

Venice Arrhythmias 2015

# SILENT ATRIAL FIBRILLATION: TO TREAT OR NOT TO TREAT

## After Catheter Ablation

*Dr Sakis Themistoclakis*

*Head, Unit of Electrophysiology and Cardiac Pacing*

Department of Cardiothoracic & Vascular Medicine  
Ospedale dell'Angelo, Mestre-Venice, Italy

# CONFLICTS OF INTEREST TO DISCLOSE:

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Consultant: Biosense Webster, Daiichi Sankyo

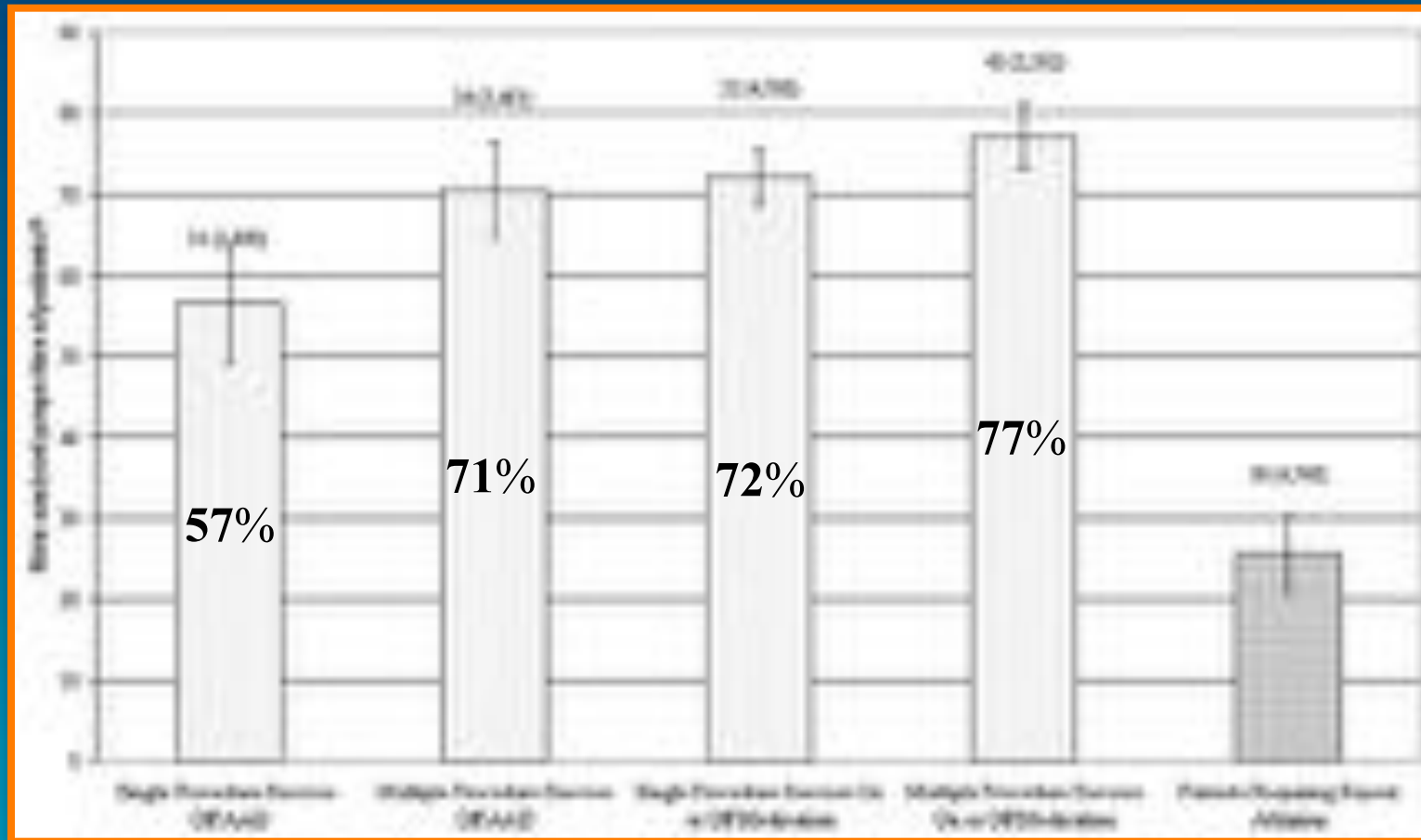
Research Grant:

- Bayer Pharma: X-VERT Trial (Local PI)
- Biosense Webster: OAT Study (Steering Committee)
- BMS/Pfizer: AEGEAN Trial (Local PI)
- Daiichi Sankyo: ENSURE AF Trial (National PI, Steering Committee)
- Boheringher Ingelheim: RE-CIRCUIT Trial (National PI)
- AF-NET, BMS/Pfizer: AXAFA Trial (National PI)

Speaker Honoraria: Bayer Pharma, Boheringher Ingelheim, Daiichi Sankyo

# Treatment of Atrial Fibrillation With Antiarrhythmic Drugs or Radiofrequency Ablation

*Efficacy of RF catheter ablation:* included studies with more than 40 pts



# Very Long-Term Efficacy of AF Ablation

year 2.5.<sup>147</sup> Bertaglia *et al.* published that the actuarial arrhythmia recurrence rate was 13.0% at 2 years, 21.8% at 3 years, 35.0% at 4 years, 46.8% at 5 years, and 54.6% at 6 years.<sup>146</sup> However, in both of these studies, the initial success rates were substantially lower than those reported in the previous section. Perhaps a difference in ablation technique resulting in a higher late recurrence rate. Furthermore, although recurrences may be common, performing an additional procedure may still provide very long-term success, as indicated by Sawhney *et al.*<sup>170</sup>

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## *Success in Nonparoxysmal AF*

In general, the success rate of AF ablation is lower in patients with persistent or long-lasting persistent AF compared with paroxysmal AF.<sup>301</sup> Many studies show success rates of 60% to 80% at 1 year, 50% to 70% at 2 years, and 40% to 60% at 3 years.<sup>302</sup>

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True very late recurrences

or

Recurrences underestimated during the  
follow up



# Asymptomatic AF

## *Intensity of follow-up strategy & AF detection rate:*



# Asymptomatic AF

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## *Detection Methods:*

- Standard-12 lead ECG
- 24-h / 7-d Holter monitoring
- In-hospital telemetry
- Mobile continuous outpatient telemetry
- Event recorder / Intermittent TTEM
- PM - ICD Device memory
- External & Implantable loop recorder

# Relative AF duration in % of total recording during 7-day ECG



	prior	post	3 months	6 months
N	18	19	18	16

**Figure 3.** Relative duration of atrial fibrillation (AF) in % during 7-day electrocardiogram (ECG) recording before and after ablation, and 3, 6, and 12 months after placement of linear left atrial lesions.

months. No thromboembolic complications or thromboembolisms were observed in the entire study population with a mean follow-up of  $12 \pm 5$  months.

## DISCUSSION

**Figure 3.** Relative duration of atrial fibrillation (AF) in % during 7-day electrocardiogram (ECG) recording before and after ablation, and 3, 6, and 12 months after placement of linear left atrial lesions.

