

Management of atrial fibrillation in heart failure



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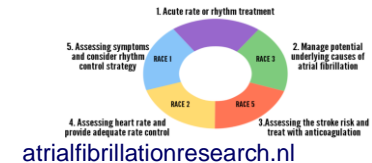
University Medical Center Groningen

The Netherlands



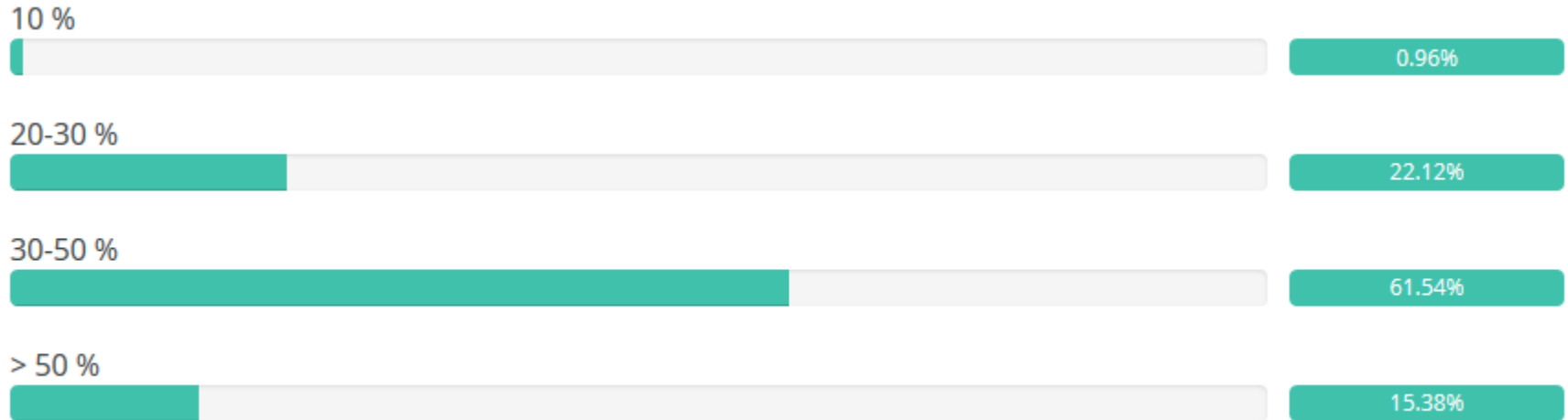
Disclosures

- Grant support to the institution from Medtronic
- Grant support from the Netherlands Cardiovascular Research Initiative: an initiative with support of the Dutch Heart Foundation, CVON 2014-9: RACE V

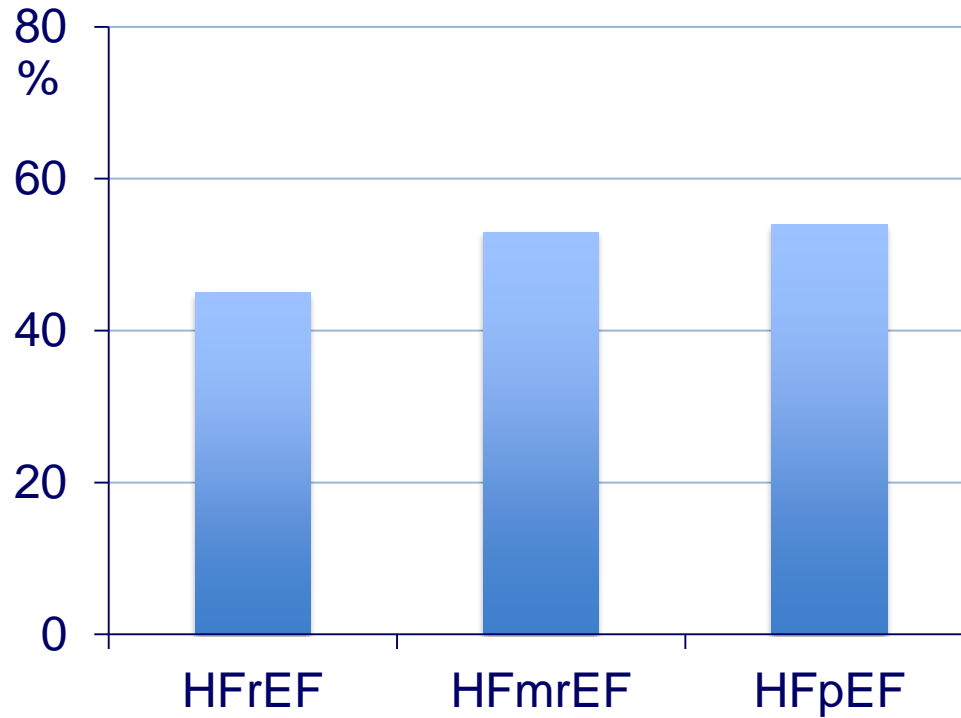


Question 1

The prevalence of AF in heart failure is:

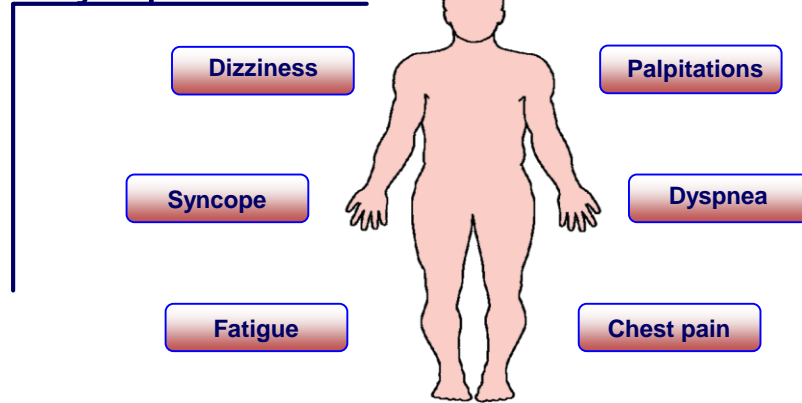


Prevalence of AF in Biostat

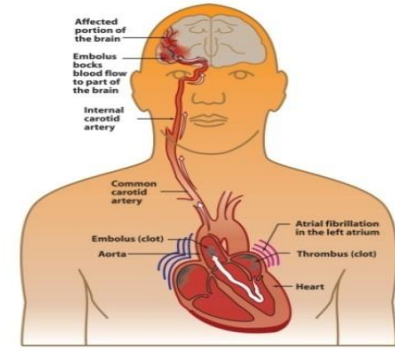


Atrial fibrillation is not benign

Symptoms



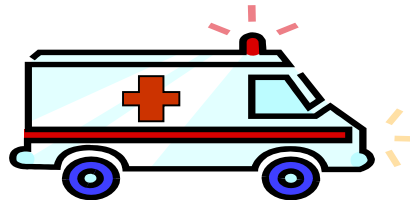
Thromboembolism & stroke



Heart failure



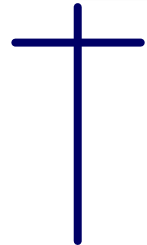
Hospitalisations



Disability



Mortality



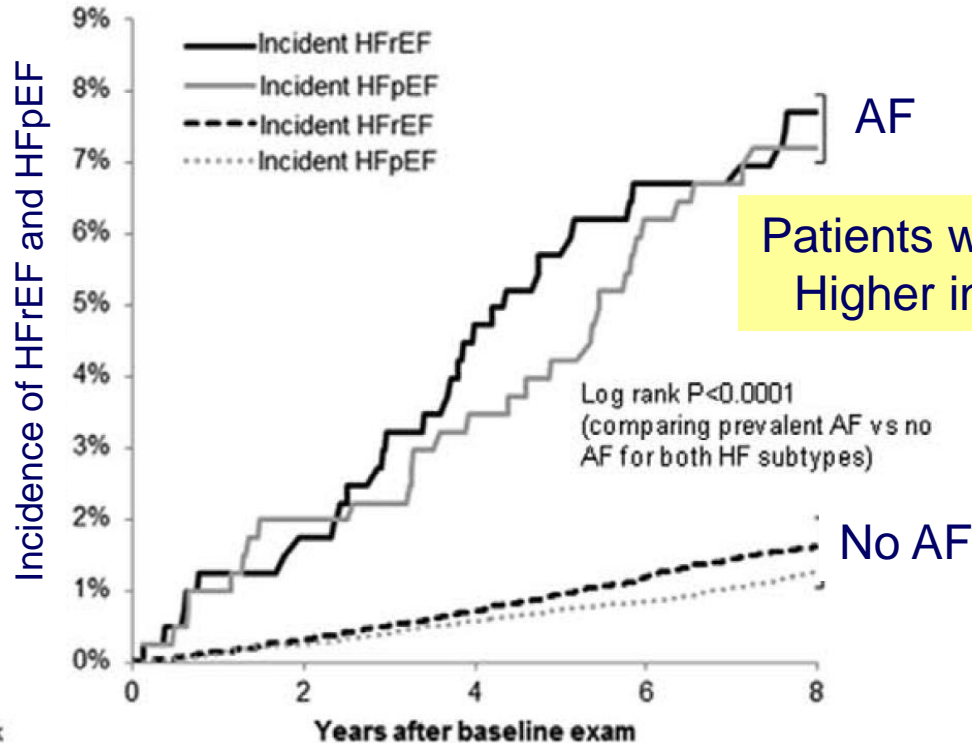
AF and HF – vicious twins

Incident AF analysis:

