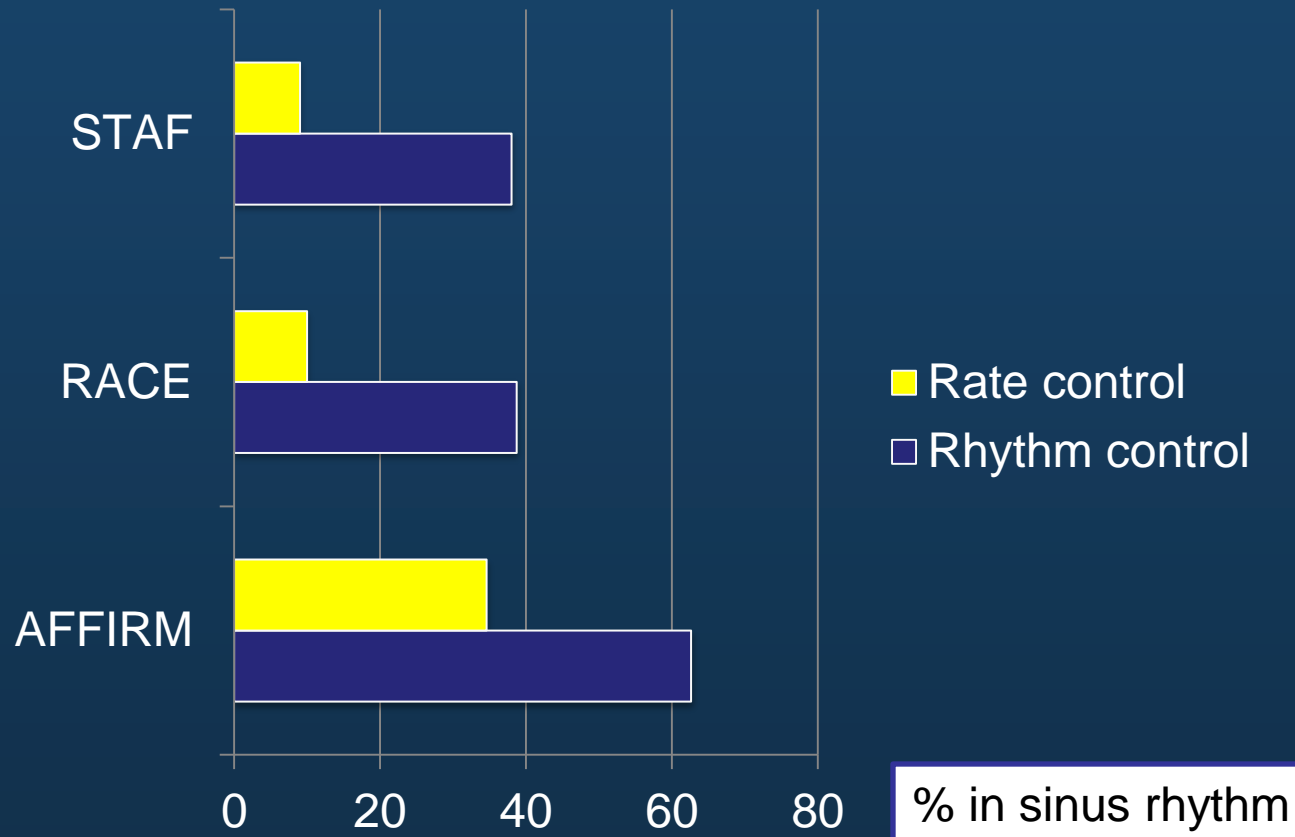


Rhythm control for AF

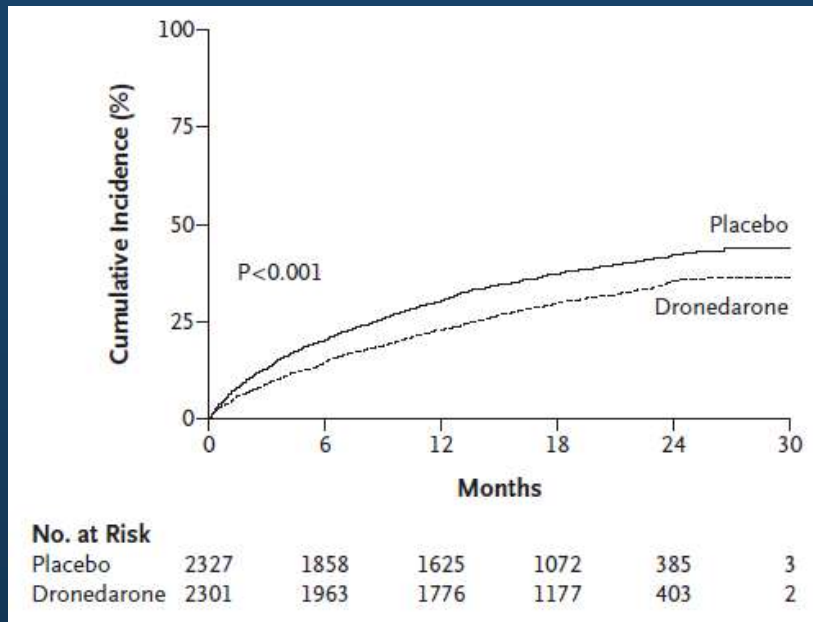
- Old drugs
 - Amiodarone
 - Flecainide/Propafenone
 - Sotalol
 - BBLOCKERS
- New drugs
 - Dronaderone
 - Vernakalant
- Catheter ablation



Drugs to maintain sinus rhythm

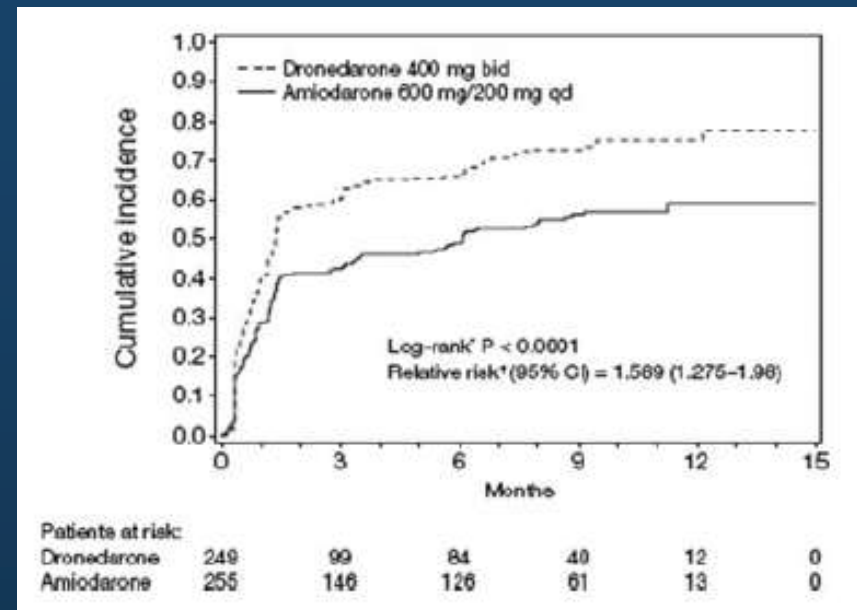


Dronedarone (Multaq)



ATHENA v placebo

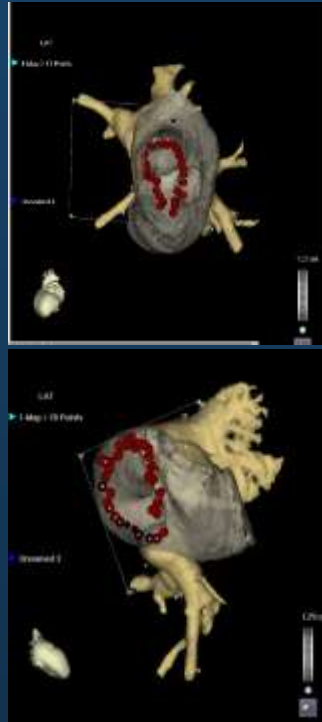
- PEP: Death or first admission 31.9 v 39.4%
- 30% drug discontinued
- Annual stroke risk 1.8 v 1.2%



DIONYSOS v amiodarone

- Failure to CV or AF recurrence + drug discontinuation 75.1 v 58.8%
- AF recurrence 36.5 v 24.3%
- Major Safety 39.3 v 44.5%

