

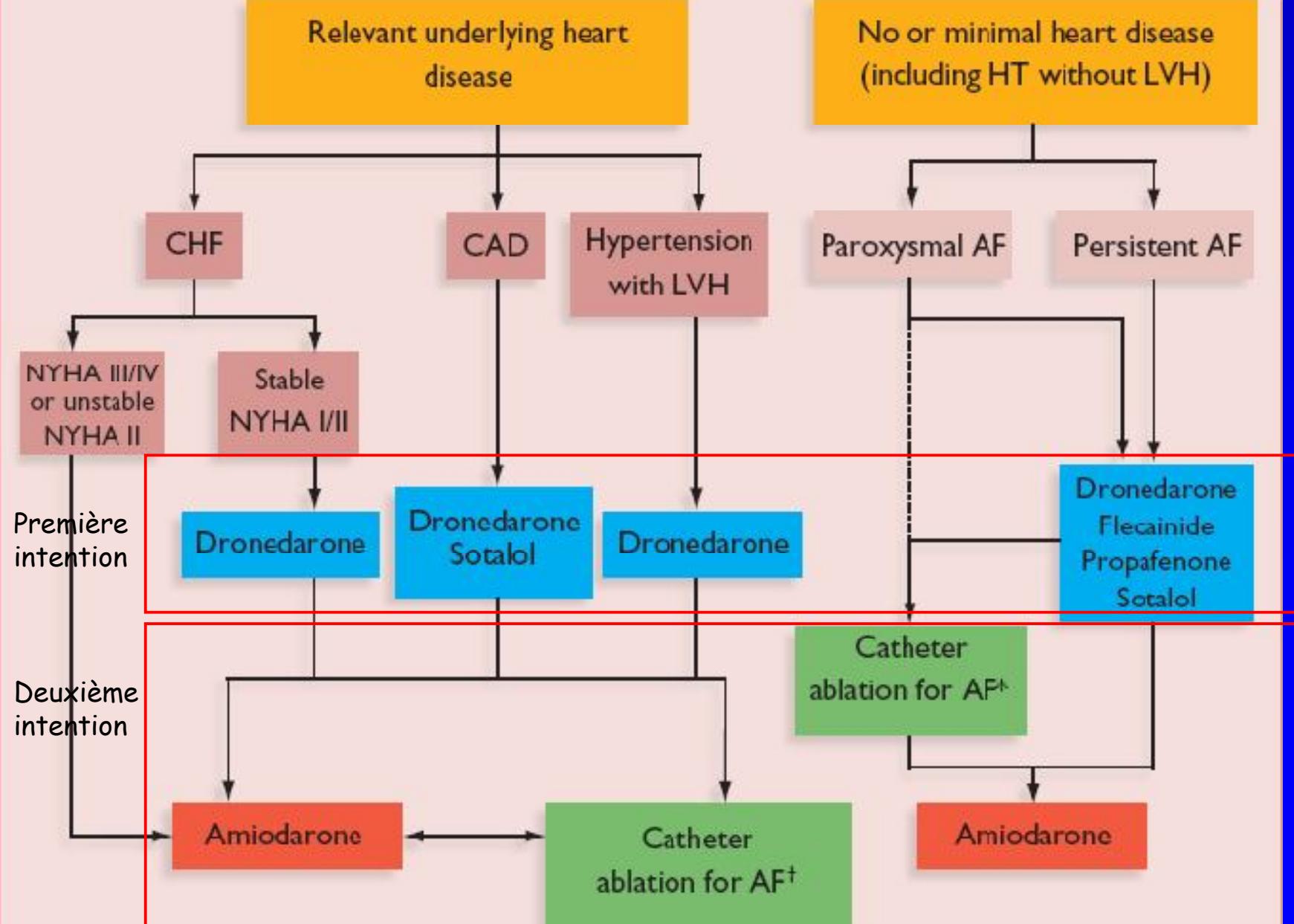
Guidelines for the management of atrial fibrillation



