

Should AF patients (after ablation) have anticoagulation forever? Can we ever stop it?

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2012 HRS/EHRA/ECAS Expert Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation: Recommendations for Patient Selection, Procedural Techniques, Patient Management and Follow-up, Definitions, Endpoints, and Research Trial Design

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Venice Chart International Consensus Document on Atrial Fibrillation Ablation: 2011 Update

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Recommendations for Anticoagulation Therapy in Patients Undergoing AF Ablation



- ✓ Systemic anticoagulation with warfarin or a direct thrombin or Factor Xa inhibitor is recommended **for at least two months** following an AF ablation procedure.
- ✓ **Discontinuation** of systemic anticoagulation therapy post ablation **is not recommended in patients who are at high risk of stroke** as estimated by currently recommended schemes (CHADS₂ or CHA₂DS₂VASc).

Calkins H et al. Europace 2012; 14: 528-606

- ✓ Oral anticoagulation should be started after ablation and continued **for at least 3 months** in all patients.
- ✓ Oral anticoagulation should be **continued indefinitely in most patients who are at moderate or high risk of stroke** (based on a risk stratification system such as CHADS₂ or CHA₂DS₂-VASc).

Raviele A et al. J Cardiovasc Electrophysiol 2012; 23: 890-923

Discontinuation of OAT after ablation



- ✓ These recommendations come from trials essentially performed in patients treated with antiarrhythmic drugs
- ✓ Limited data are available regarding the risk of thromboembolism after successful ablation of AF.

Anticoagulation in AF



**How safe is it and when to withdraw it
after Successful Ablation**



Main consideration in favour of OAT



Atrial fibrillation is not rarely asymptomatic
in post-ablation patients

Table 7. Incidence of asymptomatic AF in post-ablation patients.

Authors	Total number of patients	Number of patients with asymptomatic AF (%)	ECG detection method
Oral et al. (128)	53	1 (2%)	Trans-telephonic ECG monitoring
Hindricks et al. (129)	108	20 (18%)	7-day Holter monitoring
Senatore et al. (130)	72	8 (11%)	Trans-telephonic ECG monitoring
Neumann et al. (131)	80	11 (14%)	External loop recorder
Vasamreddy et al. (132)	10	2 (20%)	Mobile continuous outpatient telemetry
Klemm et al. (133)	80	7 (9%)	Trans-telephonic ECG monitoring
Verma et al. (134)	86	2 (2%)	Pacemaker/ICD memory
Steven et al. (135)	37	0 (0%)	Pacemaker/ICD memory

10%

Note: Only the incidence of asymptomatic episodes is reported.

Asymptomatic AF / 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**

Prevalence of Asymptomatic AF

(%)

- **Discovered incidentally / ECG**

16 - 25

- **During AAD Therapy / TTEM**

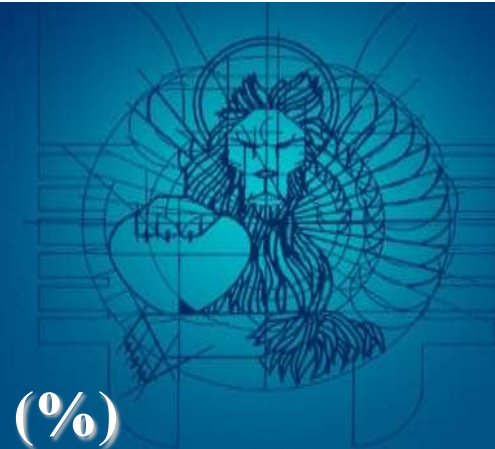
56 - 70

- **PM – ICD recipients / Device memory**

51 - 74

- **Post-AF Ablation / TTEM, 7-d Holter, ...**

0 - 20



Asymptomatic AF



The majority of these episodes are of brief duration
and the clinical significance and therapeutic implications
of short-lasting asymptomatic AF are still uncertain

Another consideration in favour of OAT



RF catheter ablation of AF is a procedure that causes an extensive damage of atrial myocardium (up to 20%-30%).