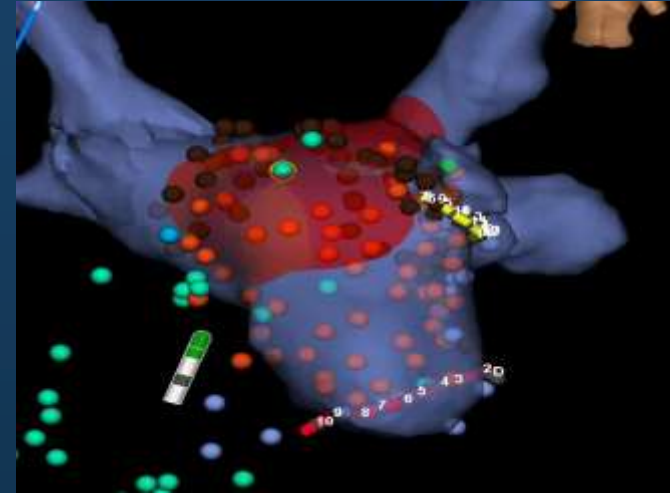
Catheter ablation of Persistent AF



WACA

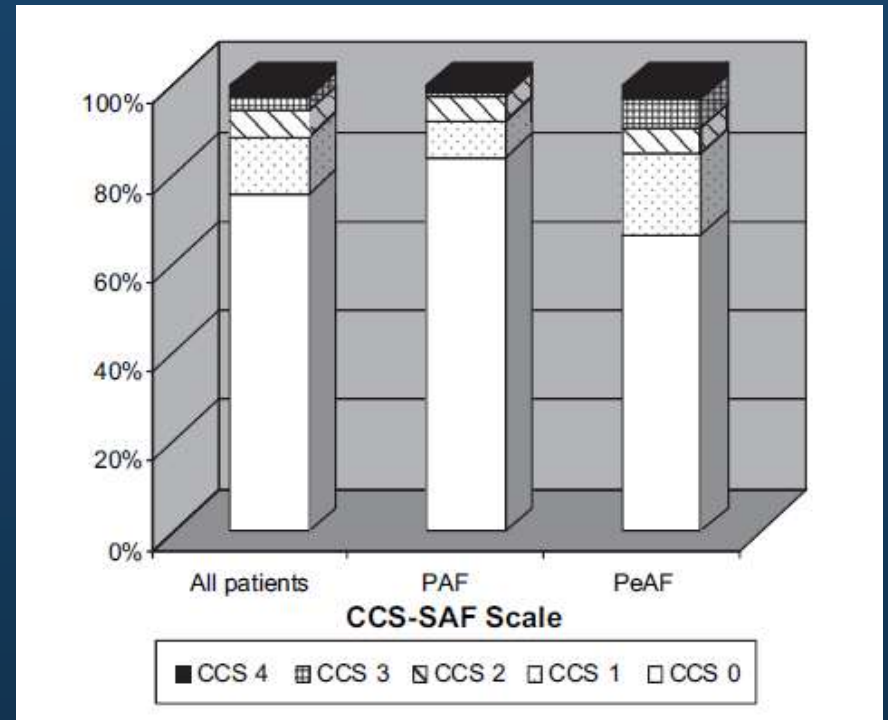
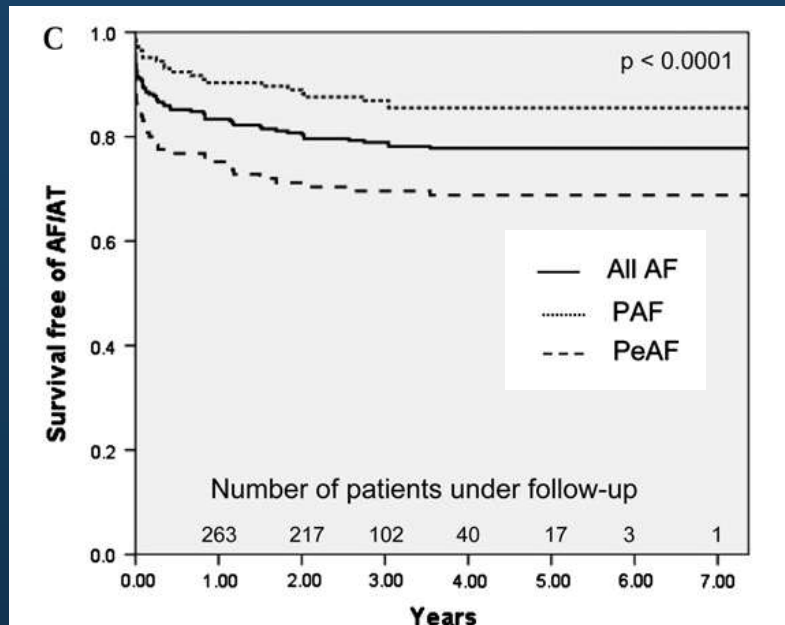