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## DISCUSSION

**Main findings.** In the present study, results of catheter ablation of AF are described for the first time with

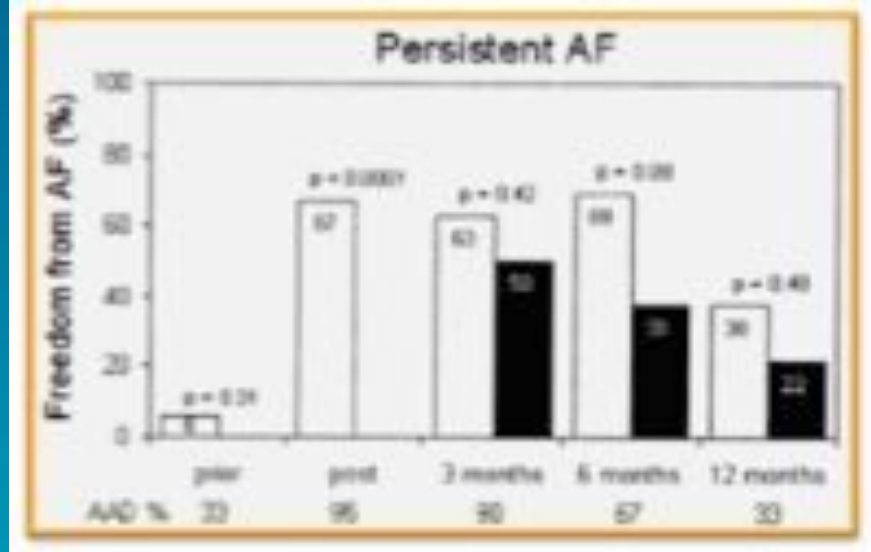
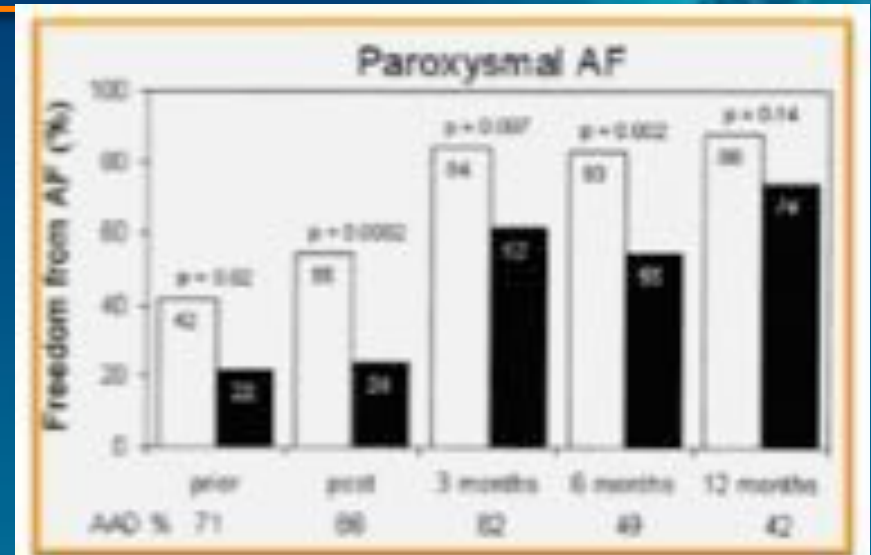
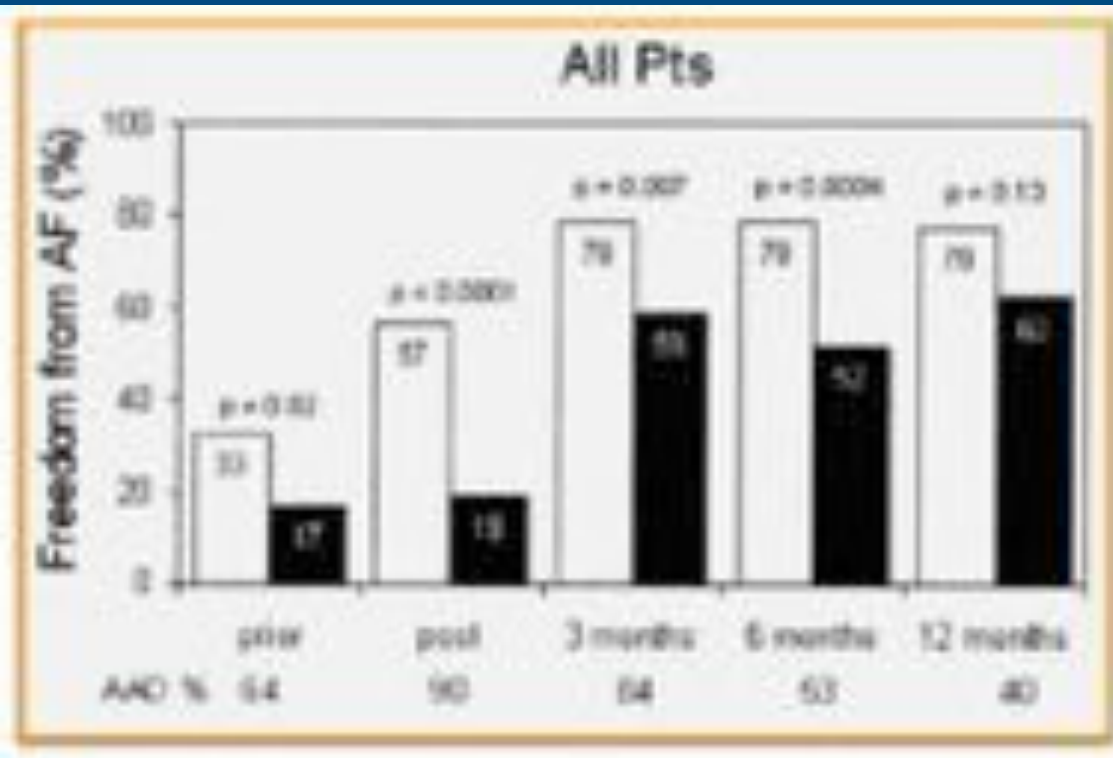
months. No thromboembolic complications or thromboembolisms were observed in the entire study population with a mean follow-up of  $12 \pm 5$  months.

## DISCUSSION

**Main findings.** In the present study, results of catheter ablation of AF are described for the first time with respect to the time course of relative time spent in AF and time courses of AF plus quantitative analysis of individual AF episodes and duration during follow-up using serial continuous ECG recording. Freedom from AF increased



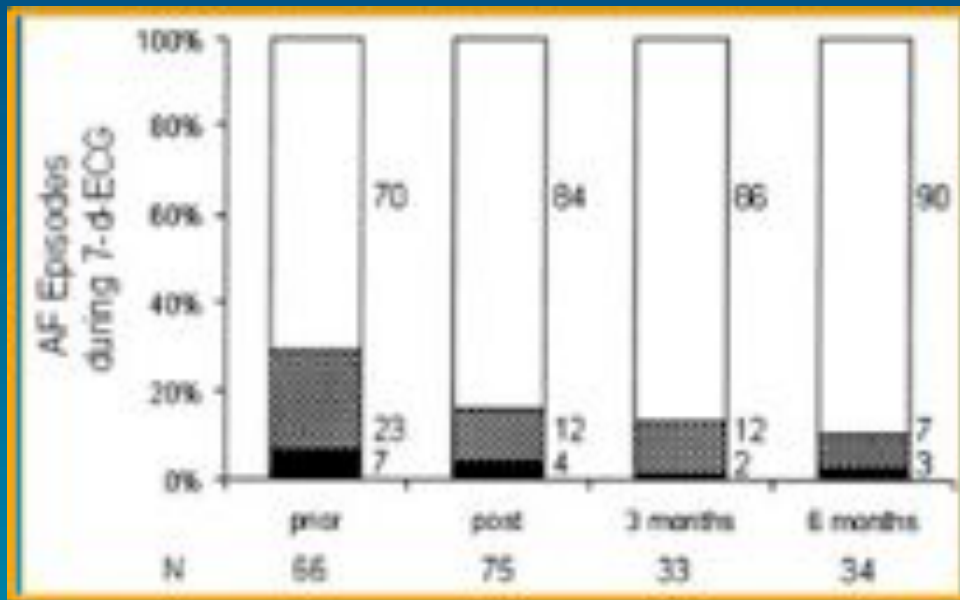
# AF freedom with comparison of 24-h Holter versus 7-day ECG & percentage of pts on AAD