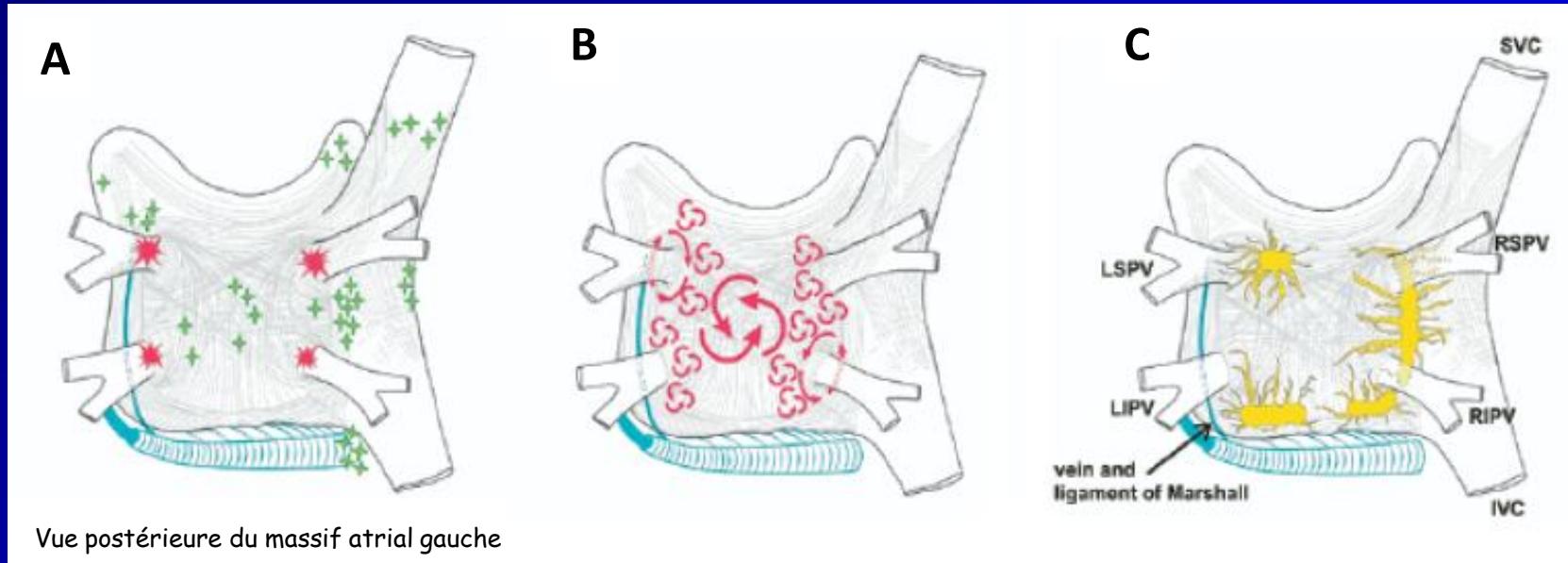
The Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC)

The European Society of Cardiology 2010

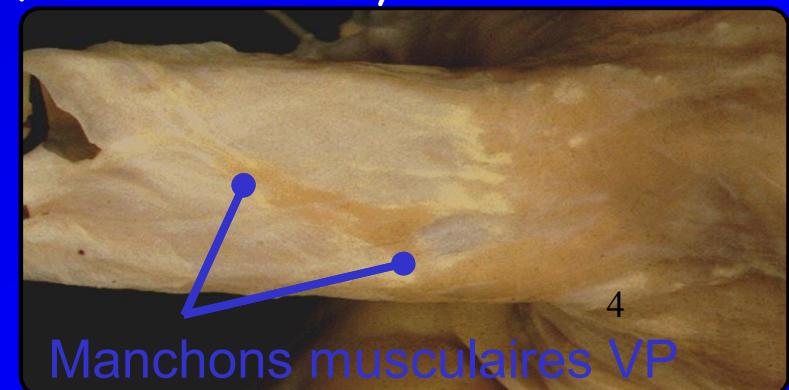
L'Ablation Endocavitaire de la Fibrillation Atriale



Mécanismes de la FA



- A. Foyers d'extrasystoles (gâchette) qui prennent naissance essentiellement dans les VP.
- B. Circuits de réentrée atriaux (substrat)= fibrose atriale, dilatation atriale (masse critique), potentiels fragmentés (zones de conduction lente).
- C. Plexi ganglionnaires (système nerveux autonome).



Mécanismes de la FA

Fibrillation atriale
paroxystique
< 7 jours

Fibrillation atriale
persistante
> 7 jours

Fibrillation atriale
permanente
> 1 an

Rôle de la gâchette
(foyers des VP)

Rôle du substrat
(dilatation atriale,
potentiels fragmentés,
circuits de réentrée...)