The resulting areas of scarring might depress left atrial contractility and predispose to atrial thrombi formation, independent of atrial arrhythmia recurrences

AF Ablation & LA Function



does AF ablation really impair
left atrial function



Effect of RF ablation on LA mechanical function

	<i>Pts #</i>	<i>RF technique</i>	<i>LA Function</i>	<i>LA size</i>	<i>Imaging technique</i>
Pappone ⁰¹	201	CPVA	↑	↓	TTE/TEE
Lemola ⁰⁴	36	LACA	-	↓	CT
Lemola ⁰⁵	10	LACA	↓	-	CT
Reant ⁰⁵	48	PVI	↑	↓	TTE
Beukema ⁰⁵	105	LACA	↑	↓	TTE
Tops ⁰⁵	57	PVI+LL	-	↓	TTE
Verma ⁰⁶	67	PVAI	↑	↓	TTE/CT
Takahashi ⁰⁷	40	Stepwise	↑	↓	TTE
Sacher ⁰⁸	43	Stepwise	↑	↓	TTE
Marsan ⁰⁸	57	PVI+LL	↑	↓	RT3DE
Schneider ⁰⁸	118	PVI	↑	↓	TTE
Tops ¹¹	148	PVI	↑	↓	TTE

The Atrial Fibrillation Ablation Pilot Study: an European Survey on Methodology and Results of Catheter Ablation for Atrial Fibrillation: conducted by the European Heart Rhythm Association