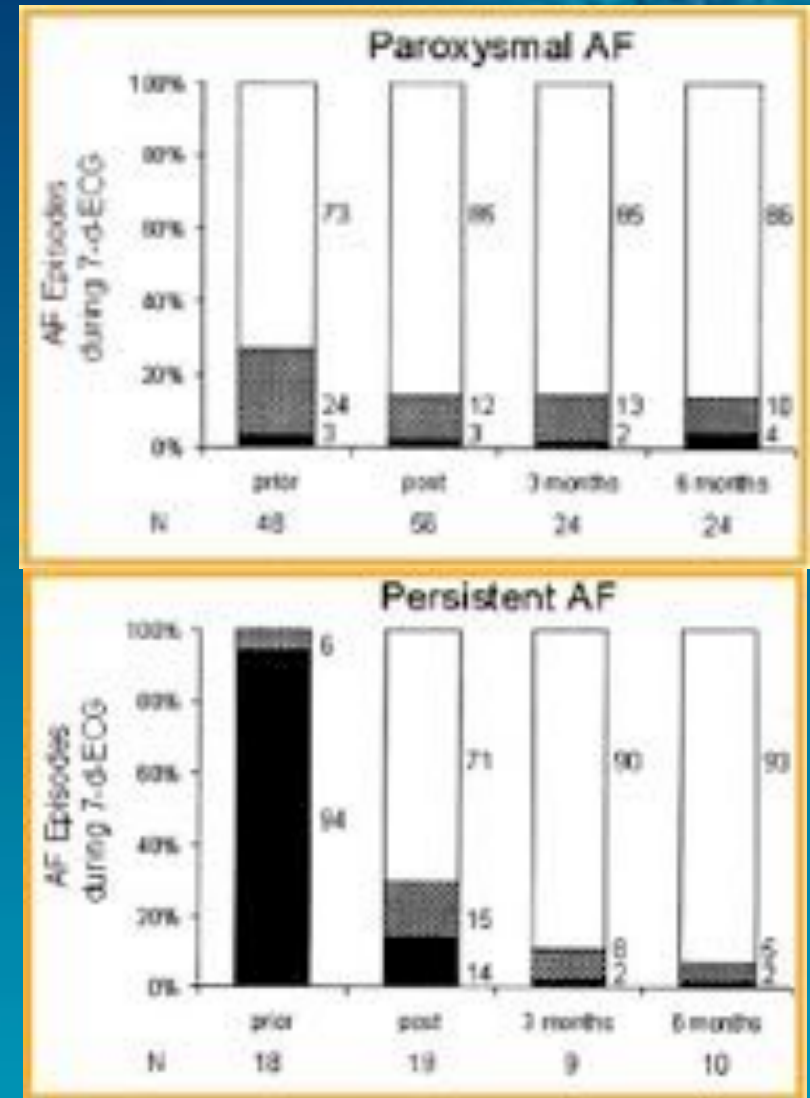
24-h ECG
  7-day ECG

# Time course of relative distribution of length of individual AF episodes in pts with recurrent AF

AF episodes >24 h: 1/33 (3%) of patients



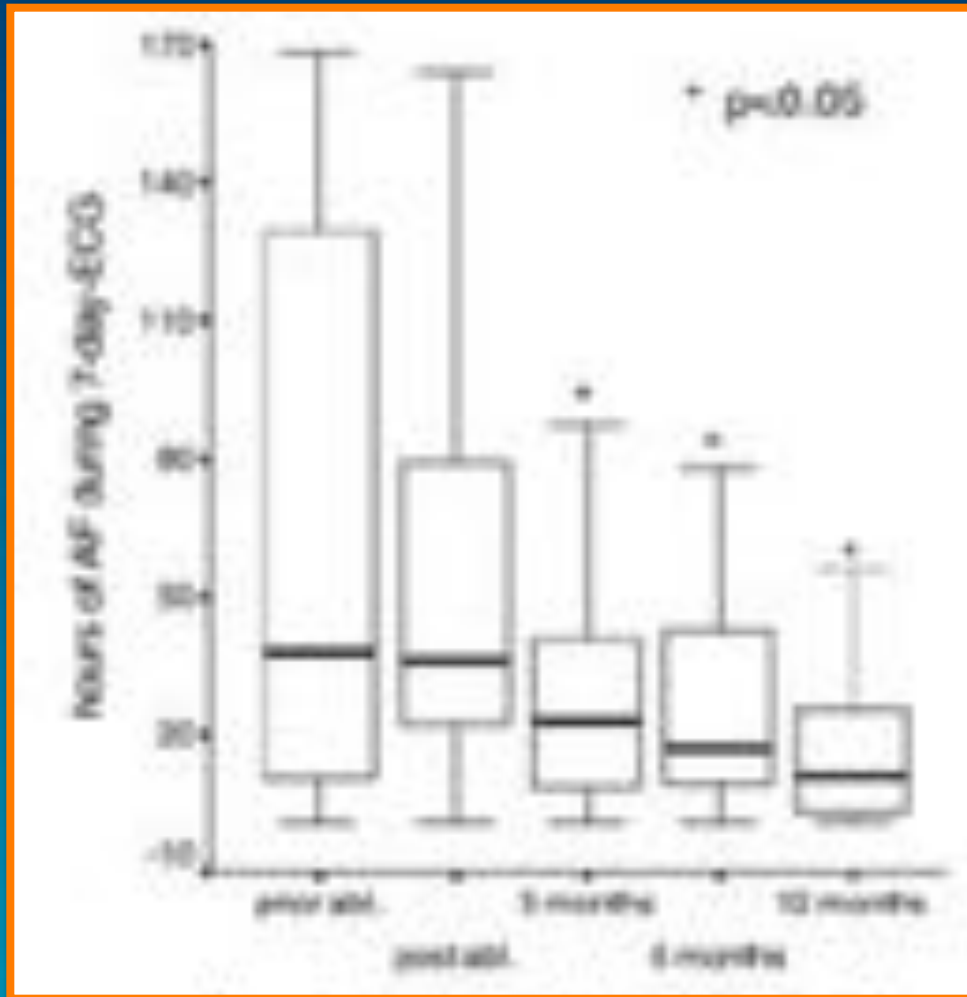
Closed bars >24 h; hatched bars: >2 to 24 h; open bars: 30 s to 2 h



# Symptomatic and asymptomatic AF duration during the 7-day Holter monitoring

	n	Patients With SR, n	n	Asymptomatic Patients Only	Symptomatic Patients Only	Symptomatic
Before ablation	114	22 (19%)	92	5 (5%)	35 (38%)	
After ablation						
Immediately	114	36 (32%) $P=0.12$	78	17 (22%) $P=0.027$	16 (21%) $P=0.002$	45 (40%)
3 Months	114	65 (57%) $P=0.001$	43	18 (38%) $P=0.021$	8 (16%) $P=0.001$	23 (40%)
6 Months	108	54 (50%) $P=0.001$	54	20 (37%) $P=0.021$	14 (26%) $P=0.078$	20 (37%)
12 Months	70	45 (64%) $P=0.021$	25	9 (36%) $P=0.05$	5 (20%) $P=0.07$	11 (44%)

# Symptomatic and asymptomatic AF duration during the 7-day Holter monitoring





# Symptomatic and asymptomatic AF duration during the 7-day Holter monitoring

*Use of beta-blockers and antiarrhythmic drugs during SR:*

Drugs	SR	AF	AF + SR	AF + SR	AF + SR
Class Ic antiarrhythmics	51%	58% $P=0.16$	51% $P=0.51$	35% $P=0.014$	24% $P=0.001$
Class III antiarrhythmics	41%	23% $P=0.002$	30% $P=0.08$	16% $P=0.001$	16% $P=0.001$
AF-HR (25th, 75th percentile)	110 (95, 120)	100 (90, 120) $P=0.08$	100 (91, 120) $P=0.64$	110 (90, 120) $P=0.73$	110 (90, 130) $P=0.001$
SR-HR (25th, 75th percentile)	66 (60, 75)	66 (60, 72) $P=0.99$	65 (60, 72) $P=0.52$	65 (56, 74) $P=0.43$	70 (59, 74) $P=0.001$

HR indicates heart rate.

# Ablation strategy: No PVI



Left atrial diameter, mm  
LV ejection fraction, %  
No previous ablation attempt, n (%)  
Previous AF ablation or operation,  
n (%)  
Previous atrial flutter ablation, n (%)  
Previous other arrhythmia ablation,  
n (%)

AF = atrial fibrillation; CM = cardiomyopathy; LV = left ventricle

continued for at least three months. Especially in patients with persistent AF and in patients with paroxysmal AF and underlying structural heart disease, further continuation of oral anticoagulation was advised.

**Statistics.** Results are expressed as mean values  $\pm$  1 SD, or numbers and percentages, as appropriate. Continuous variables as number of AF episodes and duration per AF episode were compared by a one-way analysis of variance (ANOVA), post-hoc analysis with Bonferroni correction for multiple comparisons for parametric data, and Mann-

# Influence of the duration of Holter monitoring on the detection of arrhythmia recurrences after AF catheter ablation

## Implications for patient follow-up

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*Recurrences during 7-day Holter recordings: 30%*

duration up to 5 days would have detected significantly more patients with recurrence compared with the control period: a 24-hour Holter would have detected 59%, a 48-hour Holter 67% and a 72-hour Holter 80% of patients with recurrence. In contrast, a 4-day Holter would have

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doi:[10.1016/j.ijcard.2008.10.004](https://doi.org/10.1016/j.ijcard.2008.10.004)

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# Role of Transtelephonic Electrocardiographic Monitoring in Detecting Short-Term Arrhythmia Recurrences after AF Ablation

... of patients completely asymptomatic  
lapses lasting more than 48 h. Our study  
the daily TT ECG, for a period of t  
assessing AF recurrence after catheter  
cantly, the short-term success rate usi  
creased to 72% as compared with 86% (p

ECG+ 24h Holter

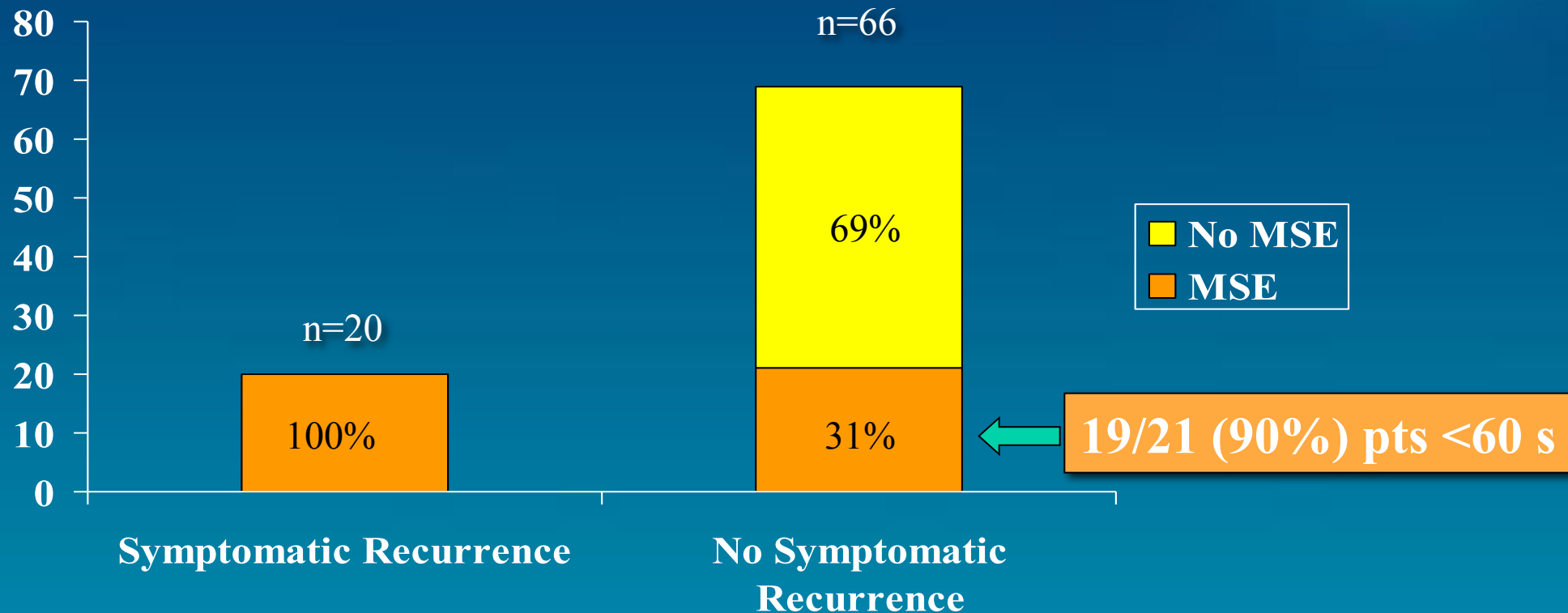
90d TTM

Transtelephonic ECG is better than standard ECG and 24-h Holter recordings in evaluating AF relapses after RCA, thus decreasing the short-term success of ablation from 86% to 72%.