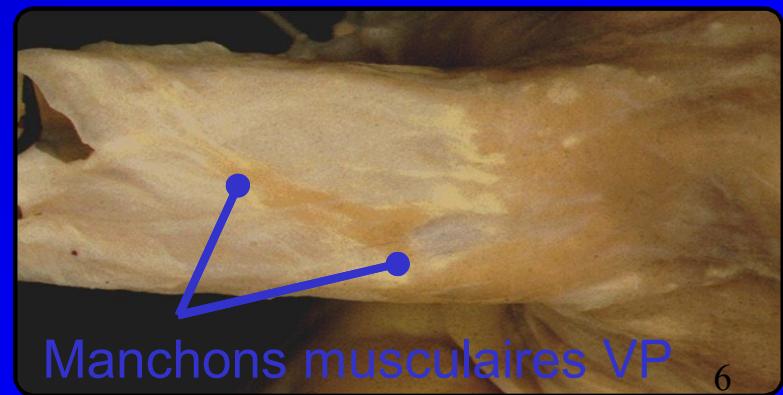
Isolation des VP:
foyers
d'extrasystoles

Ablation extensive:
VP, lignes, isthmes,
potentiels
fragmentés

La place de l'ablation de la FA

In general, catheter ablation should be reserved for patients with AF which remains symptomatic despite optimal medical therapy, including rate and rhythm control. Whether to undertake an ablation procedure in a symptomatic patient should take into account.

- (1) The stage of atrial disease (i.e. AF type, LA size, AF history)
- (2) The presence and severity of underlying cardiovascular disease
- (3) Potential treatment alternatives (antiarrhythmic drugs, rate control)
- (4) Patient preference



La place de l'ablation de la FA

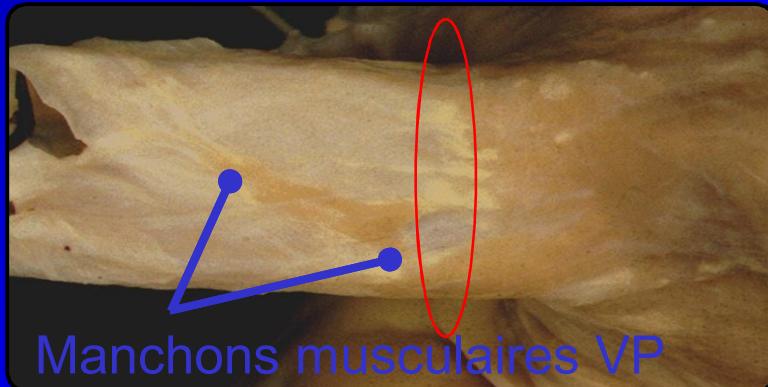
Ablation of common atrial flutter is recommended as part of an AF ablation procedure if documented prior to the ablation procedure or occurring during the AF ablation.	I	B
Catheter ablation for paroxysmal AF should be considered in symptomatic patients who have previously failed a trial of antiarrhythmic medication.	IIa	A
Ablation of persistent symptomatic AF that is refractory to antiarrhythmic therapy should be considered a treatment option.	IIa	B
In patients post-ablation, LMWH or i.v. UFH should be considered as 'bridging therapy' prior to resumption of systemic OAC, which should be continued for a minimum of 3 months. Thereafter, the individual stroke risk factors of the patient should be considered when determining if OAC therapy should be continued.	IIa	C

Précision en fonction du type de FA

Niveaux de preuves A et B

Cible de l'ablation de la fibrillation atriale

- La déconnection électrique des veines pulmonaires constitue la pierre angulaire de l'ablation endocavitaire de la FA
- Unique endpoint pour la FA parox, 1^o étape de l'ablation de la FA persistente (lignes, potentiels fragmentés...)