- 15203 observations
- Mean age 58
- Females 55%
- 403 had AF

- FU 8 yrs
- 215 HFpEF
- 272 HFrEF

Incidence rate of HFpEF and HFrEF higher in patients with AF



Number at Risk

Prevalent AF

No AF

403

354

293

247

209

14800

14478

14004

13477

12934



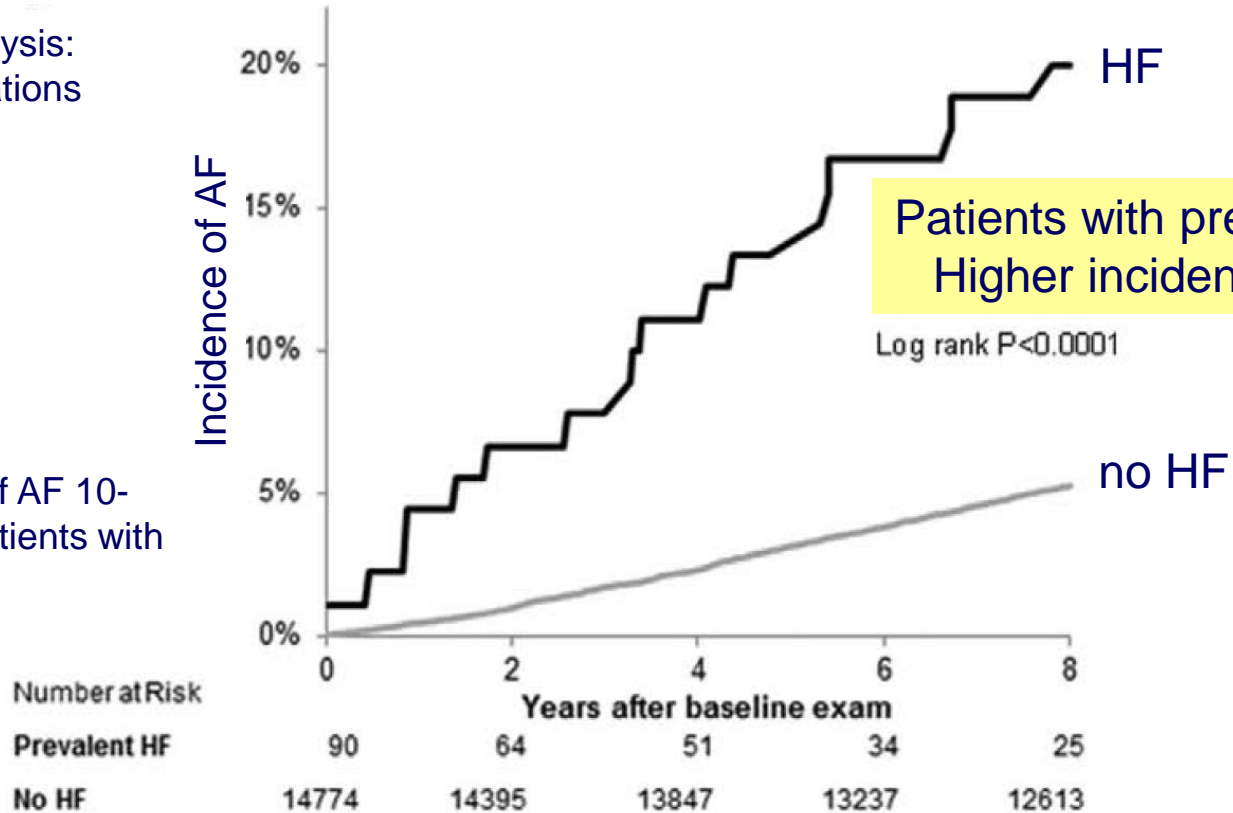
AF and HF – vicious twins

Incident AF analysis:

- 14864 observations
- Mean age 58
- Females 55%
- 90 had HF

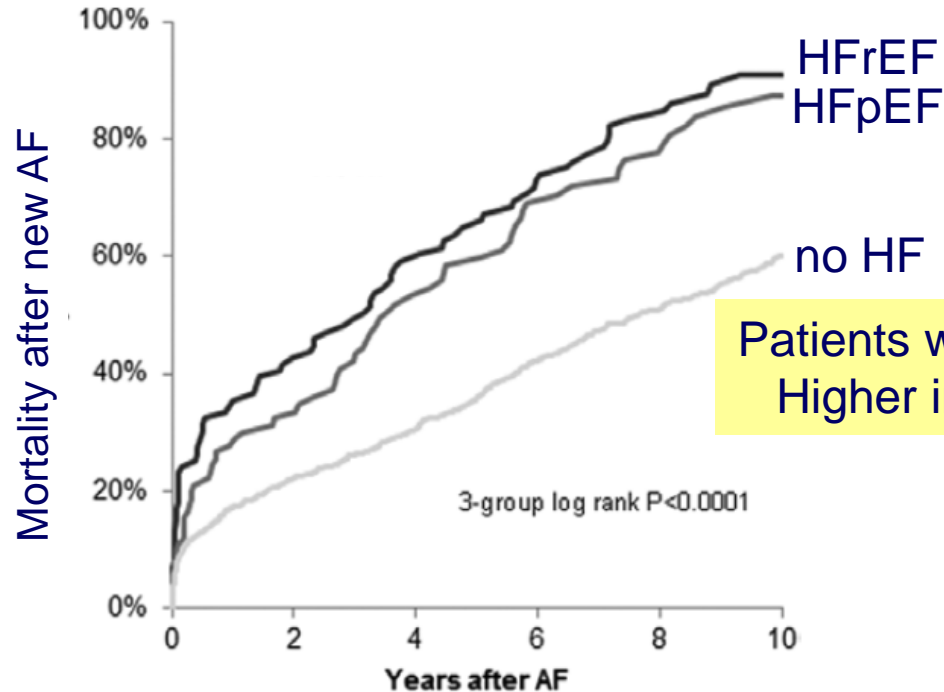
- FU 8 yrs
- 795 AF

Incidence rate of AF 10-fold higher in patients with HF



AF after HF – a bad combination !

B



Number at Risk

Prevalent HFrEF	99	56	37	25	15	6
Prevalent HFpEF	91	58	37	24	16	4
No HF	977	715	590	444	346	254

Patients with prevalent HF
Higher incidence of AF

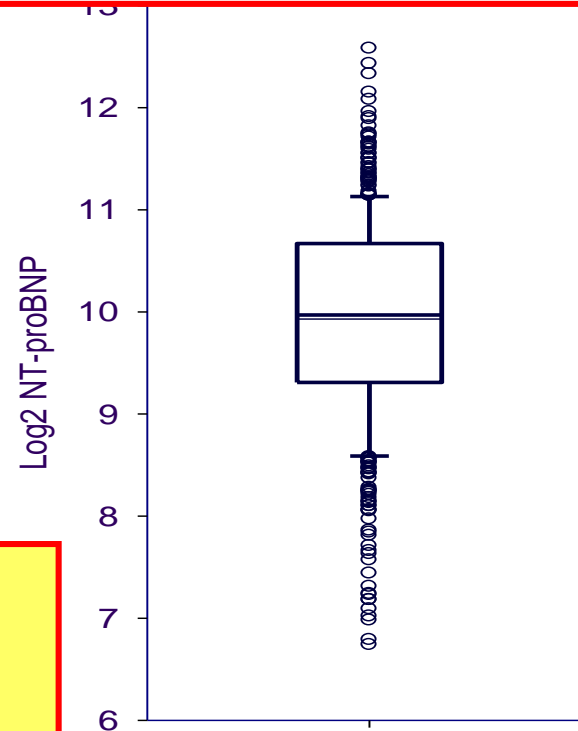


NT-proBNP in RACE II

Median baseline NT-proBNP level: 1003 pg/ml

- N=543 / 614 (88.4%)
- Mean LVEF 54%
- IQR: 634-1632

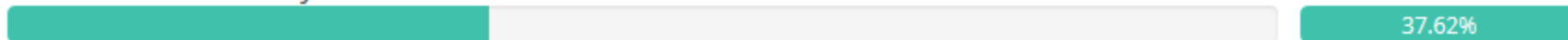
Heart failure probably
more often present



Question 2

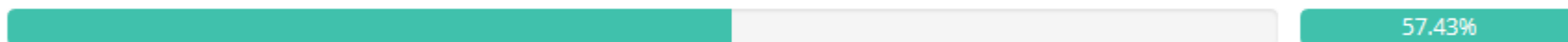
Beta-blockers in patients with AF and HFrEF are instituted for:

Reduction of mortality



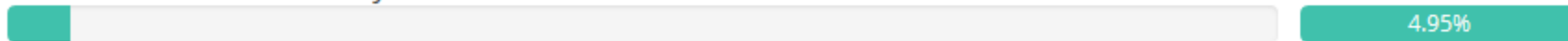
37.62%

Rate control



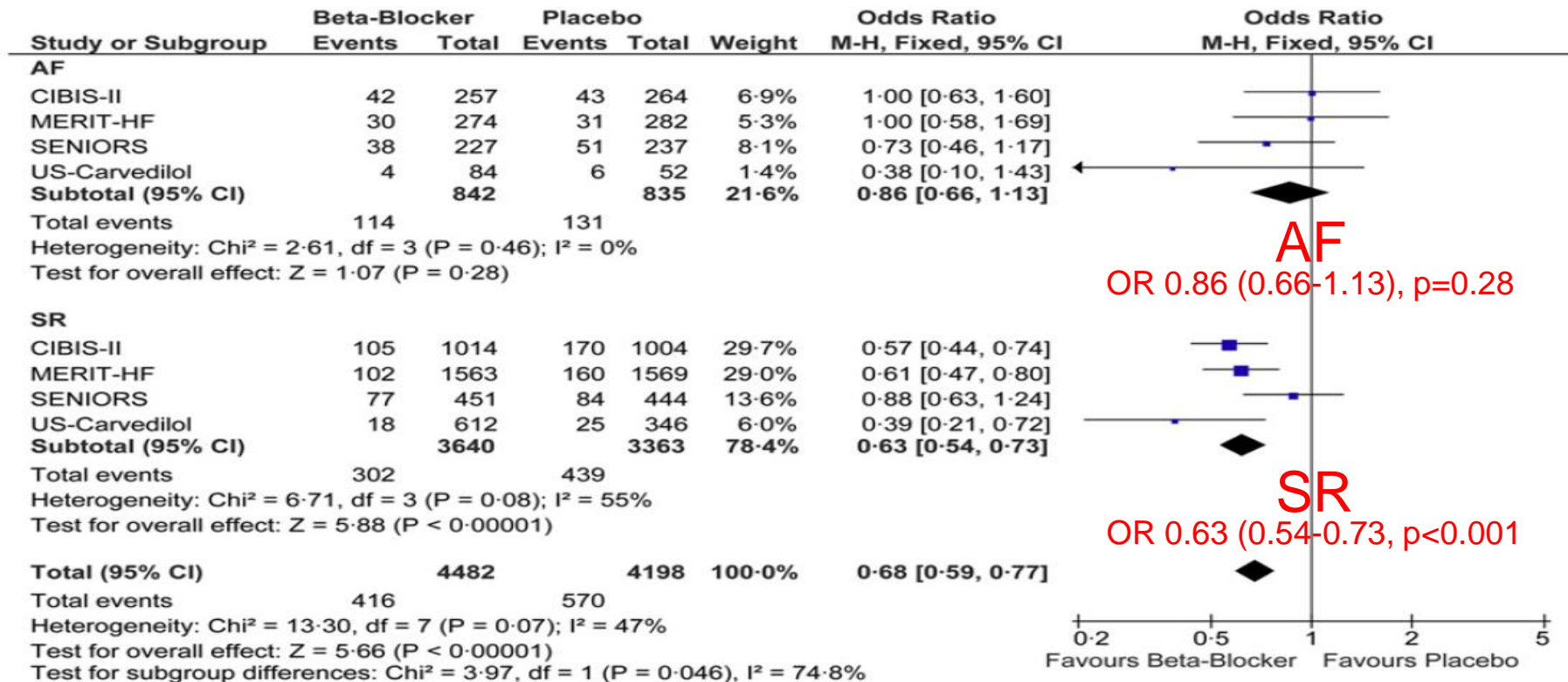
57.43%

Reduction of stroke and myocardial infarction



4.95%

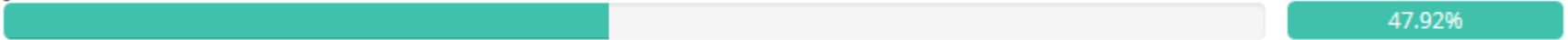
Beta-blockers do not reduce mortality



Question 3

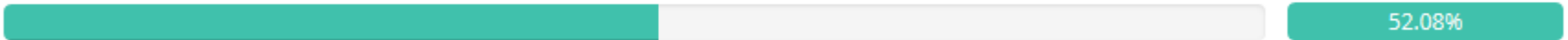
Rate control is instituted only after failure of rhythm control in patients with symptomatic AF and HF