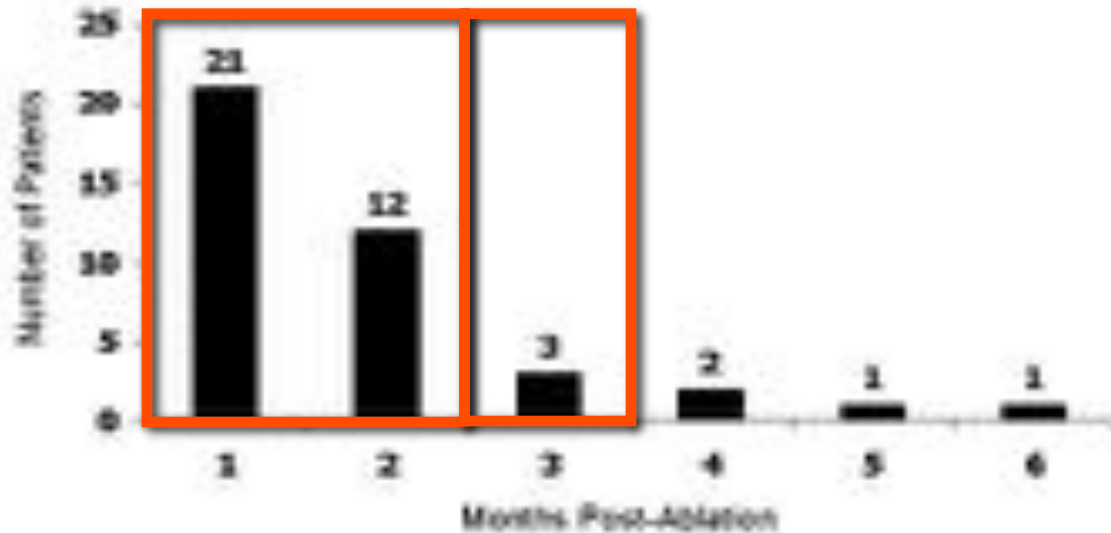
authors have reported different results.  
Pappone et al. (12), asymptomatic nons  
detected in 29 of 300 patients, principa  
... AF (15 ...



# Recurrence of AF & Mode Switching Events



# Time Course of Mode Switch Events (Patients with Asymptomatic Recurrence)



- 19/21 (90%) pts the episodes fell in the blanking period (3 months post ablation)
- 18 were when the pts were still taking AAD
- Only 2 (3%) pts continued to have asymptomatic MSE after 3 months post-ablation

# What is the real AF burden after catheter ablation of atrial fibrillation? A prospective rhythm analysis in pacemaker patients with continuous atrial monitoring

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burden has been shown ( $5.5 \times 10 -$

# What is the real AF burden after catheter ablation of atrial fibrillation? A prospective rhythm analysis in pacemaker patients with continuous atrial monitoring

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*In patients with AF recurrences a significant decrease in AF burden was achieved.*

between 3- and 6-months follow-up (60%) to 16 (80%).

All symptomatic patients had at least one AF episode documented in the Holter recordings during the follow-up. During the entire follow-up a significant decrease in AF burden has been shown ( $5.5 \times 10^{-1}$ ).



# What is the real AF burden after catheter ablation of atrial fibrillation? A prospective rhythm analysis in pacemaker patients with continuous atrial monitoring

or patients even with PersAF. Continuous atrial monitoring reveals AF ablation success rates correlated with AF burden as assessed by clinical evaluation. Symptomatic freedom of AF correlated well with the actual freedom from AF in this highly symptomatic patient cohort.

## Keywords

Atrial fibrillation • Ablation • Pacemaker • Atrial Holter recording

## Introduction

Pulmonary vein (PV) isolation has emerged as an effective therapy for paroxysmal atrial fibrillation (PAF) with success rates ranging

between 60 and 80%.<sup>1</sup> In patients with persistent AF, there is growing evidence that additional substrate modification is necessary to achieve similar results as in paroxysmal AF patients.<sup>2,3</sup> The electrophysiological endpo

\* Corresponding author. Tel: +49(0) 40 42803 4120, Fax: +49(0) 40 42803 4125, Email: d.steven@uke.uni-hamburg.de

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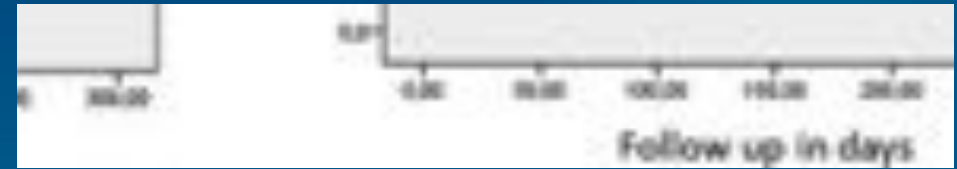
# Paroxysmal AF burden before and after PV Isolation: an observational study through ILR

*Time to 1st recurrence of AF/AT after the 3-m blanking period:*



**Figure 4.** Kaplan–Meier curve: time to first recurrence procedure.

rate of success with more than 1 procedure, at 12-month follow-up. The difference with our results of the final rate of success may be due to the definition of success. They consider AFB values below  $<0.5$  after the blanking period as a “responder” to ablation, although this value is useful to define a patient



of AF/AT in days after the 3-month blanking period (day 0). (A)

at the end of a procedure. The results in terms of success rate and definition of success (AFB  $<0.5$  per month) were similar. Even at low risk of

embolism,<sup>7-9</sup> it must not be considered a “success.” Thus, in our study, AF was already present in some patients and in those patients with a 90% AFB there was some assessment of efficacy. Group III with lack of efficacy had a

1° procedure

2° procedure

# Paroxysmal AF burden before and after PV Isolation: an observational study through ILR

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*Patients with symptomatic and asymptomatic episodes pre and post ablation:*

are not secondary to inflammatory or other associated with the ablation, but that, probably by an incomplete PV isolation. Only 2 patients had a first recurrence episode outside the interval; consider the blanking period. It is important that both patients had very low cumulative AFE to justify that the failure of PV isolation had occurred at an earlier stage.

It is well known that patients with AF have more episodes.<sup>15,26</sup> This also happens in patients after ablation.<sup>13,20,23,24,27,28</sup> In our study the nu

# DISCERN AF study

## Asymptomatic AF/AFL/AT before and after ablation

*Prospective, multicenter study using ICM:*

$P = .14$ ), and left atrium size ( $\beta = 0.03$ ;  $P = .98$ ).

### COMMENT

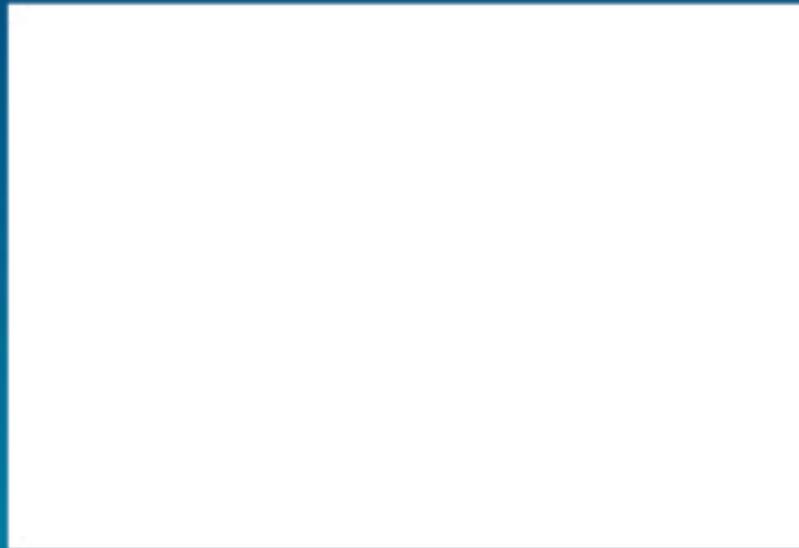
To our knowledge, this study is the first prospective multicenter study to examine the incidence and prediction of asymptomatic AF after ablation using continuous monitoring. Although ablation significantly reduced the burden of AF, the proportion of asymptomatic AF episodes increases. Asymptomatic episodes were more likely to be AFL/AT, were slower and shorter, and had lower HRV. The use of antiarrhythmics and the rate of

AF recurrences after RCA: 12% totally asymptomatic

# Discerning the incidence of symptomatic and asymptomatic AF Episodes before & after catheter ablation (DISCERN AF)

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*Prospective, multicenter study using ICM:*



Abbreviations: AF/AFL/AT, atrial fibrillation/atrial flutter/atrial tachycardia; ECG, electrocardiography; ICM, implantable cardioverter-defibrillator.

mean dropped from 13 to 6 per patient. Postablation episodes were significantly shorter, averaging to a median of 6 (interquartile range, 10-202) minutes ( $P < .001$ ). Heart rate decreased after ablation from 142 (interquartile range, 120-160) beats per minute to 100 (interquartile range, 80-120) beats per minute ( $P = .002$ ). Changes in arrhythmia characteristics are depicted in **Figure 1**.