Paramètres	Patients « faciles »		Patients « difficiles »
	Hautement symptomatique	Peu symptomatique	
Symptômes			
Echecs des classes 1 et 3	≥1	0	
Type de FA	Paroxystique	Persistante de longue durée	
Age	<70 ans	≥70 ans	
Taille de l'oreillette gauche	< 5 cm	≥5 cm	
Fraction d'éjection	Normale	Réduite	
Insuffisance cardiaque	Non	Oui	
Autre maladie cardiaque	Non	Oui	
Maladie pulmonaire	Non	Oui	
Apnée du sommeil	Non	Oui	
Obésité	Non	Oui	
Antécédents AVC/AIT	Non	Oui	

Experiences d'ablation de la FA au CHU Nord

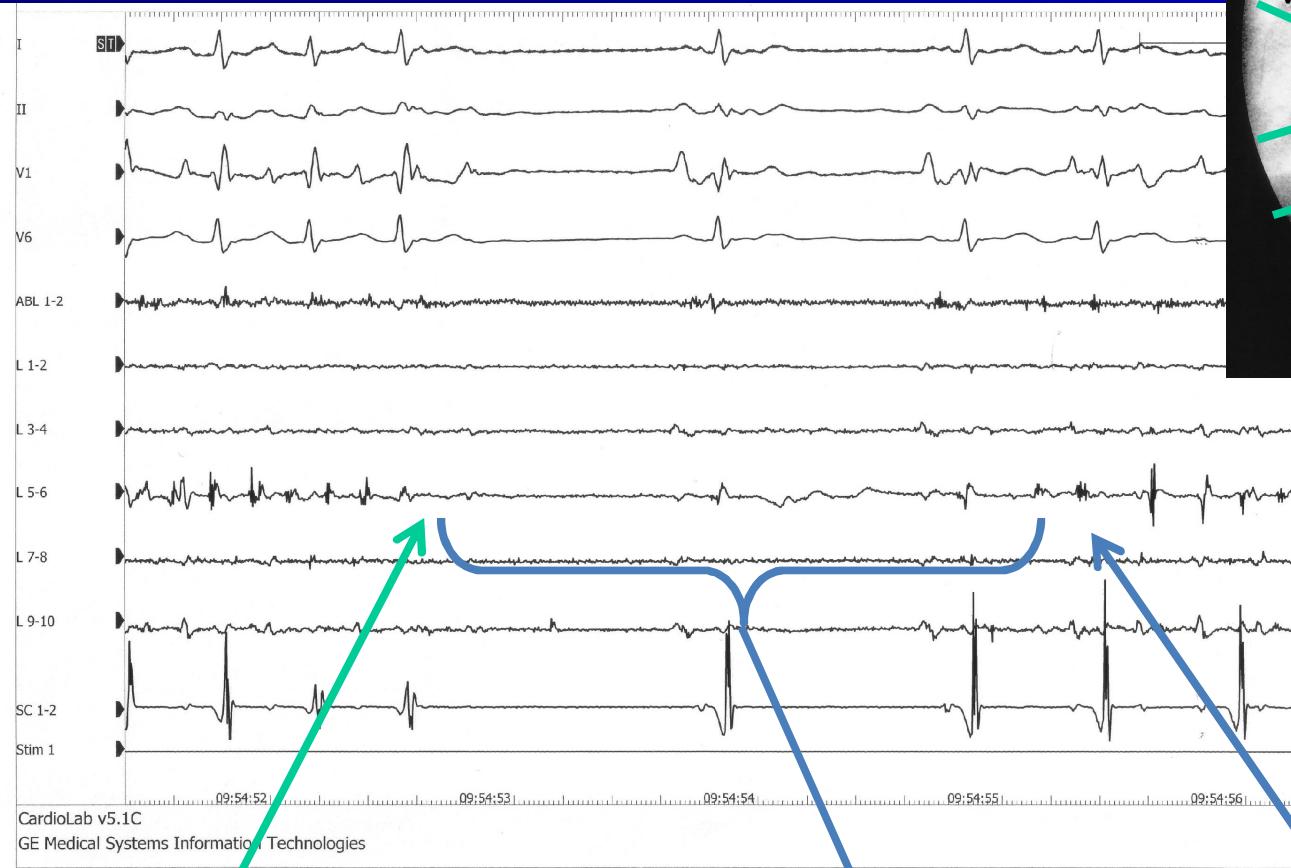
Ablation par cathéter focal de radiofréquence

Ablation par cryoablation par cathéter
circulaire ArticFront™

Résumé recommandations ESC 2010 Fibrillation Atriale

- Les inhibiteurs de la thrombine: en attente d'AMM dans la FA!(bientôt), efficacité \geq AVK dans la prévention des événements thromboemboliques sans suivi biologique
- La dronedarone MULTAQ™: efficacité modeste (comme tous les AAR!), surveillance hépatique +++
- L'ablation de la FA: patients symptomatiques++, échec d'un trt AAR (bientôt en première intention ?), procédure complexe