yes



47.92%

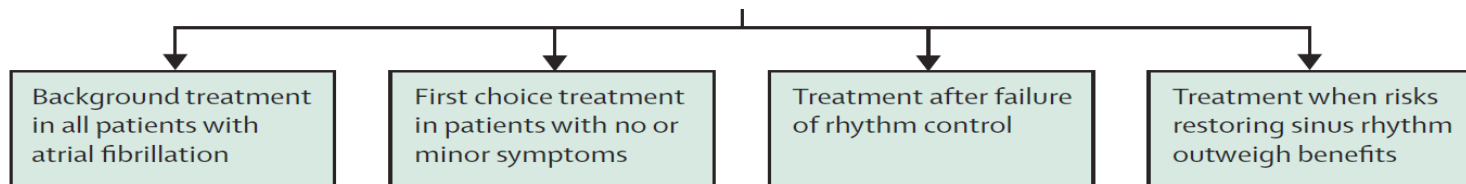
no



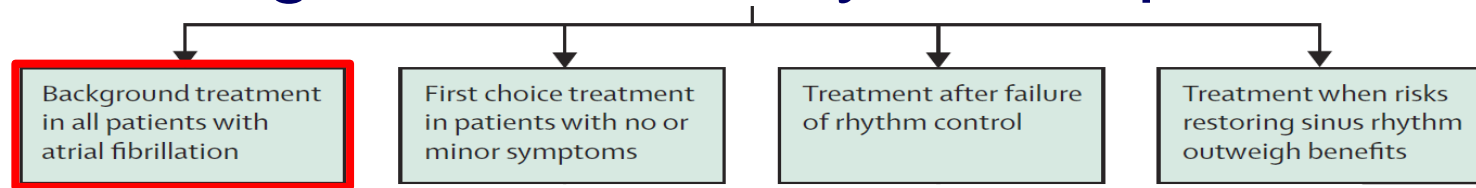
52.08%



Four reasons to consider rate control

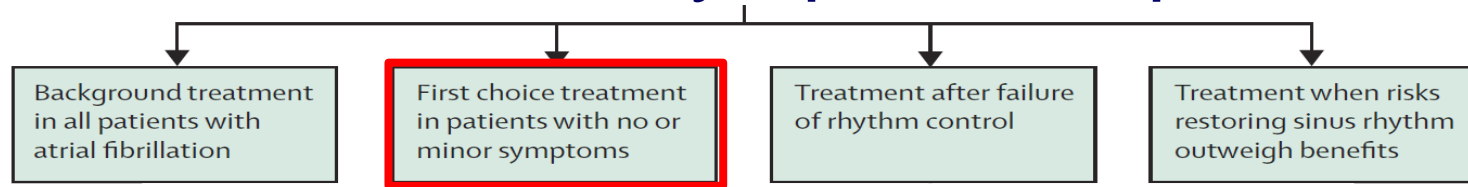


Background in nearly all AF patients



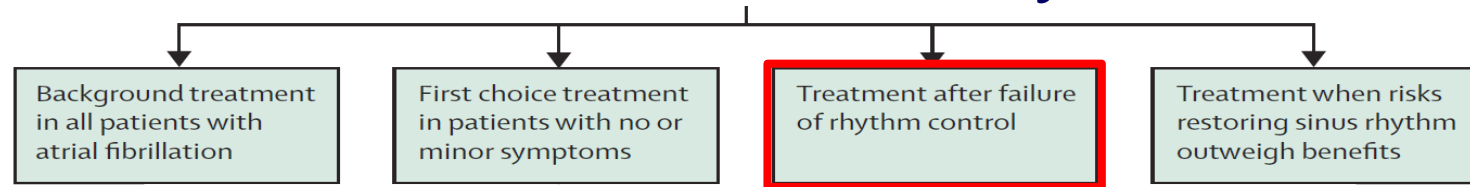
- Background treatment ('adjunctive therapy') in nearly all AF patients because during a relapse of AF well controlled heart rates are crucial
- Although not investigated it may also be instituted as a 'pill in the pocket' strategy in patients with infrequent AF paroxysms precluding long term drug treatment

First choice in asymptomatic patients



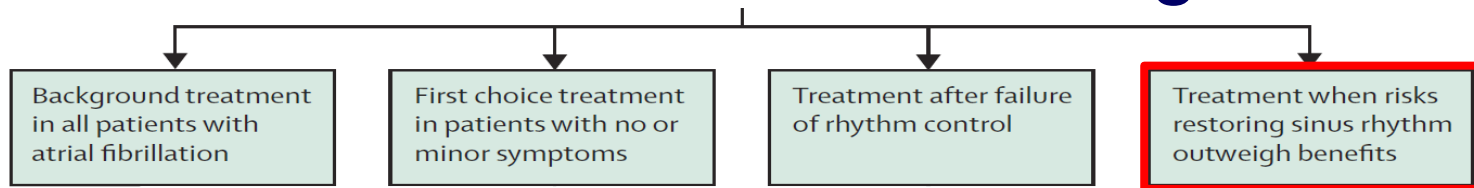
- First choice therapy in elderly asymptomatic patients who do not desire rhythm control because only oral anticoagulants have been associated with improved survival, not rhythm control therapies (awaiting EAST and CABANA results)
- The only reason to institute rhythm control is to improve symptoms

Treatment after failure of rhythm control



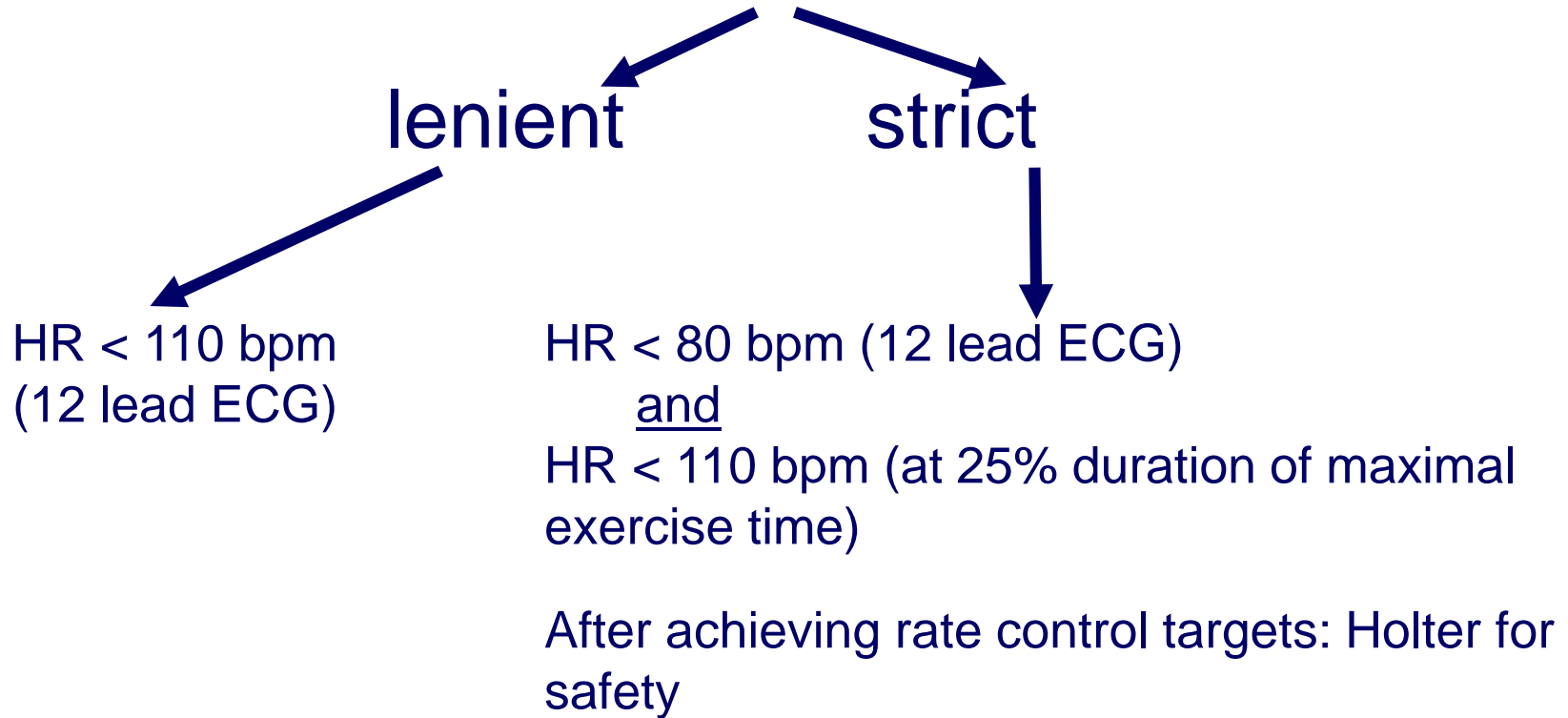
- Treatment after failure of rhythm control
- But in every symptomatic patient AF ablation should be considered before accepting AF

Treatment when SR risks outweigh benefits

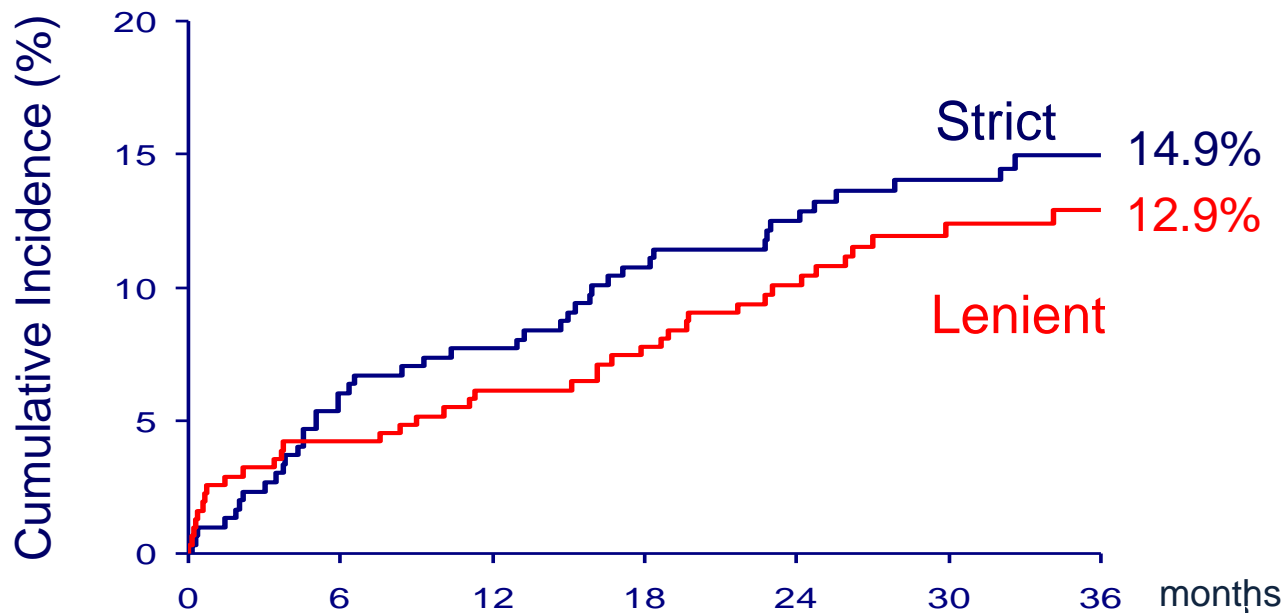


- Treatment when risks restoring sinus rhythm outweigh benefits
- Eg, in patients with the brady-tachy syndrome who do not need pacing when AF is present