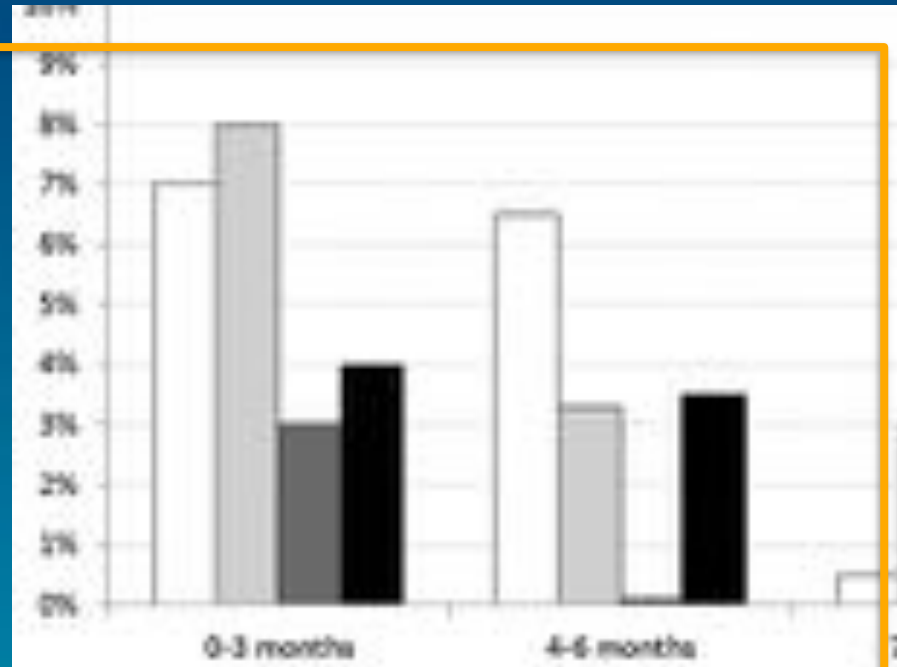
**ABLATION SUCCESS RATE BY PATIENT CHARACTERISTICS, HOLTER/ECG, AND ICM MONITORING**

The mean number of procedures was 1.2 (range, 1-3), the mean time from the first procedure to the last was 1.2 (range, 0.5-2.5) years, and the mean time from the first procedure to the last was 1.2 (range, 0.5-2.5) years.



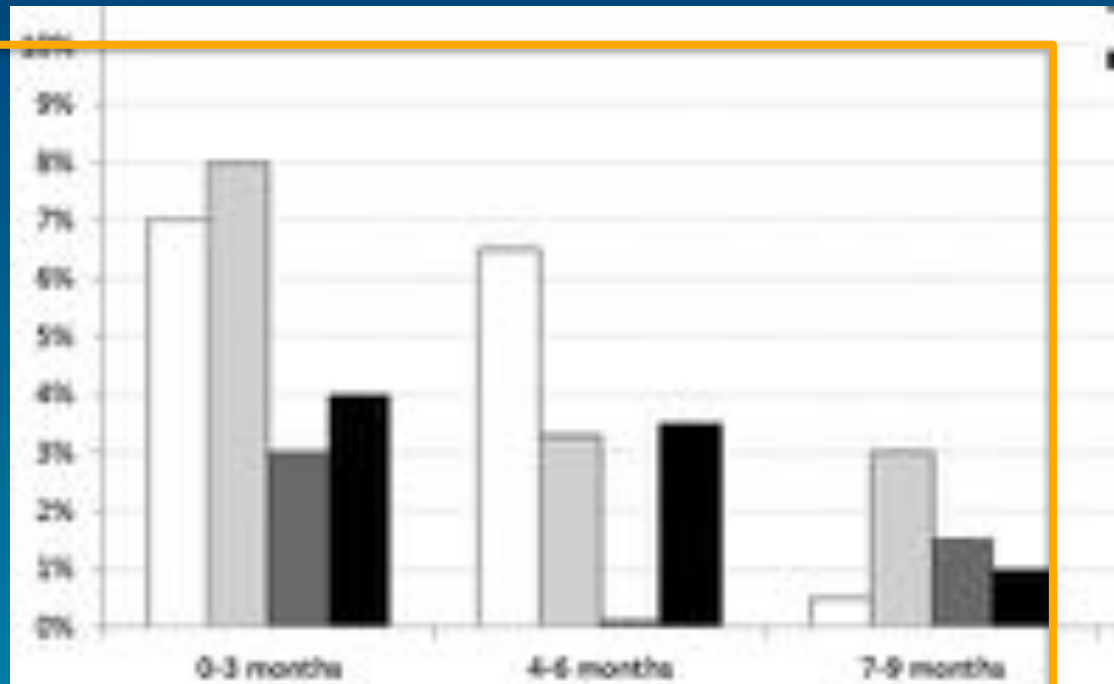
# Rhythm-Symptom Correlation in Patients on Continuous Monitoring After Catheter Ablation of Atrial Fibrillation

*Only asymptomatic AF after 3-m follow up: 15%*



**Figure 2.** Relative burden of atrial fibrillation distribution during the follow-up by episode

# Rhythm-Symptom Correlation in Patients on Continuous Monitoring After Catheter Ablation of Atrial Fibrillation



**Figure 2.** *Relative burden of atrial fibrillation distribution during the follow-up by episode length.*

# Rhythm-Symptom Correlation in Patients on Continuous Monitoring After Catheter Ablation of Atrial Fibrillation

*Symptom-Rhythm correlation based on pts symptoms report:*

Figure 3. Specification of symptoms before ablation and at the last follow-up visit.



## Discussion

### Main Results

This is the first multicenter analysis to assess the impact of an implantable cardiac monitor in evaluating the long-term follow-up of a cohort of patients who have undergone catheter ablation for paroxysmal or persistent AF. Our results are consistent with recent studies,<sup>13,14</sup> documenting a very high rate of asymptomatic arrhythmia recurrences: nearly half of the

tion, regardless of the ablative approach used. No there is a clear discrepancy between the success of single ablation procedure reported here and that of similar series<sup>16-18</sup> or meta-analysis.<sup>5</sup> This finding is explained by the more accurate arrhythmia diagnostic capability regarding asymptomatic AF relapses, provided by continuous monitoring, as opposed to the 24/48-hour techniques. The superiority of earlier studies has been explained by the fact that only 50% of AF relapses were detected by using a conventional follow-

5/143: 3.5%

# Assessing Arrhythmia Burden After Catheter Ablation of Atrial Fibrillation Using an Implantable Loop Recorder: The ABACUS Study

*Single-center, prospective, randomized study:*

ported arrhythmia symptoms ( $P = 0.741$ ). In only 3 patients in the ILR arm and 4 patients in the CM arm did symptoms correlate with AF (total 7 of 23 patients reporting symptoms; 30%; Fig. 3). In the remaining 16 patients (70%), the arrhythmia symptoms correlated with isolated atrial or ventricular premature beats or normal sinus rhythm.

## ***Adjudication of ILR Tracings***

Over the first 6 months, ILR categorized 915 episodes as AF, of which 420 were adjudicated to be true AF (accuracy = 46.0%). The causes of ILR misclassification of AF included frequent premature atrial and ventricular contractions (36% of misclassified episodes) and over or undersensing of R waves (34% of misclassified episodes). Eighty-two of 495 misclassified episodes (17%) occurred in one patient, and 447 of 495 (90%) misclassified episodes occurred in 14 patients. Importantly, most patients ( $n = 13$ , 68%) with misclassified

( $> 50\%$  of all d  
(signal amplitude  
overall accuracy  
to 53.6% ( $P =$   
accuracy of ILR  
(681/1,421 epis  
out any true AF  
(13%).

## ***Impact of ILR***

In the overall  
events” in 6 pat  
bradycardia and  
received pacem  
In one patient,  
VT events resul  
events were det

## **Conventional Monitoring:**

Twice daily 1-min pulse rate assessments by the patient and three 30-day TTM periods (at discharge, 5 and 11 months following ablation)

# Assessing Arrhythmia Burden After Catheter Ablation of Atrial Fibrillation Using an Implantable Loop Recorder: The ABACUS Study

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*Symptom correlation with AF (accuracy checked via ILR): 30%*

Over the first 6 months, ILR categorized 915 episodes AF, of which 420 were adjudicated to be true AF (accuracy = 46.0%). The causes of ILR misclassification of AF included frequent premature atrial and ventricular contractions (36% of misclassified episodes) and over or undersensing R waves (34% of misclassified episodes). Eighty-two of 4 misclassified episodes (17%) occurred in one patient, and 4 of 495 (90%) misclassified episodes occurred in 14 patients. Importantly, most patients (n = 13, 68%) with misclassification



# Atrial Arrhythmia Burden on Long-Term Monitoring in Asymptomatic Pts Late After AF Ablation

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Asymptomatic atrial tachyarrhythmias >30 sec by pt at LTM done at  $3.1 \pm 1.3$  yrs: 5%

ing atrial high-rate episodes. Table 1 presents patients' clinical characteristics before ablation. There were 151 (74.4%); average age was  $63.1 \pm 9.9$  years. AF was standing persistent in 21 patients. Beta blockers for arrhythmic reasons were taken by 36 (18%). LTM was an average of  $3.1 \pm 1.3$  years (range, 1.1 to 7.3) after last ablation.