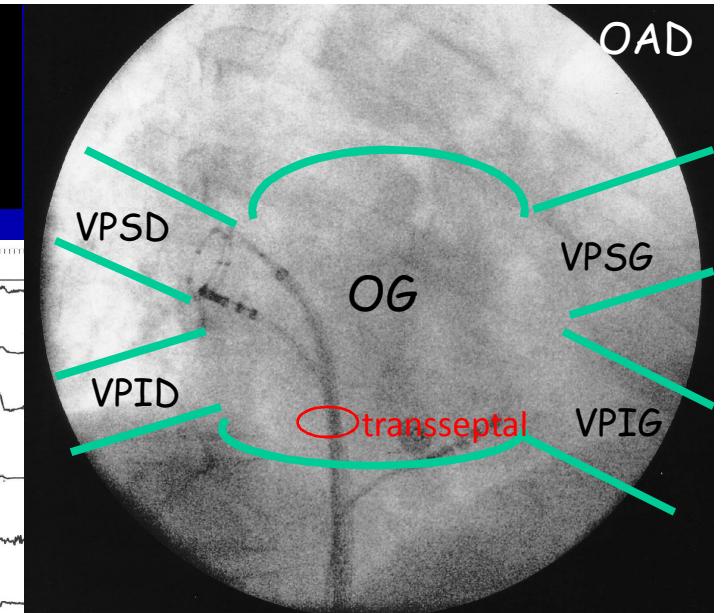
Patient 60 ans, HTA traitée
Ablation par RF / FA parox, échec 2 AAR
Ablation au niveau de la VPSD



L'arrêt de l'activité «fibrillatoire» dans la veine précède l'arrêt de la FA

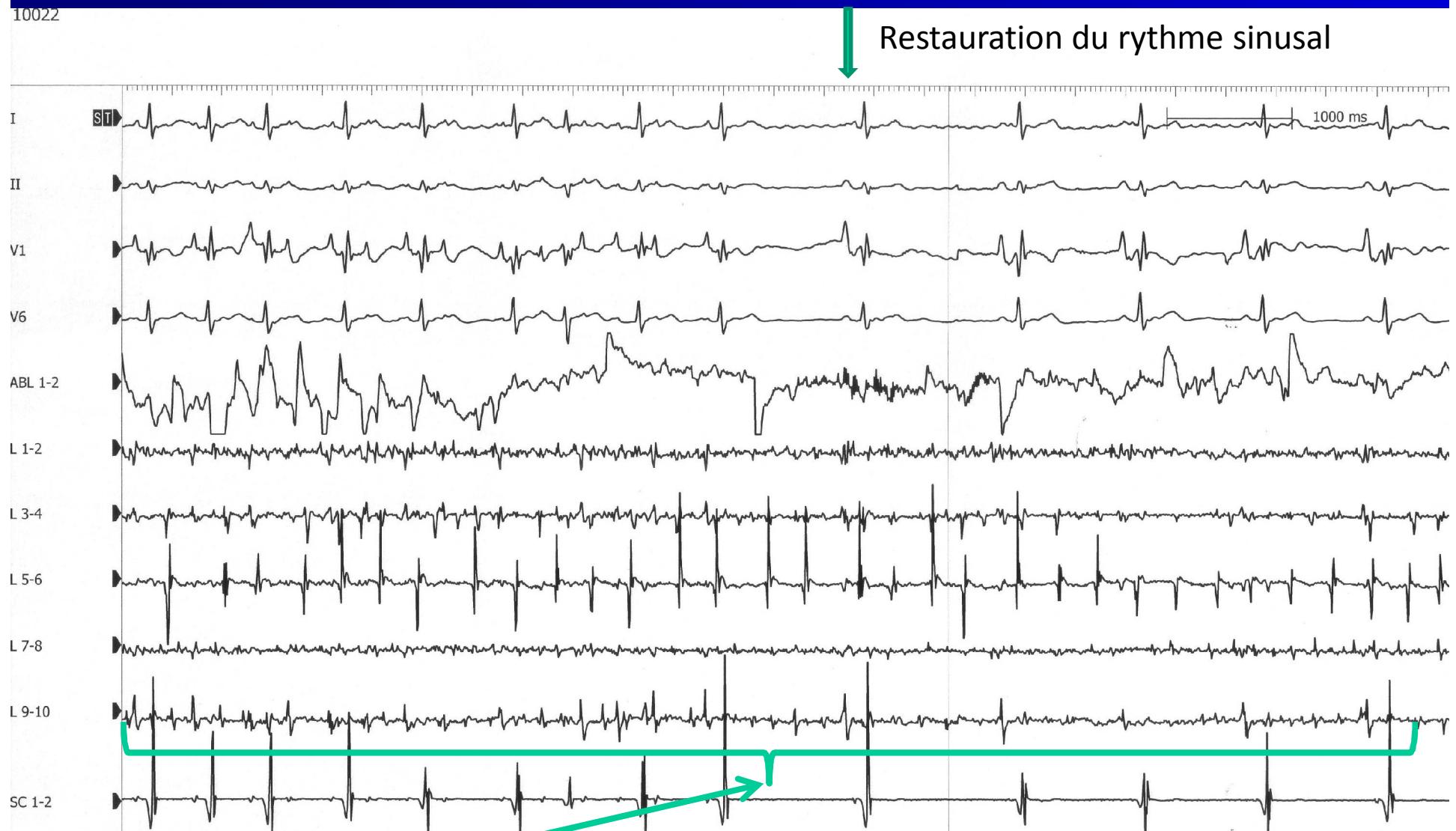
Absence d'activité veineuse: 2 battements sinusaux