WACA + lines



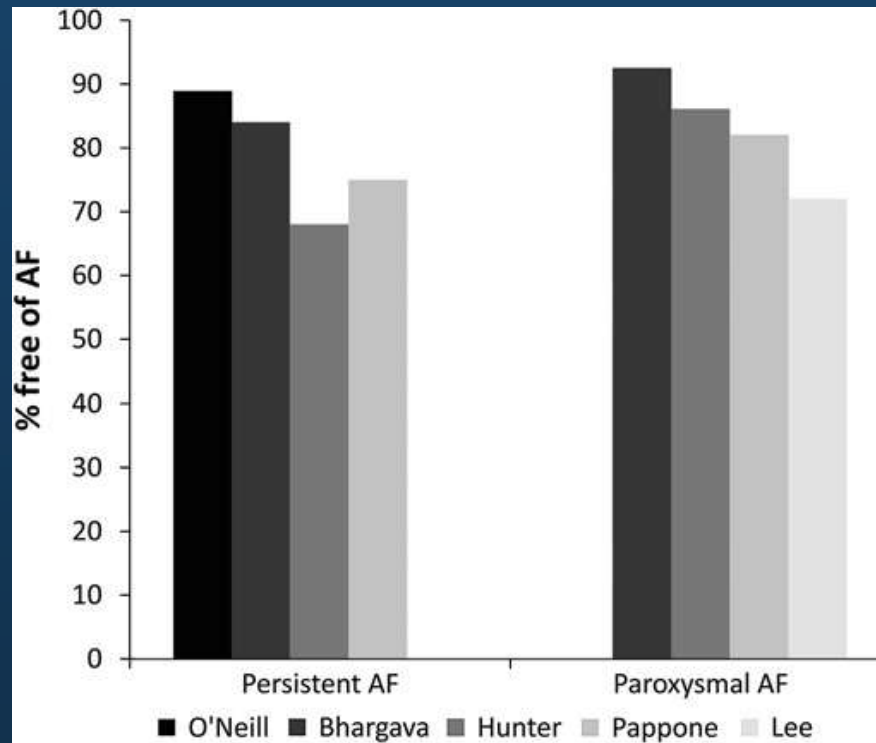
WACA + lines + CFAE

Freedom from AF + symptoms



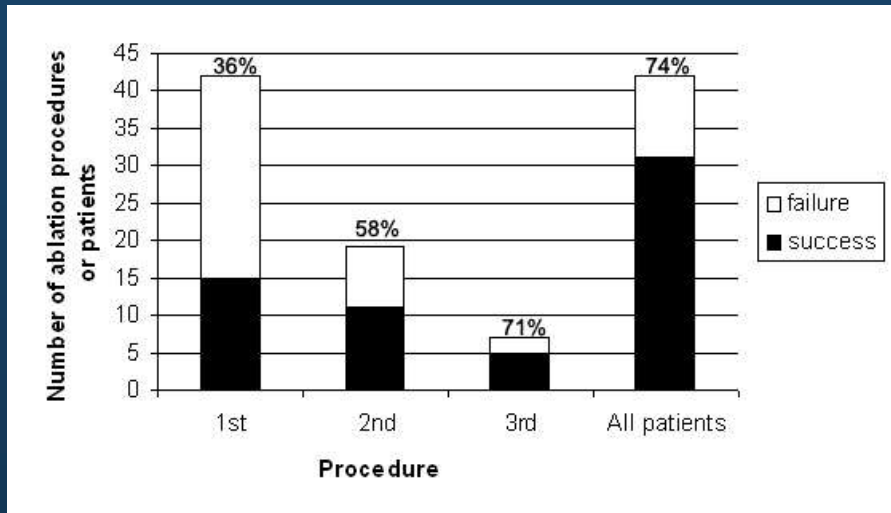
Hunter Heart 2010

Long term freedom from AF

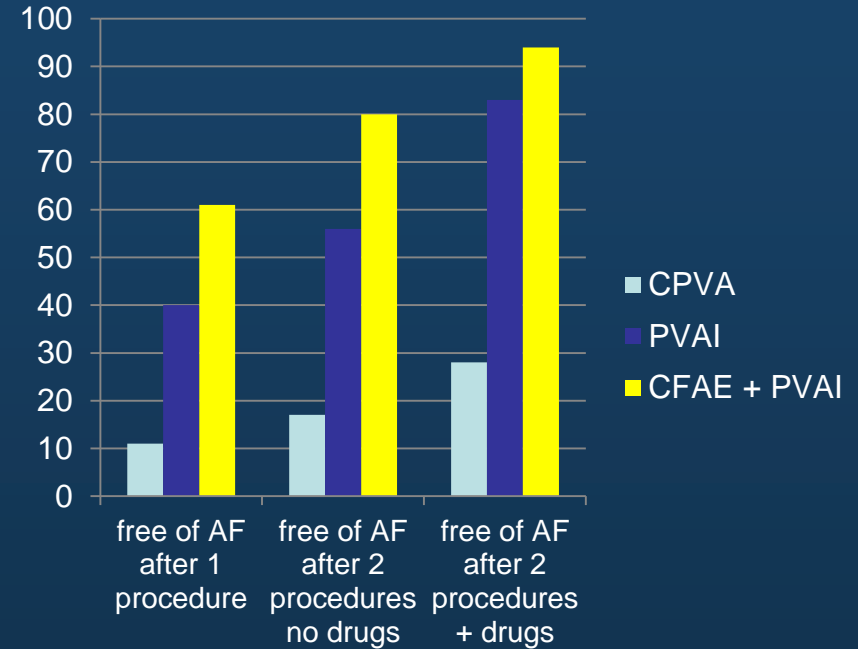


Hunter Heart 2010

Ablation effective in longstanding AF



Earley Heart 2005



Natale Heart Rhythm 2008