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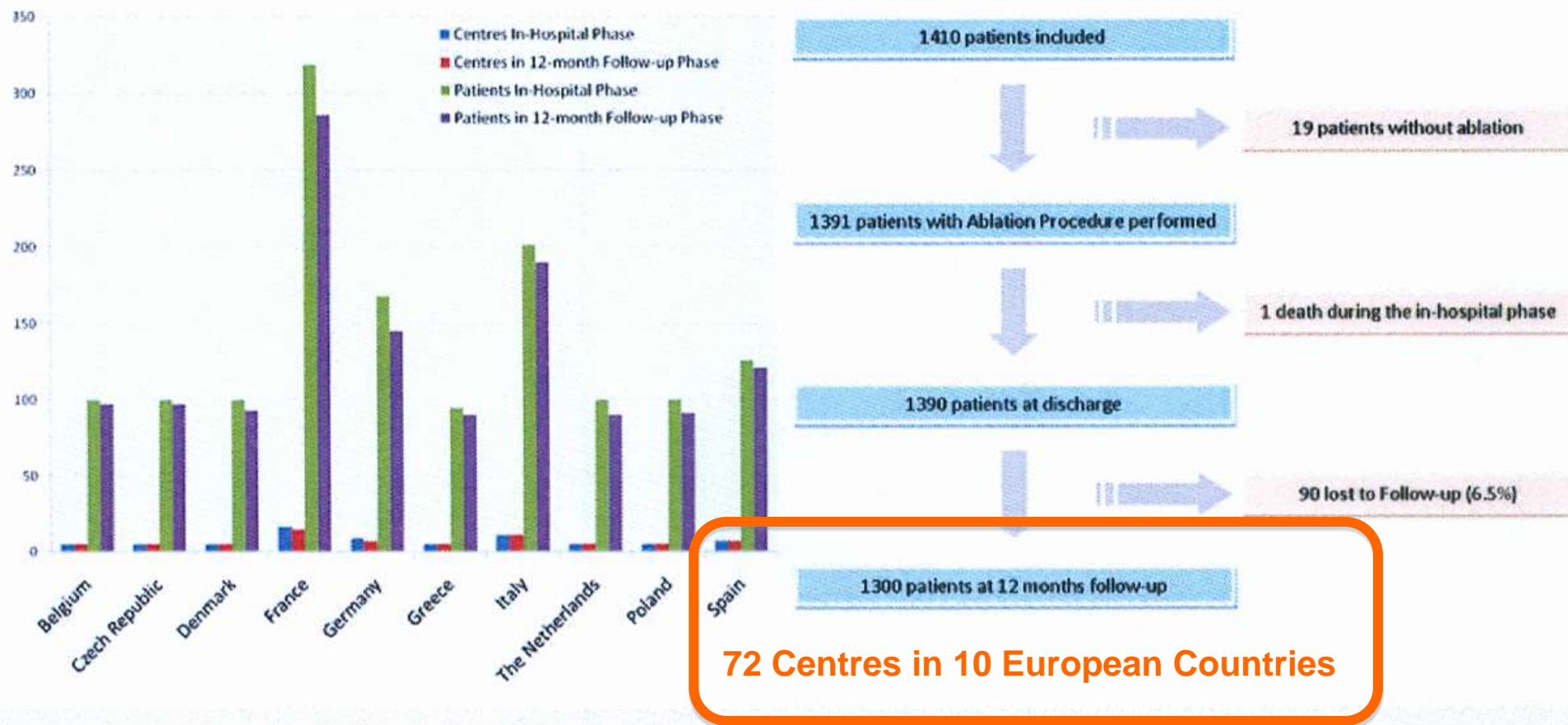
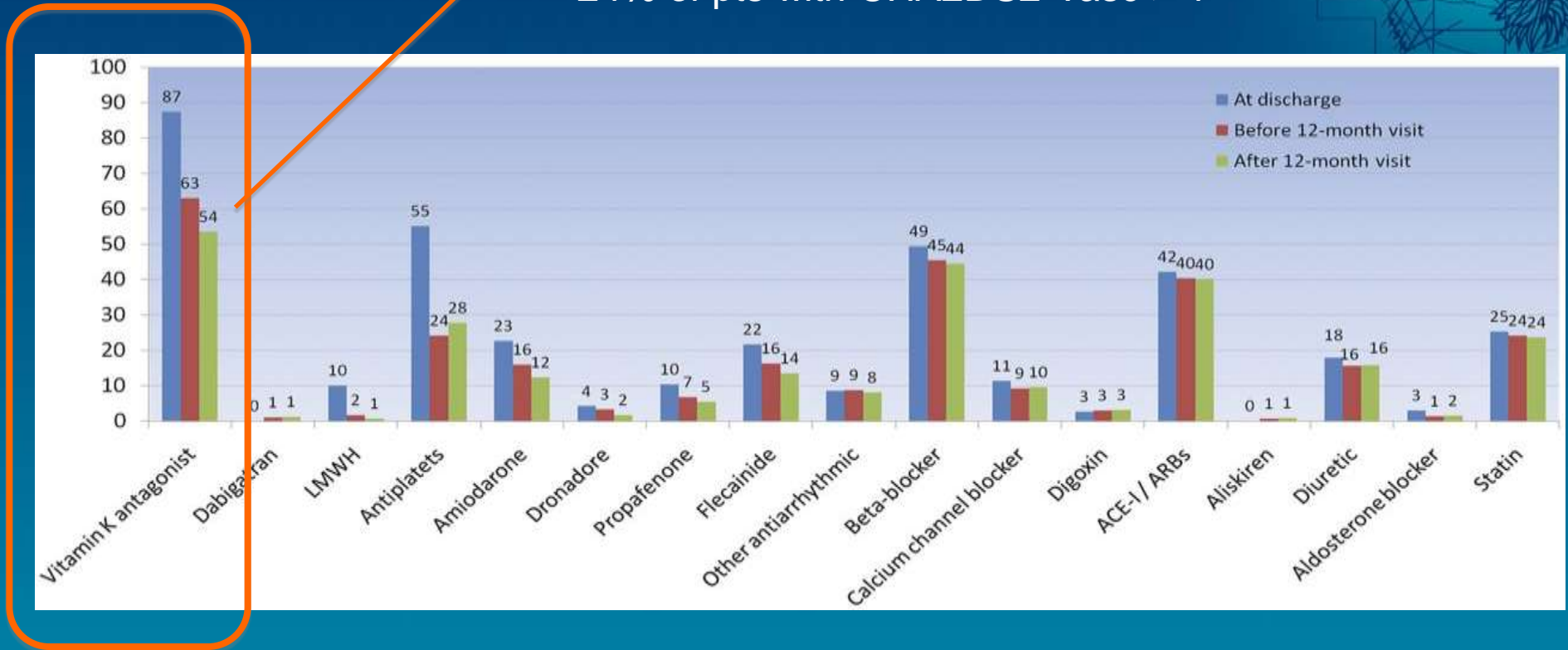