Récidive de la FA qui débute dans la veine 12



En cours d'ablation

Déconnexion de la veine: restauration du rythme sinusal alors que la VPSD est toujours active



La place de l'ablation de la FA

Nouveauté: Ablation de FA après échec d'un trt bradycardisant
Classe IIb

Nouveauté: Ablation de FA > 1 an
Classe IIb

Continuation of OAC therapy post-ablation is recommended in patients with 1 'major' ('definitive') or ≥2 'clinically relevant non-major' risk factors (i.e. CHA ₂ DS ₂ -VASc score ≥2).	IIa	B
Catheter ablation of AF in patients with heart failure may be considered when antiarrhythmic medication, including amiodarone, fails to control symptoms.	IIb	B
Catheter ablation of AF may be considered prior to antiarrhythmic drug therapy in symptomatic patients despite adequate rate control with paroxysmal symptomatic AF and no significant underlying heart disease.	IIb	B
Catheter ablation of AF may be considered in patients with symptomatic long-standing persistent AF refractory to antiarrhythmic drugs.	IIb	C

Pulmonary vein isolation with a single cryoballoon (Arctic Front, Cryocath™) catheter: an initial experience.

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Introduction - Cryoballoon (CB) application around the pulmonary vein (PV) ostia is a recently used technique for PV isolation (PVI). We report our initial experience with this device.

Methods and results - From January 1st to December 31st 2010, fifty-five consecutive patients (Men = 43, with a mean age of 63 ± 12.5 years) were referred in our centre for drug-refractory atrial fibrillation (AF) ablation. AF was paroxysmal in 34 patients (62 %) and persistent in 21 (38 %). History of AF was mean 53 months (6-216 months). Lone AF was found in 18 patients (32.7 %). Hypertension was the most common cardiac disorder, present in 19 patients (34.5 %).

One patient with per-procedure pericardial tamponade was excluded from further analysis.

In total, 217 PV were targeted using a single 23-mm (n=14) or 28-mm (n=40) CB catheter. PVI was achieved in 195 PV (90 %).

Mean number of CB applications per vein was 2.7 ± 1.3 for the LSPV, 2.3 ± 0.6 for the LIPV, 2.4 ± 0.6 for the RSPV and 2.4 ± 0.7 for the RIPV and mean temperature during cryoballoon applications was - $54.5 \pm 10.4^\circ\text{C}$ for the LSPV, $-51.5 \pm 10.4^\circ\text{C}$ for the LIPV, $-52.8 \pm 10.2^\circ\text{C}$ for the RSPV and $-50.5 \pm 11.5^\circ\text{C}$ for the RIPV.