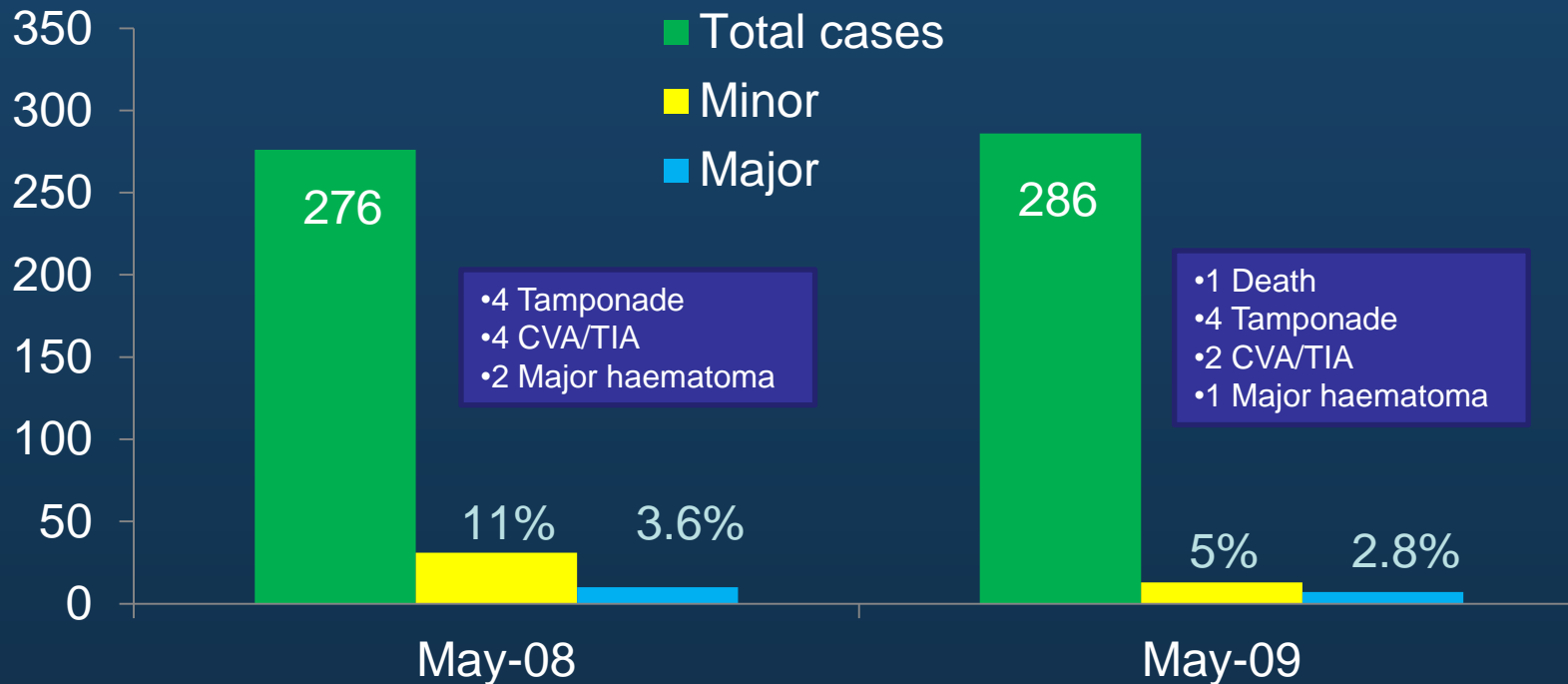
Problems of persistent AF ablation

- No uniform technique
- Long procedures
- Repeat procedures
- Major complications
- High cost
- Studies:
 - ‘soft’ endpoints
 - medium follow up

COMPLICATIONS

- Death
- Tamponade
- TIA/CVA
- Major vascular
- Phrenic nerve palsy
- PV stenosis
- Atrio-oesophageal fistula
- ATRIAL TACHYCARDIA

Complications of AF ablation



ECAS/EHRA/HRS Consensus – standards for reporting AF ablation studies:

- Minimum 12 month follow up
- Any AF episode >30s reported
- Arrhythmia monitoring
 - 4 weeks trans telephonic
 - 24-72 hour Holter
 - 30 day auto trigger event recorder
- PEP: freedom from AF/AT off AADs
- Symptoms/QOL should be reported
- Complications