Permanent AF > 80 bpm



Cumulative incidence primary outcome

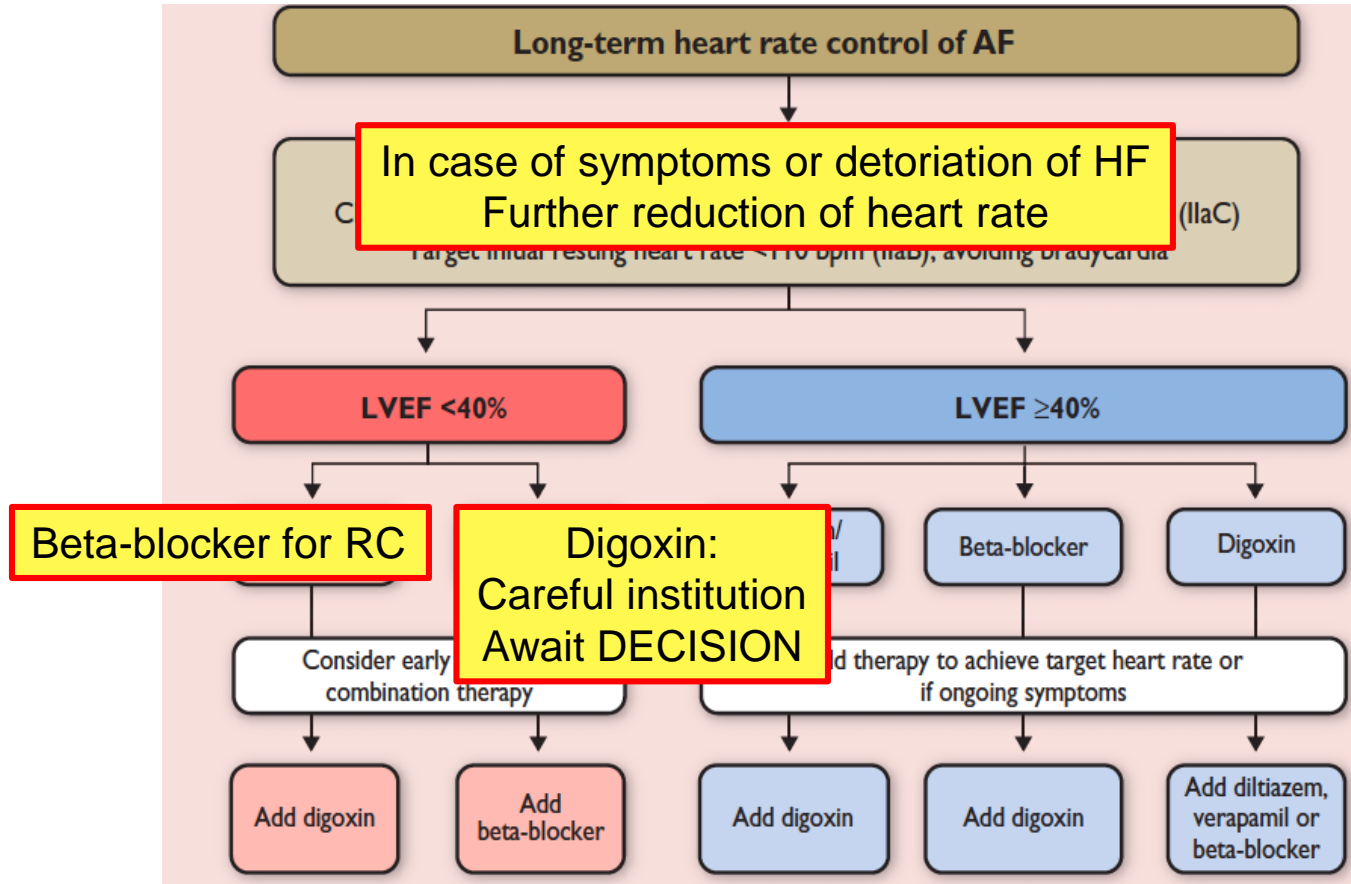


No. At Risk

Strict	303	282	273	262	246	212	131
Lenient	311	298	290	285	255	218	138



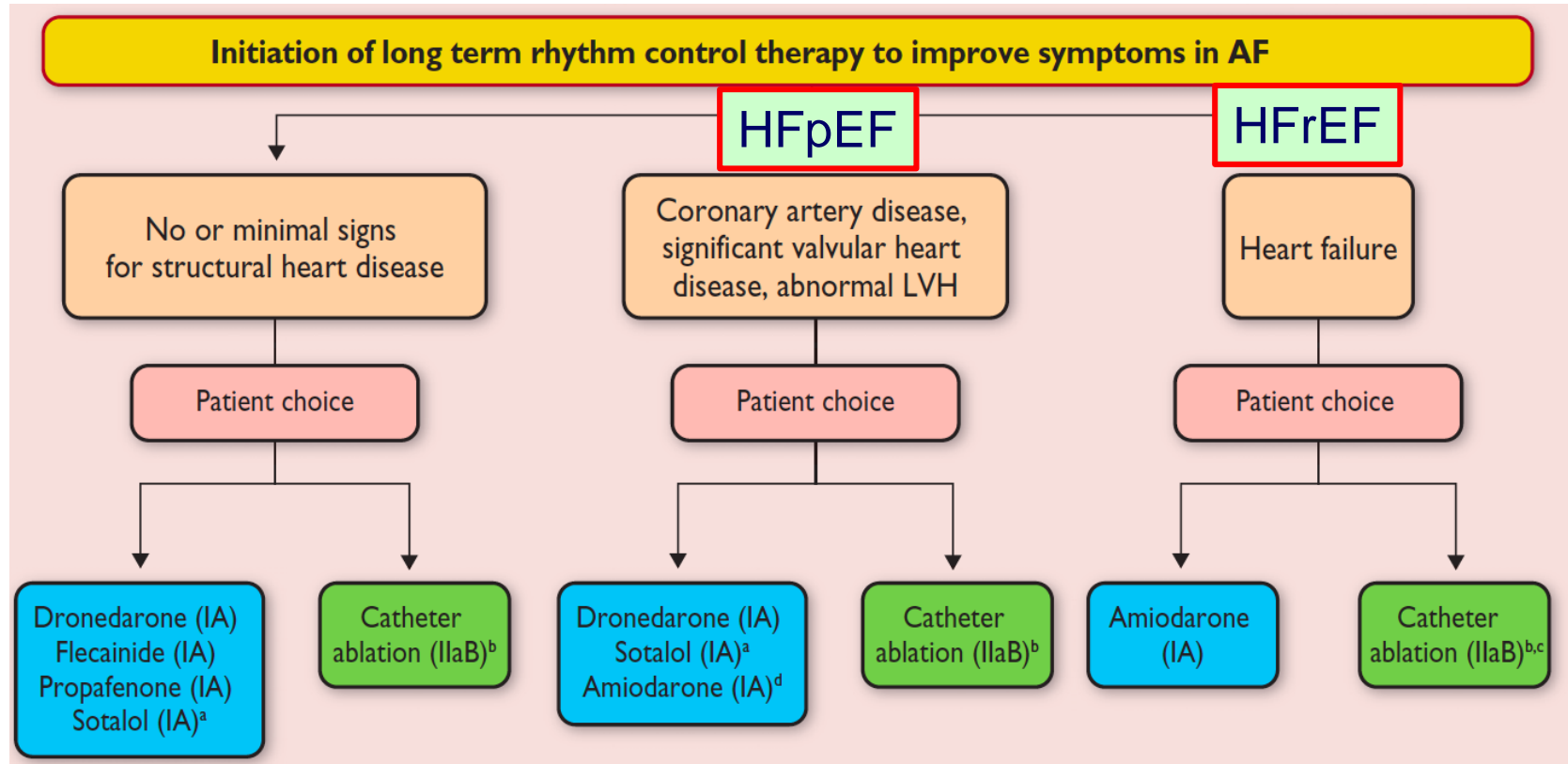
Rate control – how ?



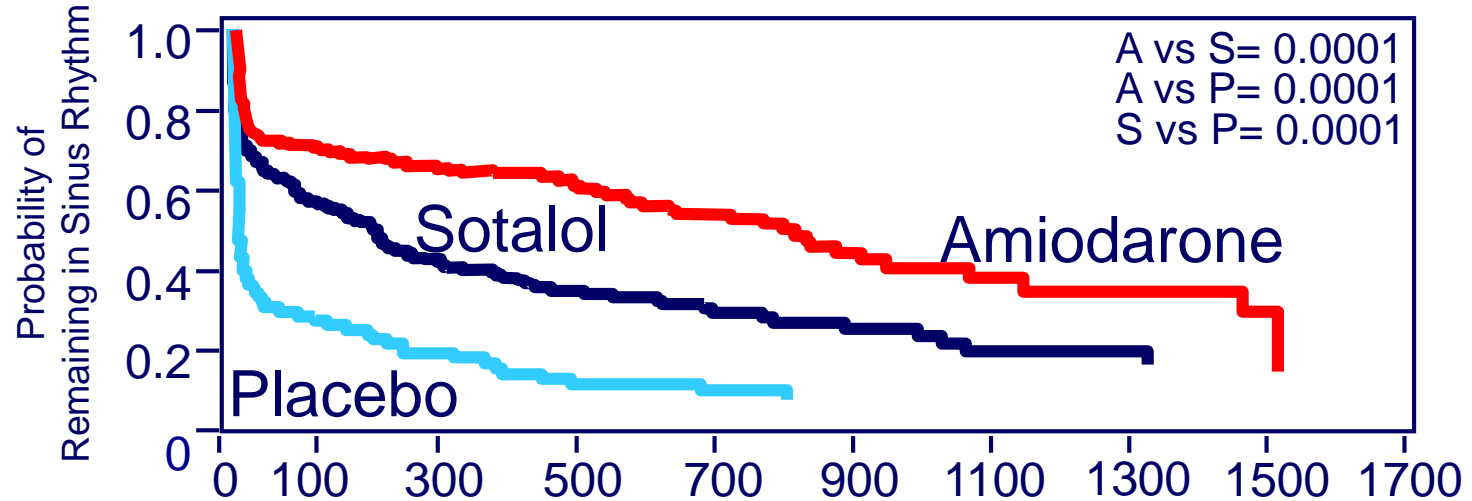
Rhythm control – how in HFpEF and HFrEF ?



Rhythm control – how in HFpEF and HFrEF ?