For the 7-day monitors, average duration of monitoring per patient was  $134 \pm 30$  hours with  $132 \pm 30$  analyzable hours. Of 186 patients undergoing 7-day monitoring (95.3%) did not have a single episode of an atrial tachyarrhythmia >30 seconds. Eight (4.3%) had atrial arrhythmia occurrences lasting >30 seconds. Table 2 presents arrhythmia burden in these 8 patients. One patient was

# Incidence of Asymptomatic AF

	(%)
◆ Discovered incidentally / ECG*	16 - 25
◆ During AAD Therapy / TTEM^	56 - 70
◆ PM – ICD recipients / Device memory°	51 - 74
◆ Post-AF Ablation / TTEM, 7-d Holter, "...	0 - 20

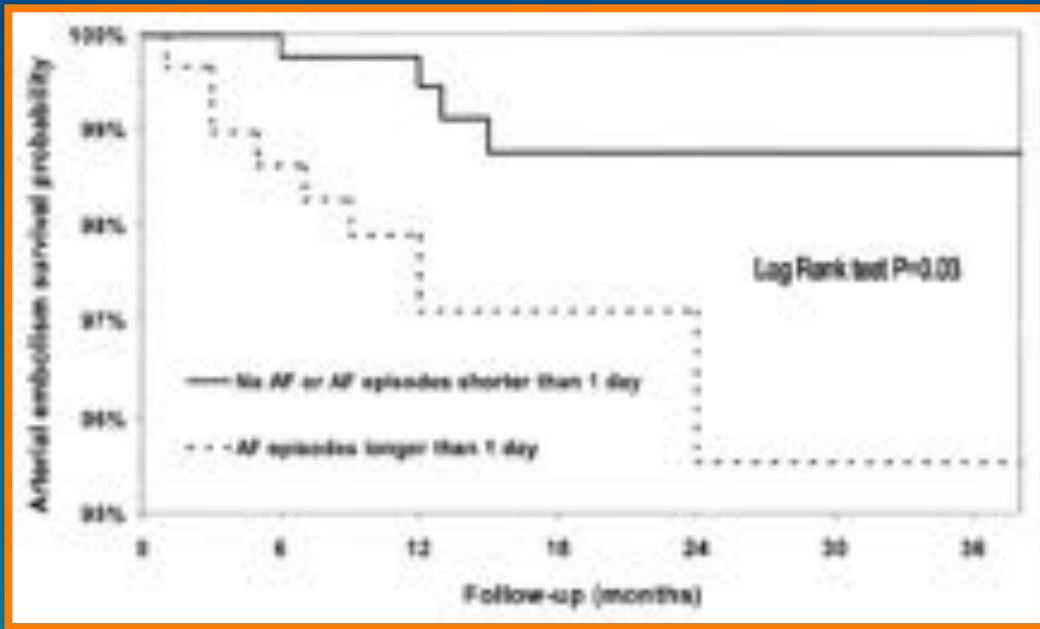
\*Kerr CR et al. Eur Heart J 1996; 17 (suppl C): 48-51; Nieuwlaet R et al. Eur Heart J 2005; 26: 1422-34; Miyasake Y et al. Circulation 2006; 114: 119-25

^Fetsch T et al. Eur Heart J 2005; 26: 1422-34; Patten M et al. Eur Heart J 2004; 25: 1395-404

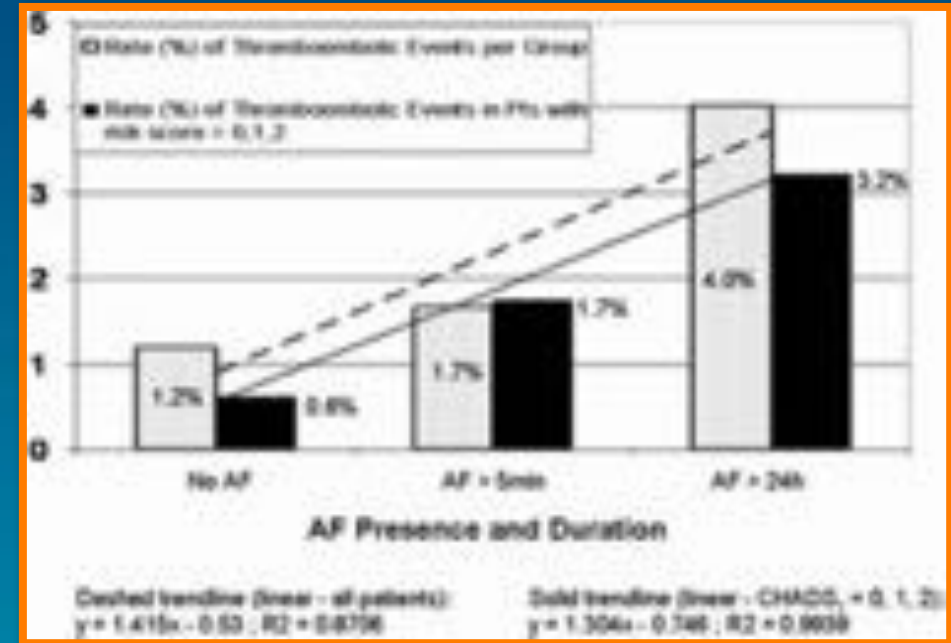
°Israel CW et al J Am Coll Cardiol 2004; 43:47-5; Glotzer TV et al. Circulation 2003; 107: 1614-9 ; Capucci A et al. J Am Coll : Cardiol 2005; 26: 1913-20

"Oral H et al. J Cardiovasc Electrophysiol 2004; 15: 920-24; Hindricks G et al. Circulation 2005; 112: 307-13; Senatore, G. et al. J Am Coll Cardiol 2005;45:873-876; Neumann T et al. Europace 2006; 8: 495-8; Vasamreddy C et al. J Cardiovasc Electrophysiol 2006; 17: 134-9 ; Klemm HU et al. J Cardiovasc Electrophysiol 2006; 17: 146-50 ; Verma A et al. J Cardiovasc Electrophysiol 2007; 18: 1-6 ; Steven D et al. Eur Heart J 2008; 29:1037-42

# Presence and duration of AF detected by continuous monitoring: crucial implications for the risk of TE



Capucci et al. *JACC* 2005;46:1913–20



Botto et al. *JCE* 2009; 20: 241-8

# The relationship between daily atrial tachyarrhythmias burden from implantable device diagnostics and stroke risk (The TRENDS study)

*TE rates for the overall study group (unadjusted):*

AT/AF Burden Subset	Annualized TE Rate (95% CI), %	Annualized TE Rate Excluding TIAs (95% CI), %
Zero AT/AF burden	1.1 (0.8–1.6)	0.5 (0.3–0.9)
Low AT/AF burden (<5.5 h)	1.1 (0.4–2.8)	1.1 (0.4–2.8)
High AT/AF burden (≥5.5 h)	2.4 (1.2–4.5)	1.8 (0.9–3.8)

**AT/AF burden is the maximum duration of AT/AF on any given day in the preceding 30 days**



# Anticoagulation after AF ablation



*OAT at 12 months after ablation in relation to the CHADS<sub>2</sub> score and the detection of recurrences during 6-month 7- day Holter:*

month seven-day Holter had no significant effect on anticoagulation at 12 months: in approximately one-third (34%) of patients with arrhythmia recurrence during the seven-day Holter, the total duration of arrhythmia exceeded 48 hours during the complete seven-day recording duration. The use of oral anticoagulants at 12 months was 100% for patients with a duration of arrhythmia >48 hours compared with 91% for patients with an arrhythmia duration <48 hours ( $p=0.380$ ).

In the univariate logistic regression, there was a significant association between the use of oral anticoagulation at the

remained  
coagulation  
(odds ratio  
whereas t  
cant ( $p =$

Discuss

The main  
AF ablation

758



# Thromboembolic Risk Factors According to CHADS<sub>2</sub> Score in the Off- and On-OAT Groups



	CHADS <sub>2</sub> Score							Total
	0	1	2	3	4	5	6	
<b>Off-OAT group, n</b>								
Congestive HF	0	40	79	26	8	8	2	154
Hypertension	0	644	175	72	15	6	2	916
Age ≥ 75 yrs	0	22	43	19	15	2	2	93
Diabetes mellitus	0	17	36	32	15	6	2	143
Prior stroke/TIA	0	0	63	41	11	8	2	125
Total	1,022	729	345	77	15	8	2	
<b>On-OAT group, n</b>								
Congestive HF	0	37	51	15	6	3	0	112
Hypertension	0	211	153	39	9	4	0	376
Age ≥ 75 yrs	0	6	29	5	5	2	0	47
Diabetes mellitus	0	7	53	15	6	3	0	84
Prior stroke/TIA	0	0	68	26	7	4	0	105
Total	155	361	191	62	10	4	0	

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# Incidence of Embolic and Hemorrhagic Events

*Mean follow up: 28±13 and 24±15 months*

	<b>Off OAT</b> group	<b>On OAT</b> group	p
Patients, n (%)	2692	663	
Tromboembolic events, n (%)	2 (0.07)	3 (0.45)	0.06
Hemorrhagic events, n (%)	1 (0.04)	13 (2.0)	<0.001

# Key message

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Clinicians should be aware of the importance of long-term vigilance for AF recurrence, especially in patients with thromboembolic risk

# HRS/EHRA/ECAS Expert Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation

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## *Minimal monitoring:*

- Patients should be seen in follow-up at a minimum of 3 months following the ablation procedure and then every 6 months for at least 2 years.
- An event monitor should be obtained to screen for recurrent AF/flutter/tachycardia in patients who complain of palpitations during follow-up.
- An AF/flutter/tachycardia episode is present if it is document by ECG and last at least 30 sec.
- Patients being evaluated as part of a clinical trial or in whom warfarin may be discontinued should have **some type of continuous ECG monitoring** performed to screen for asymptomatic AF/flutter/tachycardia.
- **24-hour Holter monitoring is an acceptable minimal monitoring strategy** for patients enrolled in a clinical trial and is recommended at 3 to 6 months intervals for one to two years following ablation.