Figure 1 Distribution of centres and patients included in the Atrial Fibrillation Ablation Pilot by country.

Rate of use of pharmacological treatment at discharge and at the 12-month follow-up.

36% of pts with CHA2DS2-Vasc = 1
24% of pts with CHA2DS2-Vasc > 1



OAT discontinuation after AF ablation



The correctness of this behaviour seems to be confirmed
by the results of some retrospective studies
published in the recent years

	Pts Total	Pts in SR	Off OAC	TE RF ≥ 1	FU mths	TE (%)	Off OAC	On OAC	Major BI	Off OAC	On OAC
Oral 2006	755	522	383	180	25	1	0	1	0	0	0
Nademanee 2008	635	517	434	NR	28	5	5	0	0	0	0
Themistoclakis 2010	NR	3355	2692	1070	26	5	2	3	14	1	13
Saad 20	327	230	298	265	46	0	0	0	2	0	2
Hunter 2012	1273	1008	716	NR	37	8	4	4	12	2	10
Guiot 2012	1016	726	471	297	34	20	10	10	4	0	4
Winkle 2013	108	71	55	NR	32	0	0	0	9	0	8
Lin 2013	118	118	NR	NR	NR	4	1	3	NR	NR	NR
Gaita 2014	766	766	499	131	60	11	5	6	7	0	7
Riley 2014	1990	1031	1031	485	49	16	8	8	14	1	13
Total	10343	8344 (81)	6579 (64)	2484 (24)	37	70 (0.7)	35 (0.5)	35 (1.0)	62 (0.6)	4 (0.06)	57 (1.8)



The Risk of Thromboembolism and Need for Oral Anticoagulation After Successful Atrial Fibrillation Ablation

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J Am Coll Cardiol 2010; 55: 735-43

Patient population



3355

- ✓ **Study group:** **2692** (80%)
- ✓ **Control group:** **663** (20%)

Incidence of Embolic and Hemorrhagic Events

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

	Study Group	Control 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



Table 3: Incidence of thromboembolic events (TE) and major hemorrhage according to CHADS2 score in study group and control group.

	CHADS2=0		CHADS2=1		CHADS2≥2	
	Study	Control	Study	Control	Study	Control
Patients, n	1622	155	723	261	347	247
TE, n (%)	1 (0.06)	0	1 (0.14)	1 (0.38)	0	2 (0.81)
Major Hemorrhage, n (%)	0	1 (0.64)	1 (0.14)	2 (0.8)	0	10 (4)

Considerations



These results seem to suggest that
the risk-benefit ratio favors suspension of OAT
after successful AF ablation even in pts at
moderate-high risk of thromboembolism

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Suggestions for OAT after ablation (1)



The decision to discontinue OAT after apparently successful AF ablation should be still based, in the single patient, on the careful evaluation of the risk/benefit balance between prevention of ischemic stroke and avoidance of hemorrhagic complications

Suggestions for OAT after ablation (2)



However, according to the results of the above mentioned
retrospective studies performed till now,
it seems that OAT may be safely interrupted in the majority
of post-ablation patients, included those
at high trombo-embolic risk

Suggestions for OAT after ablation (3)



However, this conclusion needs to be confirmed
by prospective randomized studies
with a sufficient number of patients
(at least 3000 patients)