AADs for rhythm control

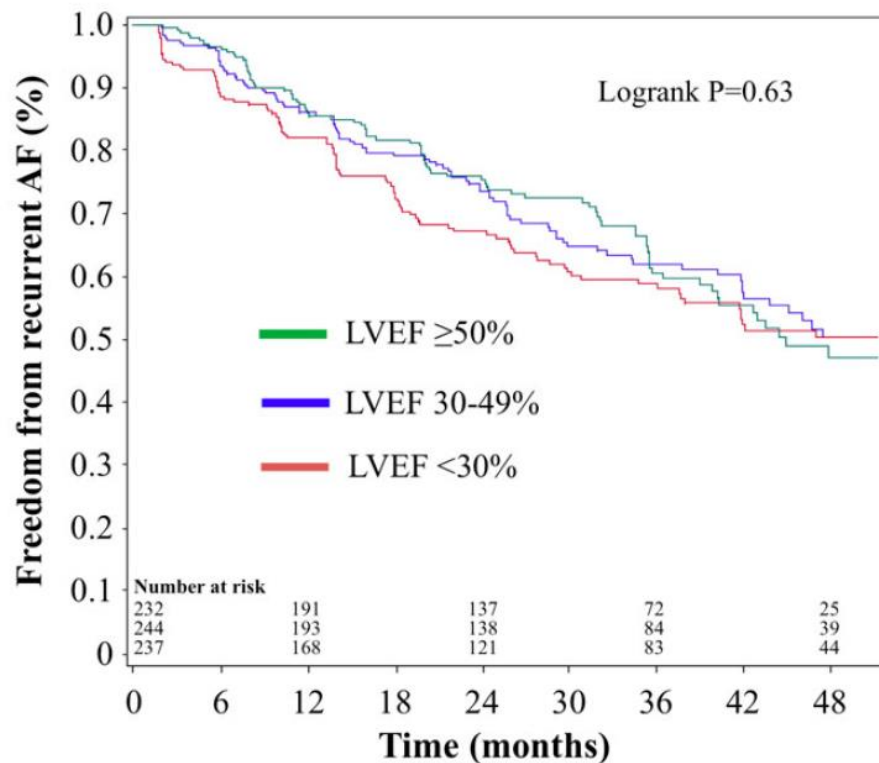


No. Patients at Risk

Amiodarone	206	131	98	60	38	18	10	8	0
Sotalol	195	97	61	38	21	13	11	4	1
Placebo	90	21	11	8	5	2	0		



Amiodarone for RHC in AFFIRM and AF-CHF



Pooled analysis 3307 pts
1107 amiodarone treated

Freedom from AF at 5 yr 45%
No difference according to LVEF



Failure rhythm control in AF-CHF

- Female sex HR 1.68 (95% CI 1.16-2.44, $p=0.007$)
- High creatinine HR 1.07 (per 10 $\mu\text{mol/L}$, 1.02-1.13, $p=0.005$)
- NYHA III/IV HR 1.57 (1.11-2.24, $p=0.01$)



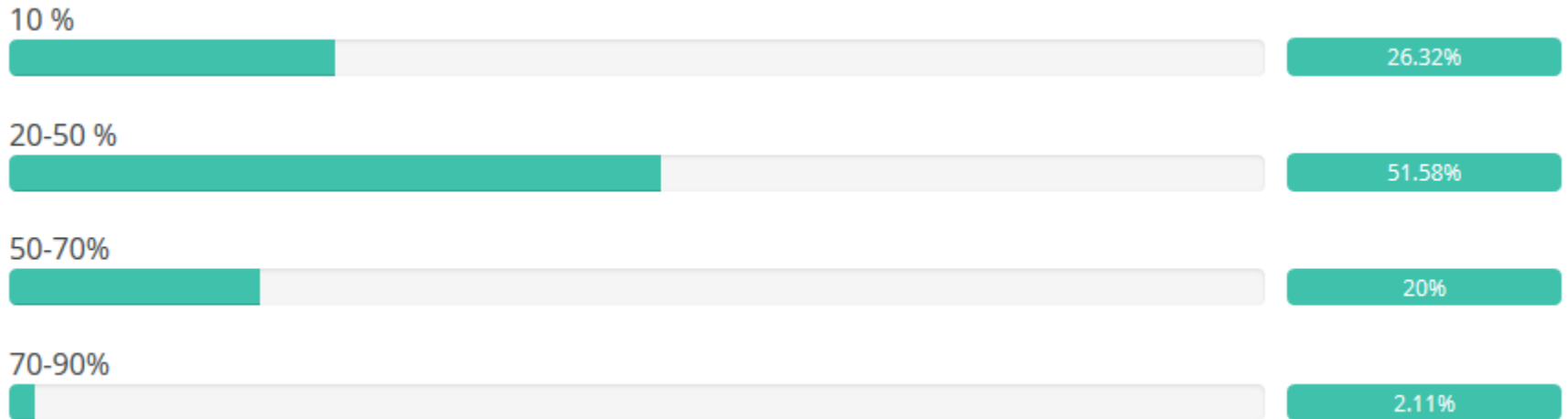
Is there still a role for AADs in AF and HF

- There is only a modest role
- Indication only for improving AF associated symptoms
 - Cave: symptoms always due to AF ?
- Safety is a concern
- There are several niches – personalized medicine
 - Critically ill patients
 - Reduction of inappropriate ICD shocks
 - Hybrid therapy continuation after ablation – substrate modified



Question 4

In patients with AF and HFrEF atrial ablation is effective, i.e. sinus rhythm at 1 year follow up, is maintained in:

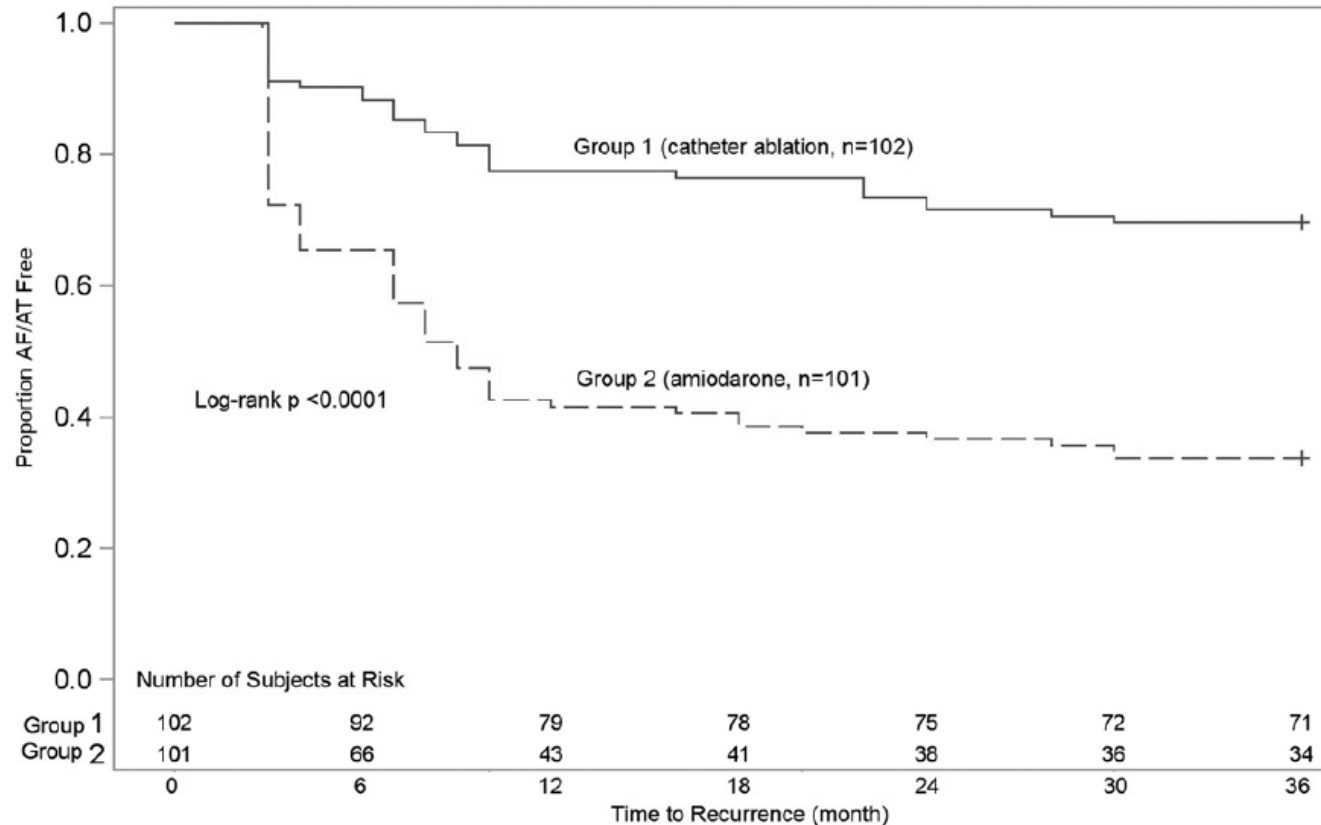


Atrial ablation versus amiodarone in HFrEF

	Group 1 (Catheter Ablation, n=102)	Group 2 (Amiodarone, n=101)
Age, y	62±10	60±11
Male, n (%)	77 (75)	74 (73)
AF duration, mo	8.6±3.2	8.4±4.1
BMI, kg/m ²	30±8	29±4
Hypertension, n (%)	46 (45)	48 (48)
Diabetes mellitus, n (%)	22 (22)	24 (24)
Coronary artery disease, n (%)	63 (62)	66 (65)
LA diameter, mm	47±4.2	48±4.9
LVEF, %	29±5	30±8
6MWD, meters	348±111	350±130
MLHFQ Score	52±24	50±27



Atrial ablation versus amiodarone in HFrEF



**Catheter Ablation versus Standard
conventional Treatment in patients with LEft
ventricular dysfunction and Atrial Fibrillation**