# 2012 focused update of the ESC Guidelines for the management of atrial fibrillation

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## *Recommendation for screening of AF:*

focus on the identification of 'truly low risk' patients who do not need any antithrombotic therapy, and the introduction of novel oral anticoagulant drugs



# ACC/AHA/HRS 2014 Guidelines

## Class I

- AF catheter ablation is useful for **symptomatic paroxysmal** AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication when a rhythm control strategy is desired (*Level of Evidence: A*)
- Prior to consideration of AF catheter ablation, assessment of the procedural risks and outcomes relevant to the individual patient is recommended. (*Level of Evidence: C*)

## Class IIa

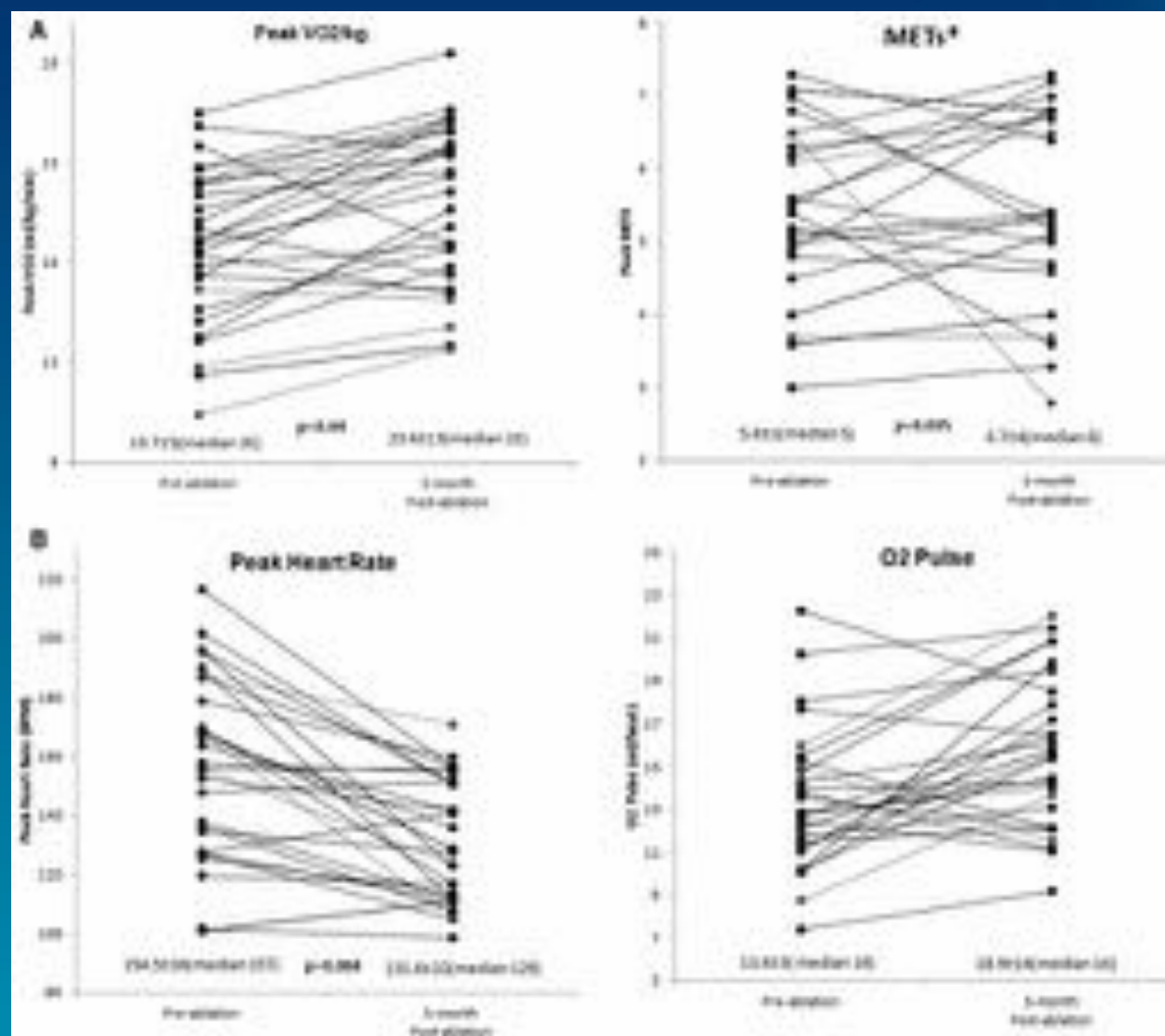
- AF catheter ablation is reasonable for selected patients with **symptomatic persistent** AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication (*Level of Evidence: A*)
- In patients with **recurrent symptomatic paroxysmal** AF, catheter ablation is a reasonable initial rhythm control strategy prior to therapeutic trials of antiarrhythmic drug therapy, after weighing risks and outcomes of drug and ablation therapy (*Level of Evidence: B*)

## Class IIb

- AF catheter ablation may be considered for **symptomatic long-standing** (>12 months) persistent AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication, when a rhythm control strategy is desired (*Level of Evidence: B*)
- AF catheter ablation may be considered prior to initiation of antiarrhythmic drug therapy with a class I or III antiarrhythmic medication for **symptomatic** persistent AF, when a rhythm control strategy is desired. (*Level of Evidence: C*)

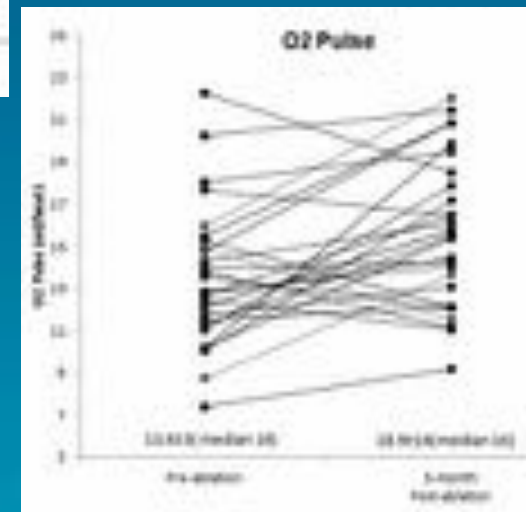
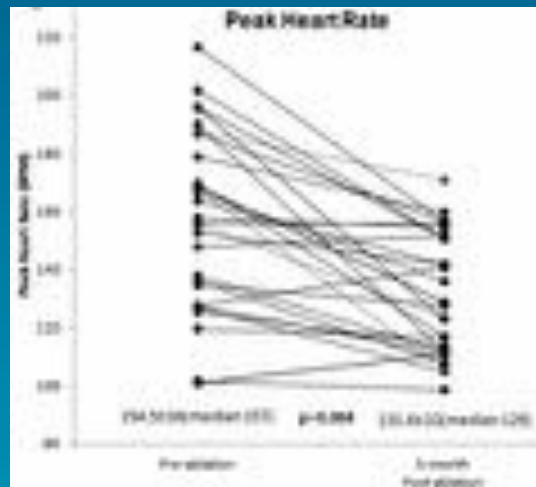
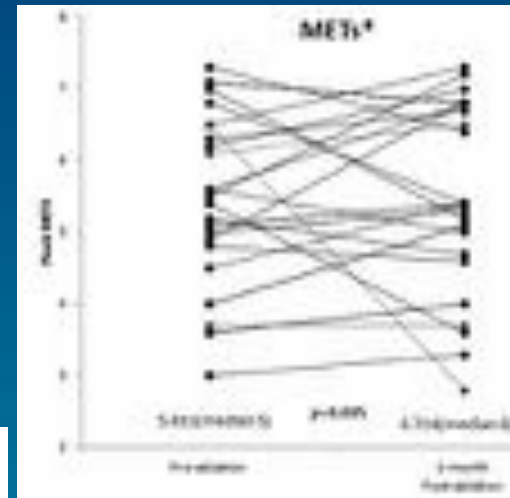
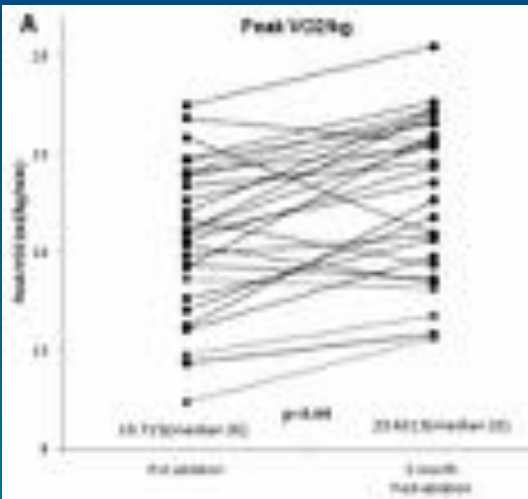
## Class III: Harm