- Long term mortality studies underway:
CABANA, EAST

Available guidelines

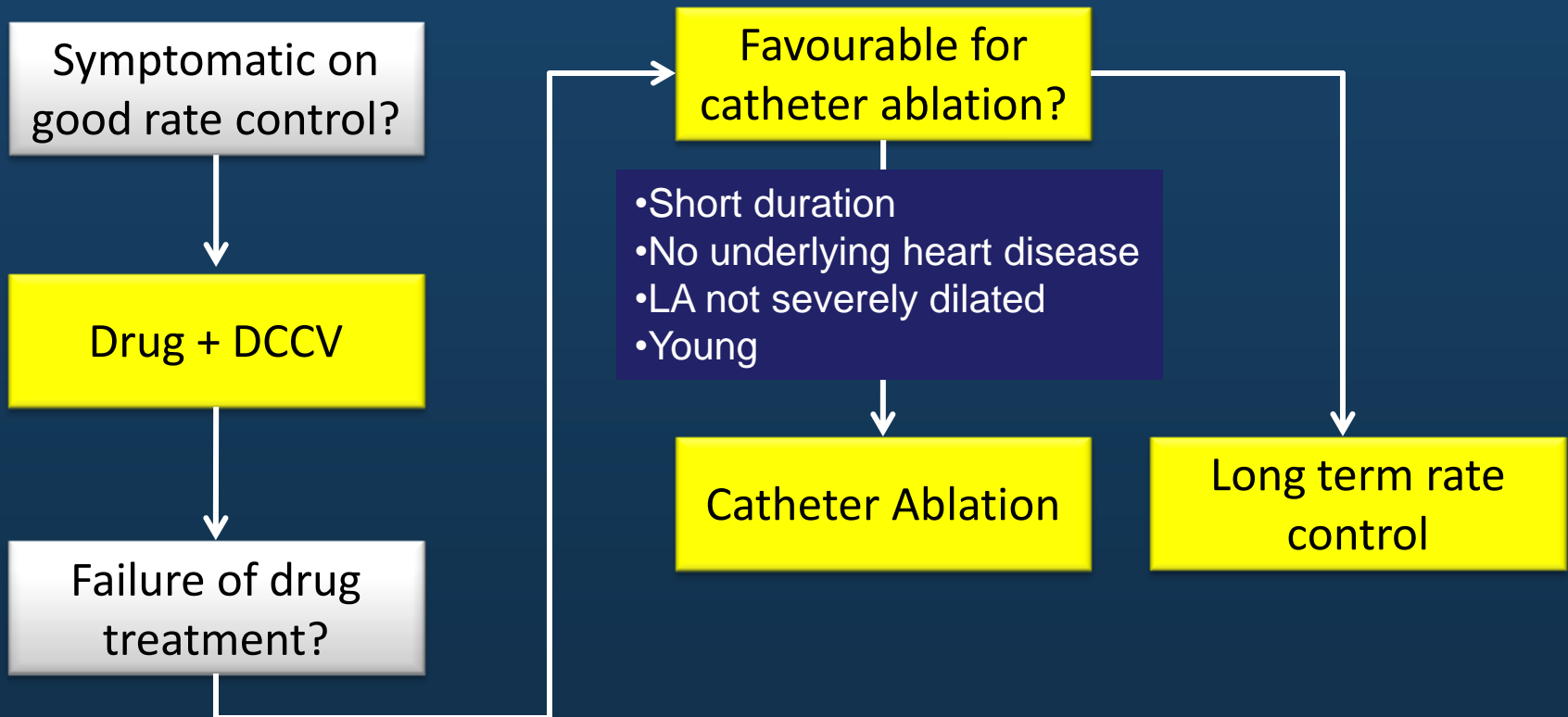
GUIDELINE & RECOMMENDATIONS

ACC/AHA/ ESC 2006	Catheter ablation is a reasonable alternative to pharmacological therapy to prevent recurrent AF in symptomatic patients with little or no LA enlargement.	IIa	C
NICE IPG 168 2006	Percutaneous radiofrequency ablation is a treatment option for symptomatic patients with atrial fibrillation refractory to anti-arrhythmic drug therapy or where medical therapy is contraindicated because of co-morbidity or intolerance.		
HRS/EHRA/ ECAS 2007 consensus	The primary indication for catheter AF ablation is the presence of symptomatic AF refractory or intolerant to at least one Class 1 or 3 antiarrhythmic medication		
ESC 2010	Persistent symptomatic AF that is refractory to antiarrhythmic therapy should be considered a treatment option.	IIa	B
ESC 2010	Ablation of symptomatic long-standing persistent AF may be considered in patients refractory to antiarrhythmic drugs.	IIb	C

Patient selection – who not to ablate

- Asymptomatic
- As a means to stop warfarin
- Long standing persistent
 - >5 years
 - Severely dilated LA
 - Failed DC cardioversion
- Major structural heart disease
- Extreme age?

Management of persistent AF



Conclusion – persistent AF

- Catheter ablation best for maintaining SR
- But:
 - limited long term and prognostic data
 - high cost and no cost effectiveness data
 - complications
 - careful case selection needed

AF ablation – who will decide?

- NICE?
- GPs?
- HRUK?
- AFA?
- Patients?

NHS

*National Institute for
Health and Clinical Excellence*

Equity and excellence:

Liberating the

NHS

AVN ablation – an alternative strategy?