The CASTLE-AF trial

**Nassir F. Marrouche MD
on behalf the CASTLE AF Investigators**

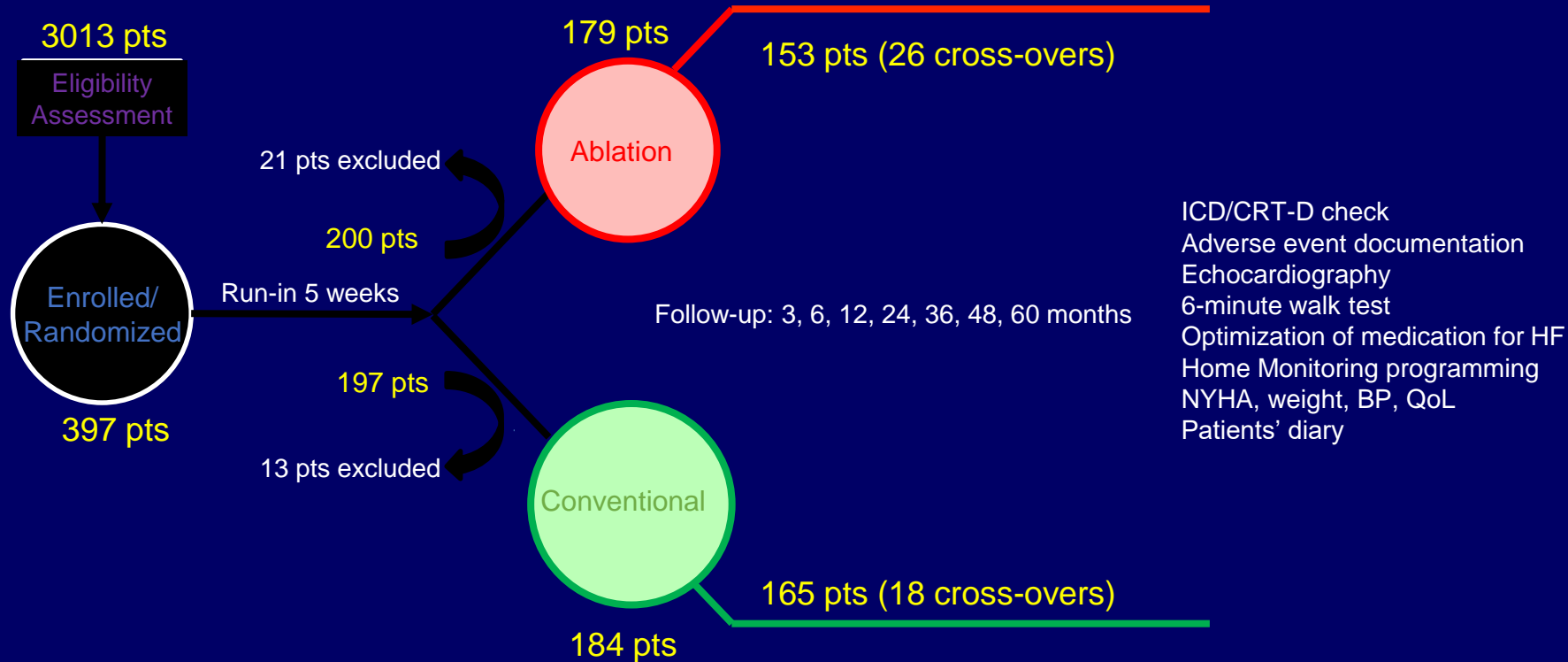
CASTLE-AF

Inclusion Criteria

- Symptomatic paroxysmal or persistent AF
- Failure or intolerance to ≥ 1 or unwillingness to take AAD
- LVEF $\leq 35\%$
- NYHA class \geq II
- ICD/CRT-D with Home Monitoring capabilities already implanted due to primary or secondary prevention

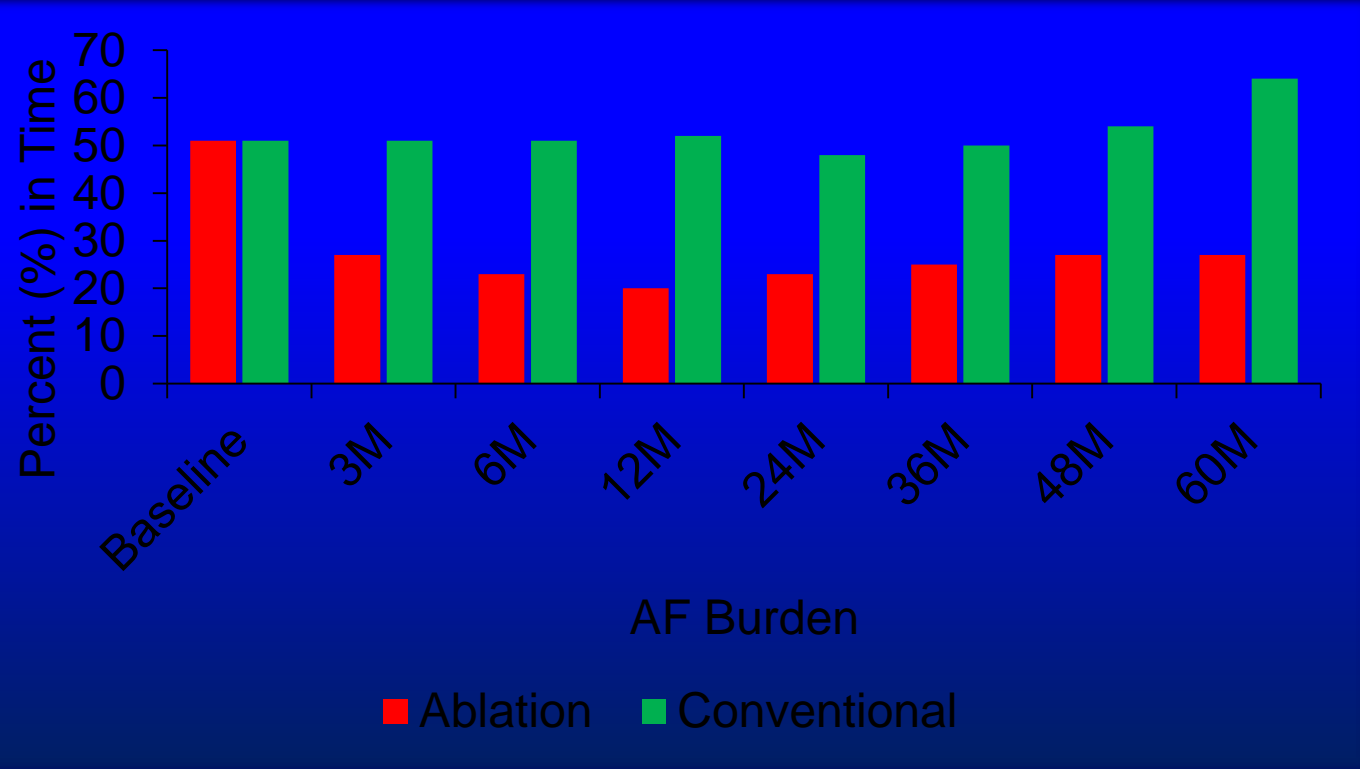
Study Design— CASTLE-AF

- Investigator initiated, Prospective, Multicenter (31 sites, 9 countries), Randomized, Controlled



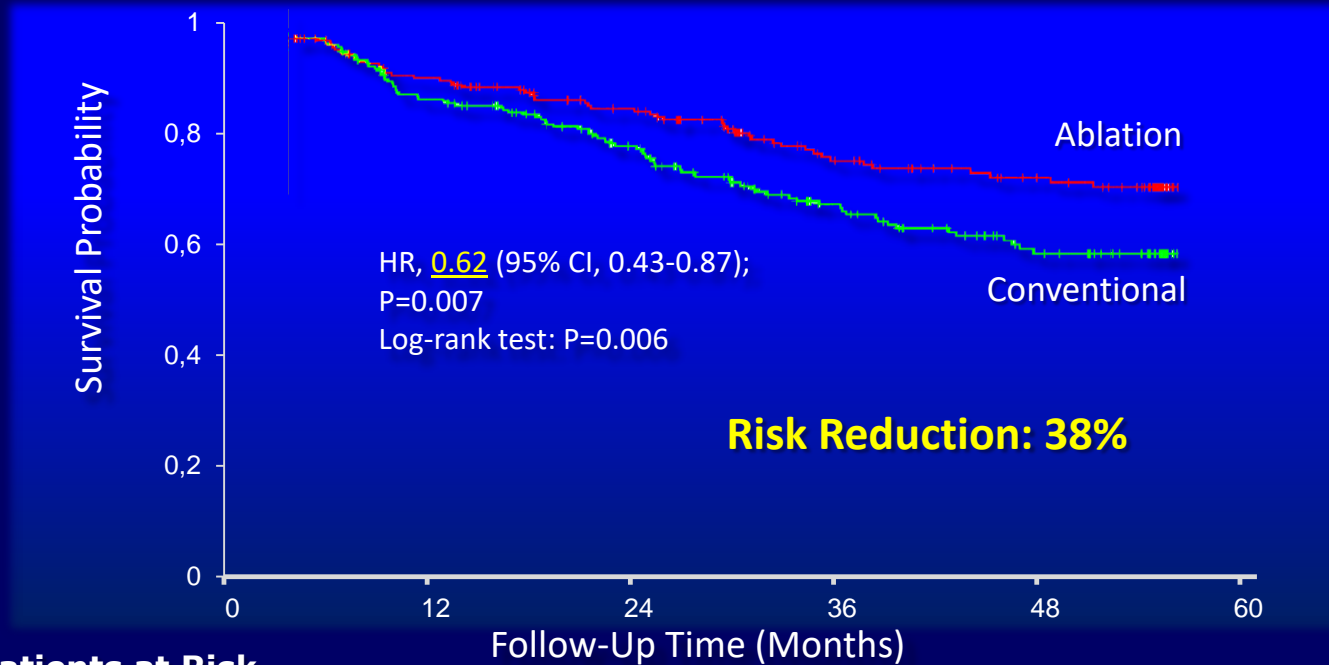
Results-CASTLE AF

AF Burden Derived from Memory of Implanted Devices



Results-CASTLE AF

Primary Composite Endpoint



Patients at Risk

Ablation	179	141	114	76	58	22
Conventional	184	145	111	70	48	12

EAST and CABANA change next guidelines



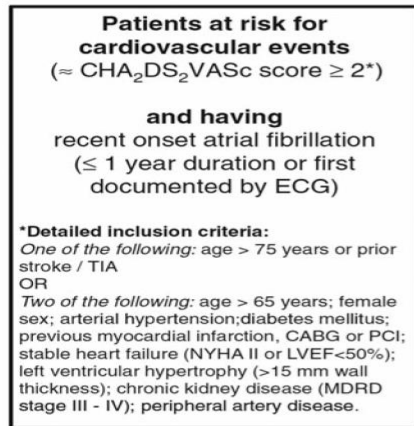
European Heart Journal (2015) **36**, 255–264
doi:10.1093/eurheartj/ehu476



The EAST study: redefining the role of rhythm control therapy in atrial fibrillation

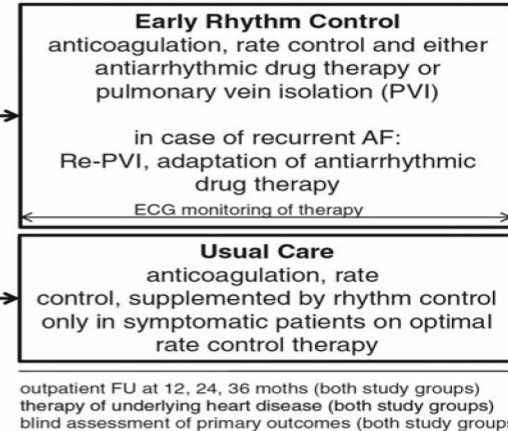
EAST, the Early treatment of Atrial fibrillation for Stroke prevention Trial

Pre-Study Screening



Randomisation

Study Procedures



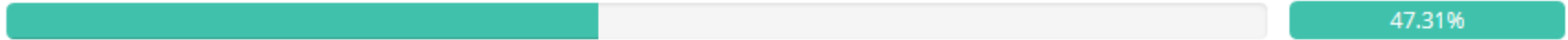
EAST: NCT01288352
Cabana: NCT00911508



Question 5

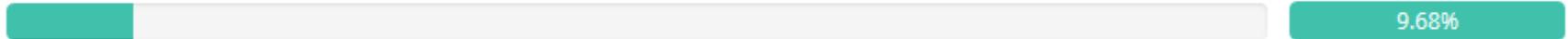
In my hospital patients with AF and HF are seen at the outpatient department by:

HF nurse



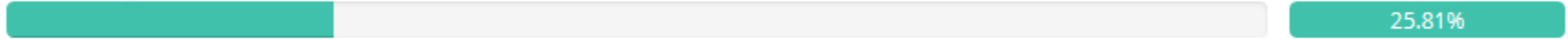
47.31%

AF nurse



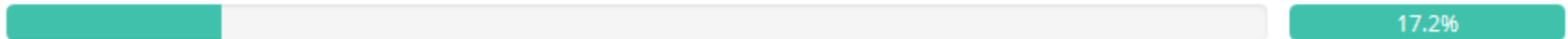
9.68%

Cardiologist



25.81%

AF heart team



17.2%

Multidisciplinary teams - AF clinics

Integrated AF management

Patient involvement	Multidisciplinary teams	Technology tools	Access to all treatment options for AF
<ul style="list-style-type: none"> Central role in care process Patient education Encouragement and empowerment for self-management Advice and education on lifestyle and risk factor management Shared decision making 	<ul style="list-style-type: none"> Physicians (general physicians, cardiology and stroke AF specialists, surgeons) and allied health professionals work in a collaborative practice model Efficient mix of communication skills, education, and experience 	<ul style="list-style-type: none"> Information on AF Clinical decision support Checklist and communication tools Used by healthcare professionals and patients Monitoring of therapy adherence and effectiveness 	<ul style="list-style-type: none"> Structured support for lifestyle changes Anticoagulation Rate control Antiarrhythmic drugs Catheter and surgical interventions (ablation, LAA occluder, AF surgery, etc.)
<ul style="list-style-type: none"> Informed, involved, empowered patient 	<ul style="list-style-type: none"> Working together in a multidisciplinary chronic AF care team 	<ul style="list-style-type: none"> Navigation system to support decision making in treatment team 	<ul style="list-style-type: none"> Complex management decisions underpinned by an AF Heart Team

Recommendations	Class ^a	Level ^b
An integrated approach with structured organization of care and follow-up should be considered in all patients with AF, aiming to improve guidelines adherence and to reduce hospitalizations and mortality.	IIa	B
Placing patients in a central role in decision-making should be considered in order to tailor management to patient preferences and improve adherence to long-term therapy.	IIa	C

2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS





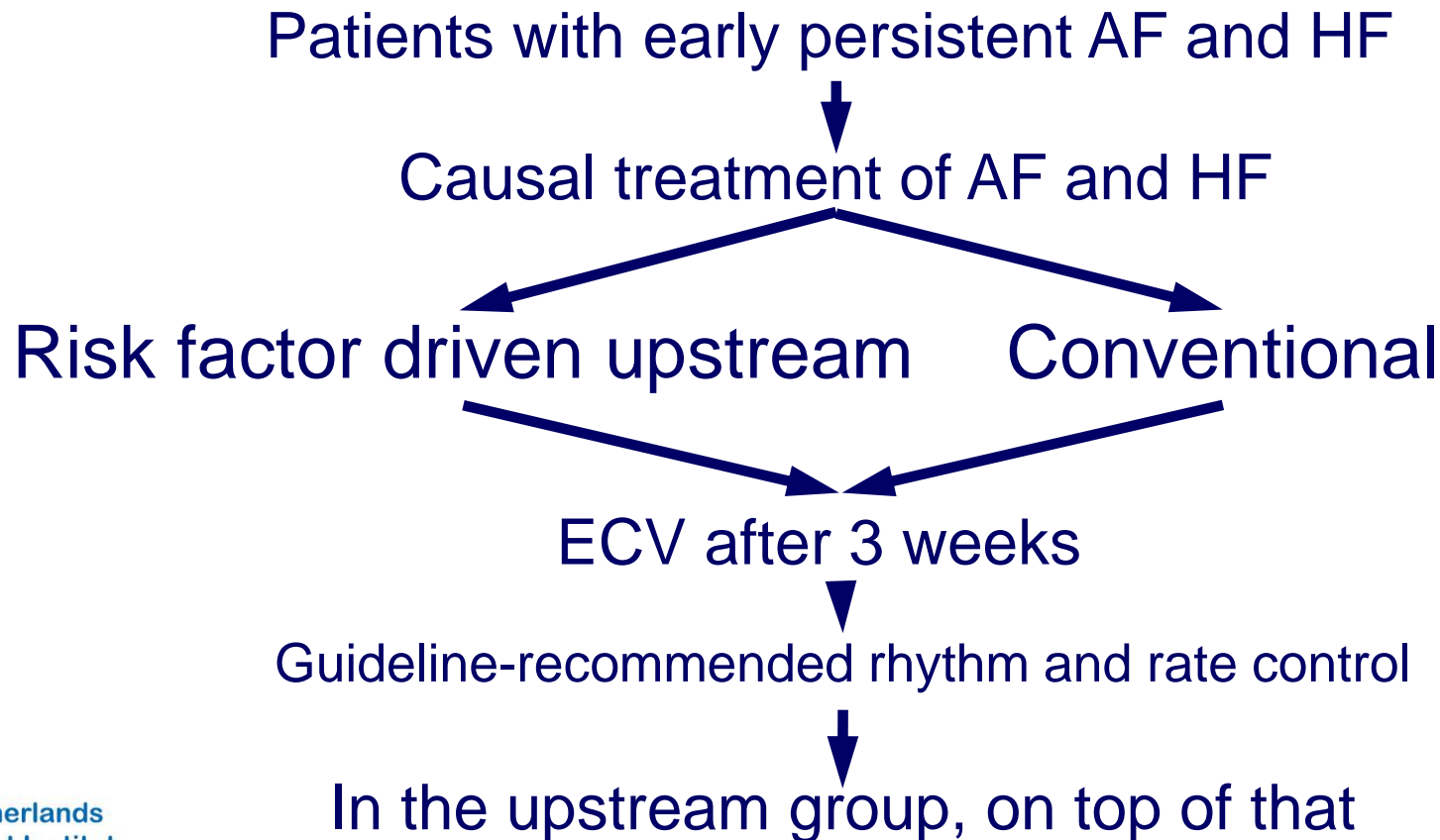
Risk Factor Driven Upstream Therapy in Early Persistent Atrial Fibrillation

The Routine versus Aggressive upstream rhythm Control for prevention of Early persistent atrial fibrillation in heart failure study

Michiel Rienstra, Anne H. Hobbelt, Marco Alings, Jan G.P. Tijssen, Marcelle D. Smit, Johan Brügemann, Bastiaan Geelhoed, Robert G. Tieleman, Hans L. Hillege, Raymond Tukkie, Dirk J. Van Veldhuisen, Harry J.G.M. Crijns, Isabelle C. Van Gelder, for the RACE 3 Investigators



Flowchart





Risk factor driven upstream therapy

- Four upstream therapies, intended to affect the atrial substrate and reduce risk factors, were started:
 - 1) Mineralocorticoid receptor antagonist (MRA)
 - 2) Statins
 - 3) ACE-inhibitors (ACE-I) and/or angiotensin-receptor blockers (ARB)
 - 4) Cardiac rehabilitation



Risk factor driven upstream therapy

- Four upstream therapies, intended to affect the atrial substrate and reduce risk factors, were started:
 - 1) Mineralocorticoid receptor antagonist (MRA)
 - 2) Statins
 - 3) ACE-inhibitors (ACE-I) and/or angiotensin-receptor blockers (ARB)
 - 4) Cardiac rehabilitation
- MRAs, ACE-Is, ARBs were dosed aiming to the highest tolerated dose
- Blood pressure target was $< 120/80$ mmHg
- Statins were prescribed at the recommended dosages



Primary endpoint

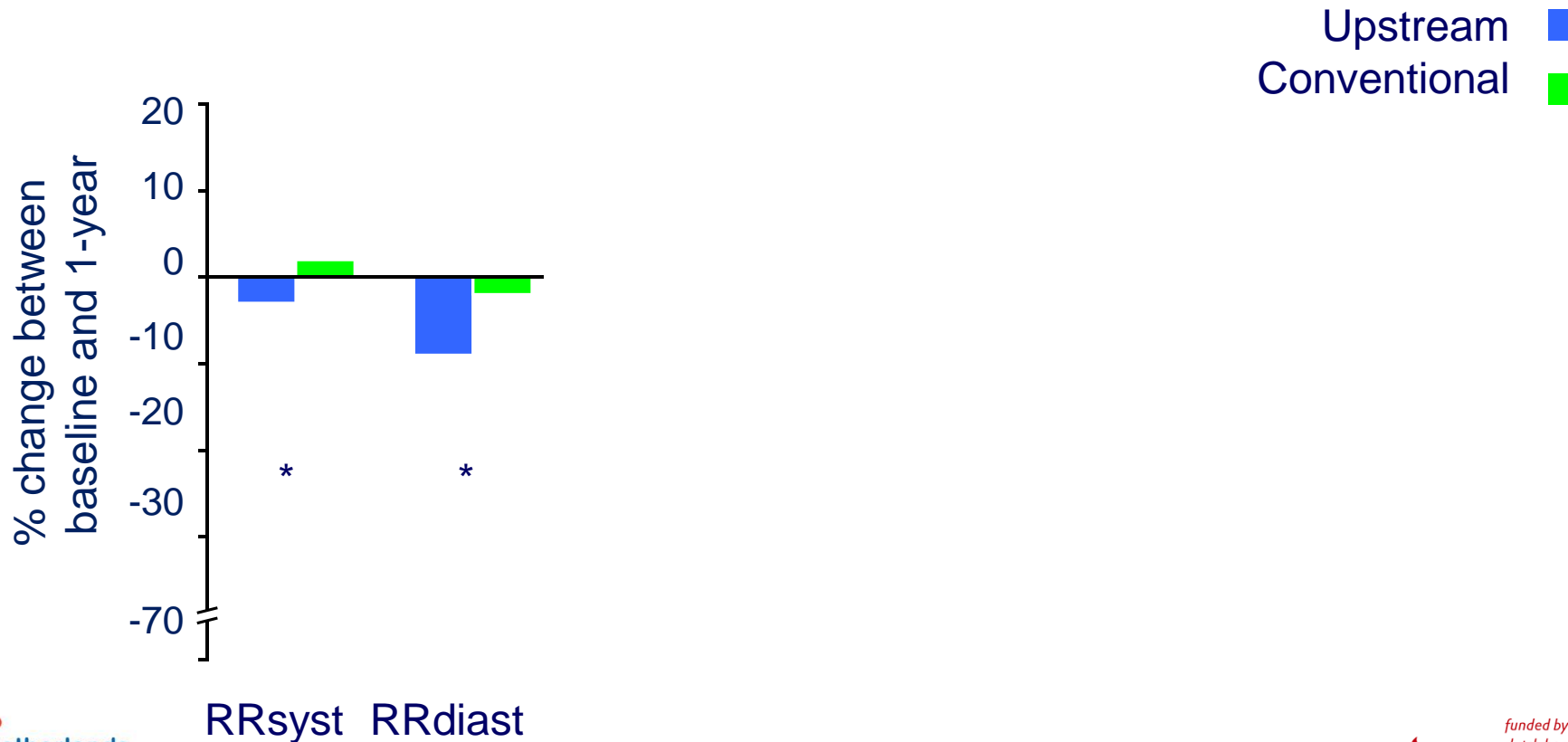


Presence of sinus rhythm at the 7-day Holter* at 1-year

*All 7-day Holters were analysed by central core lab blinded for randomised therapy