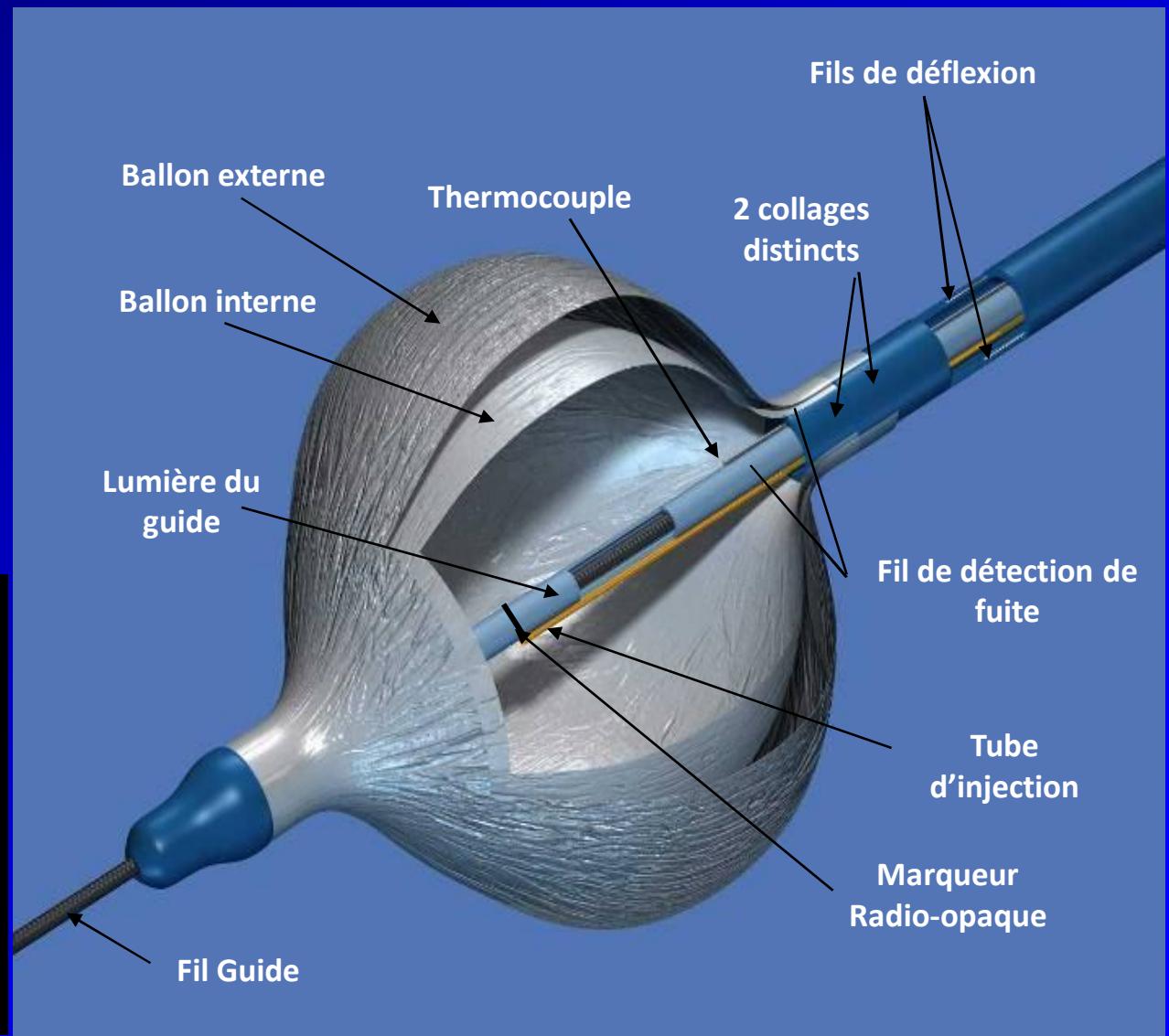
Mean procedure duration and fluoroscopy times were 131 min (90-190 min) and 36 min (22-66 min) respectively. AF termination during cryoballoon application occurred in 2/21 patients with persistent AF.

Phrenic nerve palsy, observed in 3 patients (5.4 %), was transient (< 1 month) in all of them. No other complication was observed.

Conclusion - In our initial experience, acute PVI using a single CB catheter was obtained in 90 % of targeted PV, comparable to previously published studies. This result suggests a rapid learning curve with this technique.