Benefits

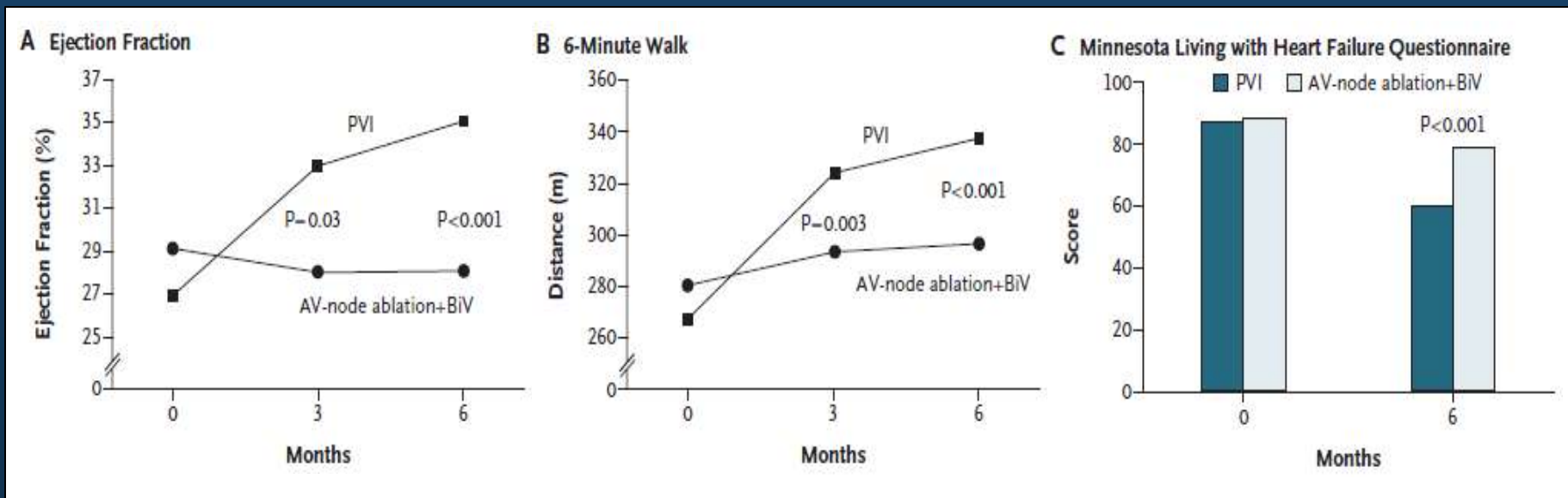
- Absolute heart rate control
- Drug burden + side effects
- Improved ventricular function

Hazards

- Not reversible
- Lifelong pacemaker dependency
- Complications of device implant
- Deleterious effects of long term pacing

CS lead displacement	5.7-6%
CS dissection	0.3-4%
CS perforation	0.8-2%
Infection/erosion	1.3-2.7%
Tamponade	0.3-0.5%
Death	0.2-0.6%
Total	8.6-15.8%

PABA-CHF



Meta analysis of AVN-PPM studies

Author (ref)	No. of Patients	Average Follow-Up	Exercise Duration	Ventricular Function	QOL or Sx	Health Care	Total Mortality, n (%)	Sudden Death, n (%)
Olgin (27)	54	24 mo			↑	↑	4 (7)	2 (4)
Geelen (10)	235	20 mo						6 (2)
Wong (8)	11	3 mo		—				
Jackman (28)	17	8 mo					3 (18)	1 (6)
Heinz (21)	10	48 d		↑				
Bubien (3)	44	6 mo			↑			
Twidale (19)	14	9 mo	—	↑			1 (7)	
Brignole (9)	22	3 mo	↑	—	↑		1 (4)	0 (0)
Darpo (29)	220	31 mo					31 (14)	11 (5)
Natale (22)	14	12 mo		↑	↑			
Kay (6)	156	1 y	—	—	↑	↑	23 (15)	5 (3)
Brignole (5)†	43	6 mo	—	—	↑		0 (0)	0 (0)
Fitzpatrick (25)	107	2.3 y			↑	↑	17 (16)	2 (2)
Jensen (26)	50	17 mo			↑	↑	6 (12)	2 (4)
Morady (30)	20	1 y					0 (0)	0 (0)
Edner (23)	29	216 d		—				
Geelen (24)	11	6 mo		↑	↑		0 (0)	0 (0)
Buys (7)	25	7 mo	—				0 (0)	0 (0)
Lee (11)†	30	6 mo	↑	↑	↑	↑	0 (0)	0 (0)
Twidale (20)	22	14 mo*	↑	↑	↑	↑	2 (23)	2 (9)
Jordaens (31)	47	25 mo						0 (0)

ref indicates reference number; QOL, quality of life; Sx, symptoms; ↑, improvement or favorable change after ablation and pacing; and —, no change after ablation and pacing.
 *Clinical outcome measured at 4 to 6 weeks.
 †Randomized trial.