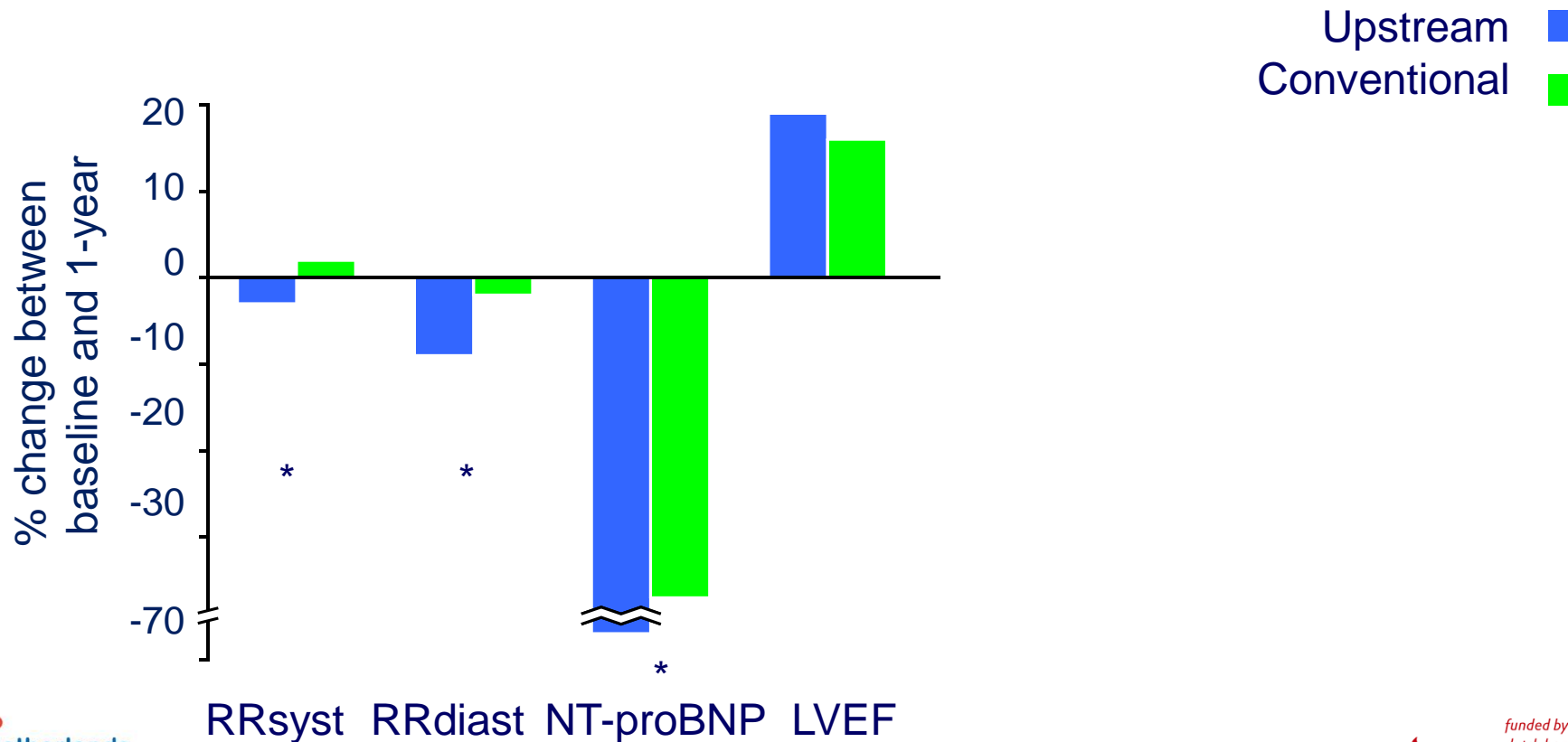
Changes in secondary endpoints



* $P < 0.05$ upstream versus conventional group



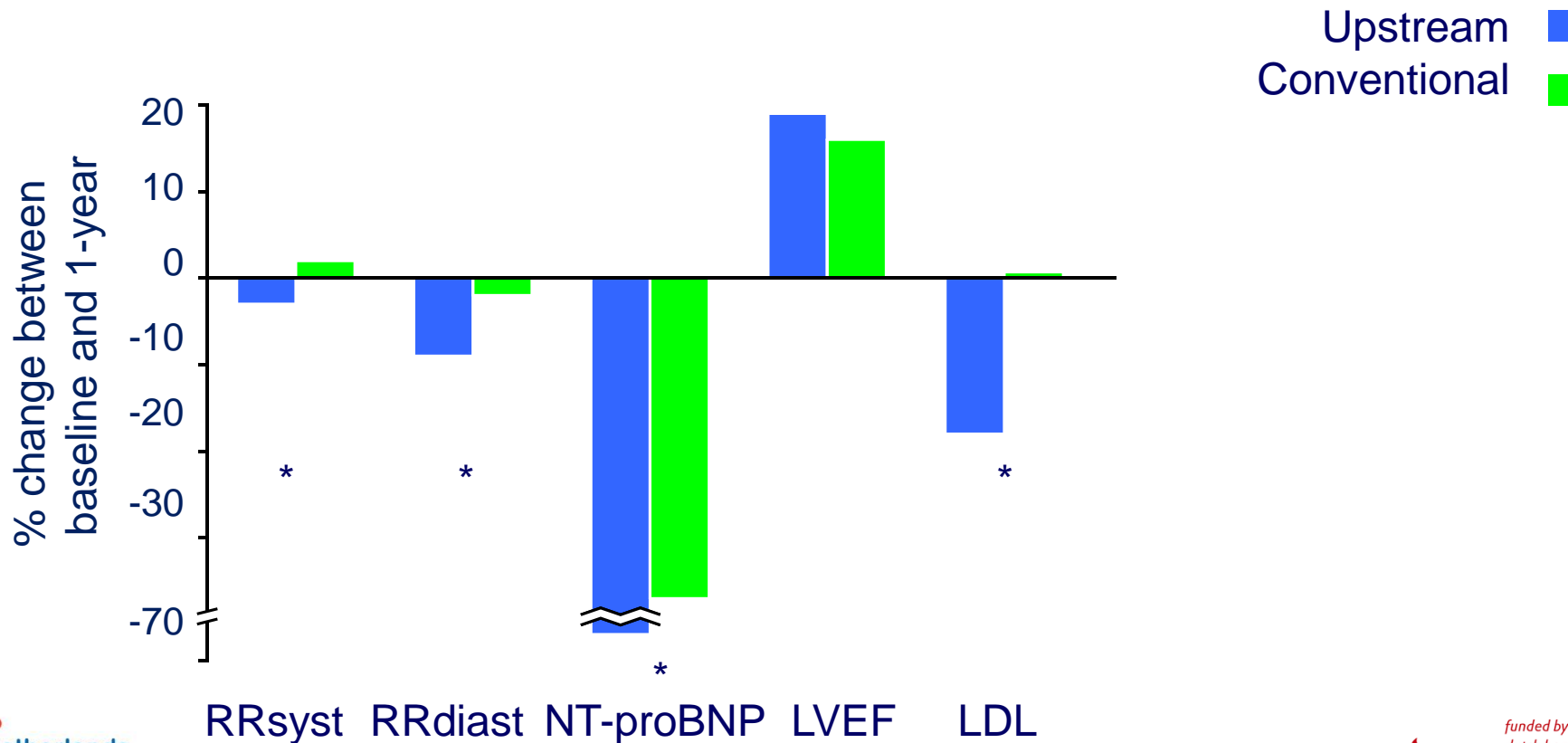
Changes in secondary endpoints



* $P < 0.05$ upstream versus conventional group



Changes in secondary endpoints

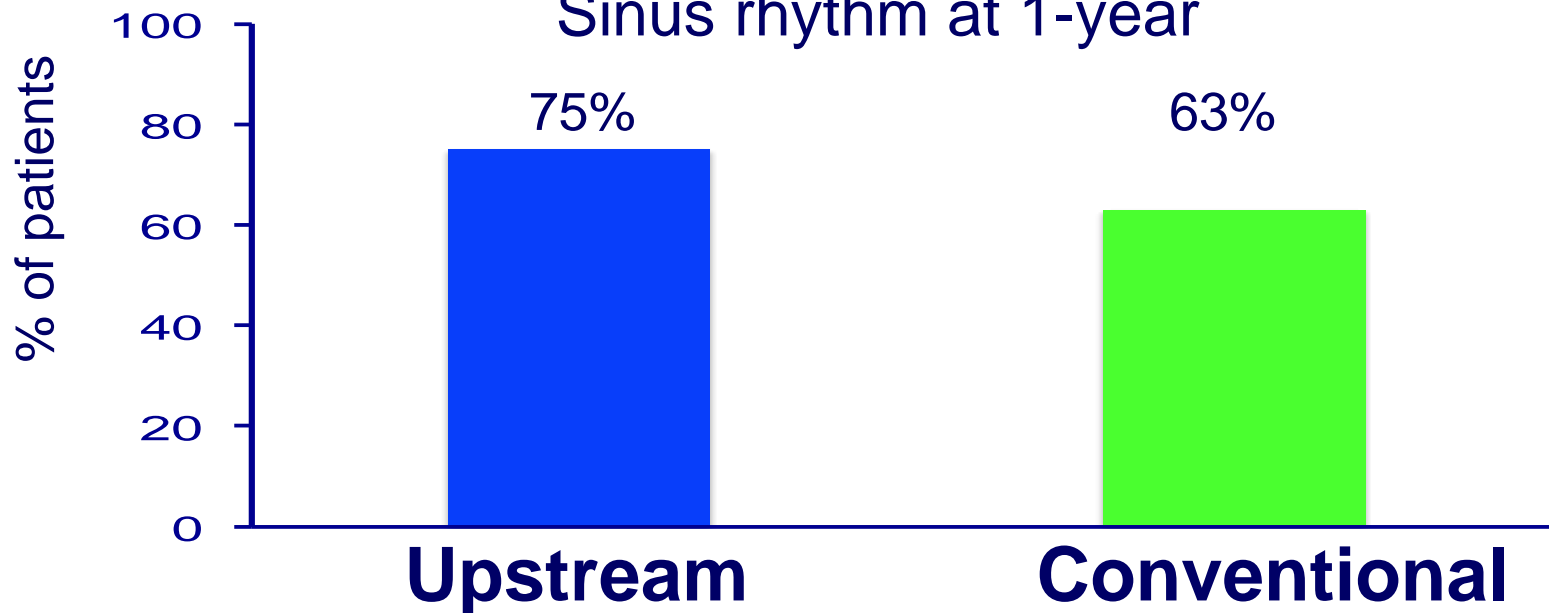


* $P < 0.05$ upstream versus conventional group



Primary endpoint

Sinus rhythm at 1-year



Odds ratio

1.765

Lower 95% confidence limit

1.115

Superiority hypothesis was proven ($p=0.021$)

Conclusion

The RACE 3 study demonstrates that risk factor driven upstream therapy is effective and feasible to improve maintenance of sinus rhythm in patients with early persistent AF and HF



Clinical implication

The effect of upstream therapy on reduction of risk factors
and cardiovascular diseases was favourable

Therefore, RACE 3 may contribute to the shift to focus on
EARLY risk factor modification
to improve AF outcomes

Take home messages

- Look always for AF in HF and for HF in AF
- Rate control always needed in HF patients with AF
- Beta-blocker instituted only for rate control in AF
- Digoxin should be instituted carefully
- Rhythm control in case of symptoms or HF deterioration
- Still very difficult to maintain long term SR
- Multidisciplinary approach needed
- Because optimal therapy of risk factors is essential !



Thank you for your attention

AF and HF specialists

Let's work together !