- AF catheter ablation should not be performed in patients who cannot be treated with anticoagulant therapy during and following the procedure. (*Level of Evidence: C*)



# Catheter Ablation of Asymptomatic Longstanding Persistent AF

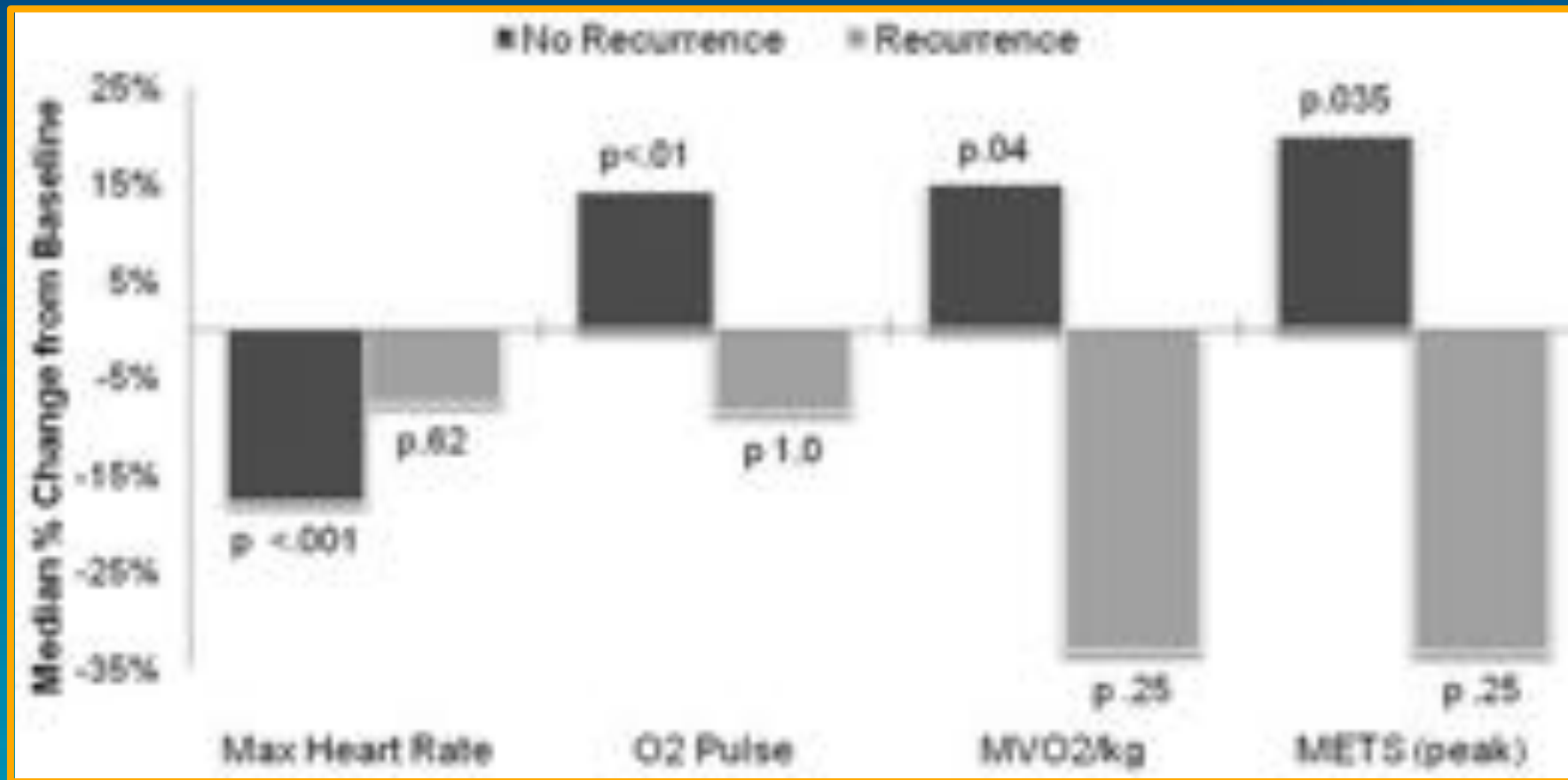
*Exercise parameters:*



# Catheter Ablation of Asymptomatic Longstanding Persistent AF



*Exercise parameters in successful vs failed procedures:*



# Catheter Ablation of Asymptomatic Longstanding Persistent AF

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## *Baseline QoL score and the changes at 12-mo Follow-Up :*

### *Arrhythmia perception*

Of the 25 patients experiencing recurrence, 13 (52%) presented with symptomatic recurrence. Among 13 symptomatic patients, 81% experienced fatigue or weakness, 67% shortness of breath and anxiety, 52% dizziness, and 43% reported chest pain.

### *AF Recurrence*

After  $20 \pm 5$  months follow-up, 36 (57%) remained recurrence-free off-AAD after a single procedure. Of the 25 patients experiencing recurrence, 7 (28%) had atrial flutter, 17 (68%) had atrial fibrillation, and 1 (4%) patient had both atrial flutter and atrial fibrillation.



# Catheter Ablation of Asymptomatic Longstanding Persistent AF

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*Arrhythmia Status and Heart Rate according to Symptom Status among patients with recurrence:*

After  $20 \pm 5$  months follow-up, 36 (57%) patients maintained recurrence-free off-AAD after a single procedure. Of the 25 patients experiencing recurrence, 7 (28%) had atrial tachycardia, 17 (68%) had atrial flutter, and 1 (4%) patient had atrial tachycardia. As observed from Holter recording, the rate of ventricular rate for patients with recurrent AF, flutter,



EAST. SC meeting. 31.08

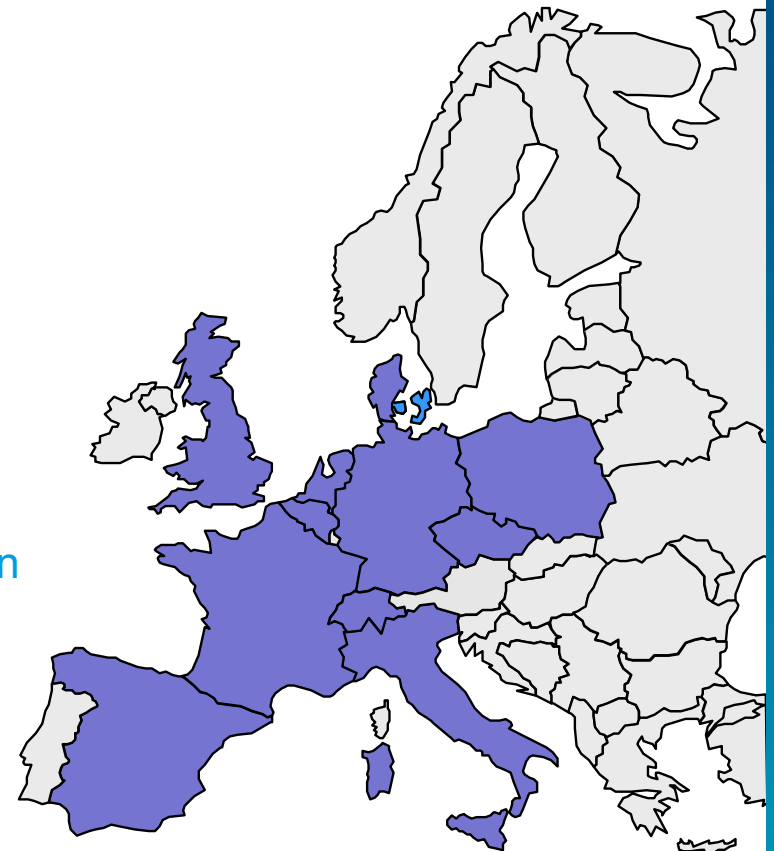
An European Investigator-initiated, Prospective, Parallel-group, Randomized, Open, Blinded Outcome Assessment  
Multi-centre Trial

Conducted by AFNET and EHRA

# EAST setting and National PIs

- Approximately 3000 patients
- Enrolment in 11 European Countries (200 centres)
- Follow-up of all patients until end of trial (event-driven design)
- Expected mean follow-up time 3-4 years

Belgium	Prof. Hein Heidbuchel, Leuven
Czech Republic	Prof. Josef Kautzner, Prague
Denmark	Prof. Axel Brandes, Odense
France	Prof. Etienne Aliot, Nancy
Germany	Prof. Stephan Willems, Hamburg
Great Britain	Prof. John Morgan, Southampton
Italy	Prof. Michele Gulizia, Catania Prof. Sakis Themistoclakis, Venice
Netherlands	Prof. Isabelle van Gelder, Groningen
Poland	Prof. Lukasz Szumowski, Warsaw
Spain	Prof. Lluís Mont, Barcelona
Switzerland	Dr. Laurent Haegeli, Zurich



Adequate and early comprehensive rhythm control  
therapy can prevent AF-related major  
complications (stroke, death, heart failure)  
compared to usual care

**Primary outcome:**

Composite of cardiovascular death, stroke, and heart failure or acute coronary syndrome measured as hospitalization

**Enrolment:**

Patients with recent-onset AF at risk for stroke or death