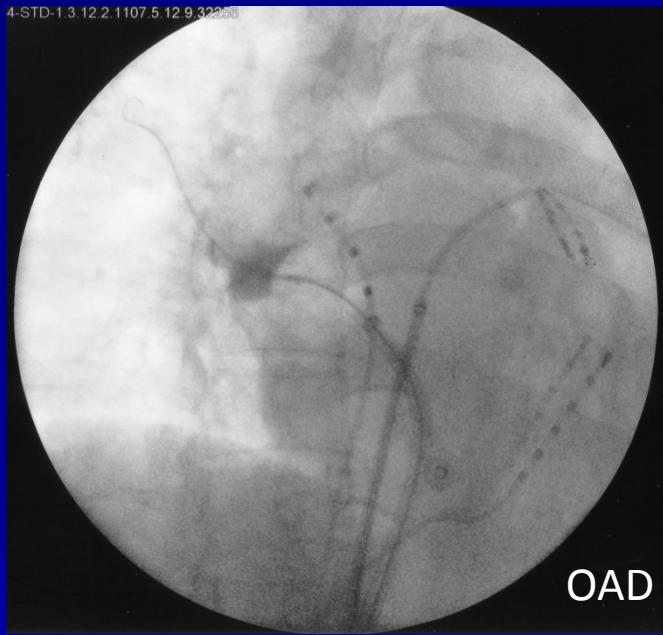
Technique de la cryoablation appliquée à la FA

- Cathéter ballon (Artic Front)
- 2 ballons de 23 et 28 mm de diamètre en fonction de l'anatomie des veines pulmonaires.



Mise en place et contrôle de l'occlusion

VPSD



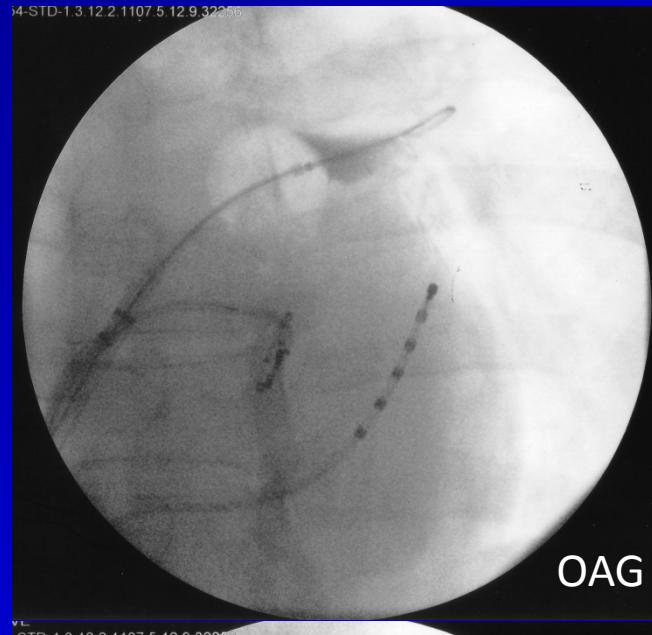
OAD

VPID



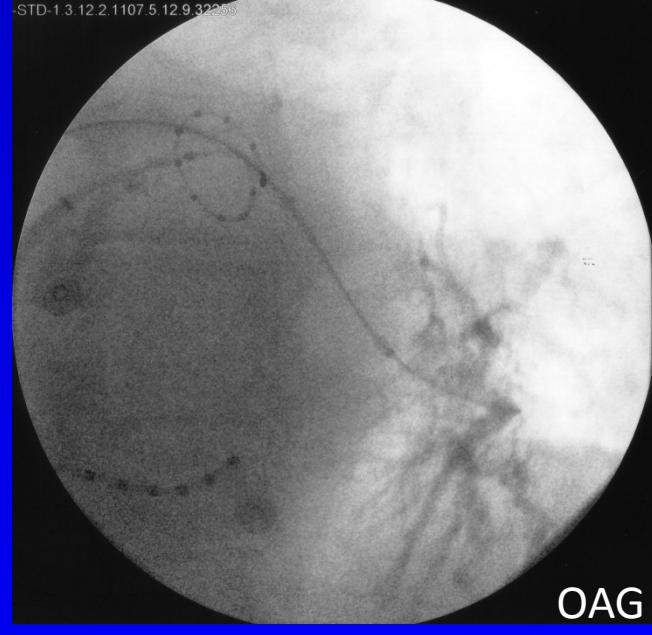
OAD

VPSG



OAG

VPIG



OAG

Cryoablation

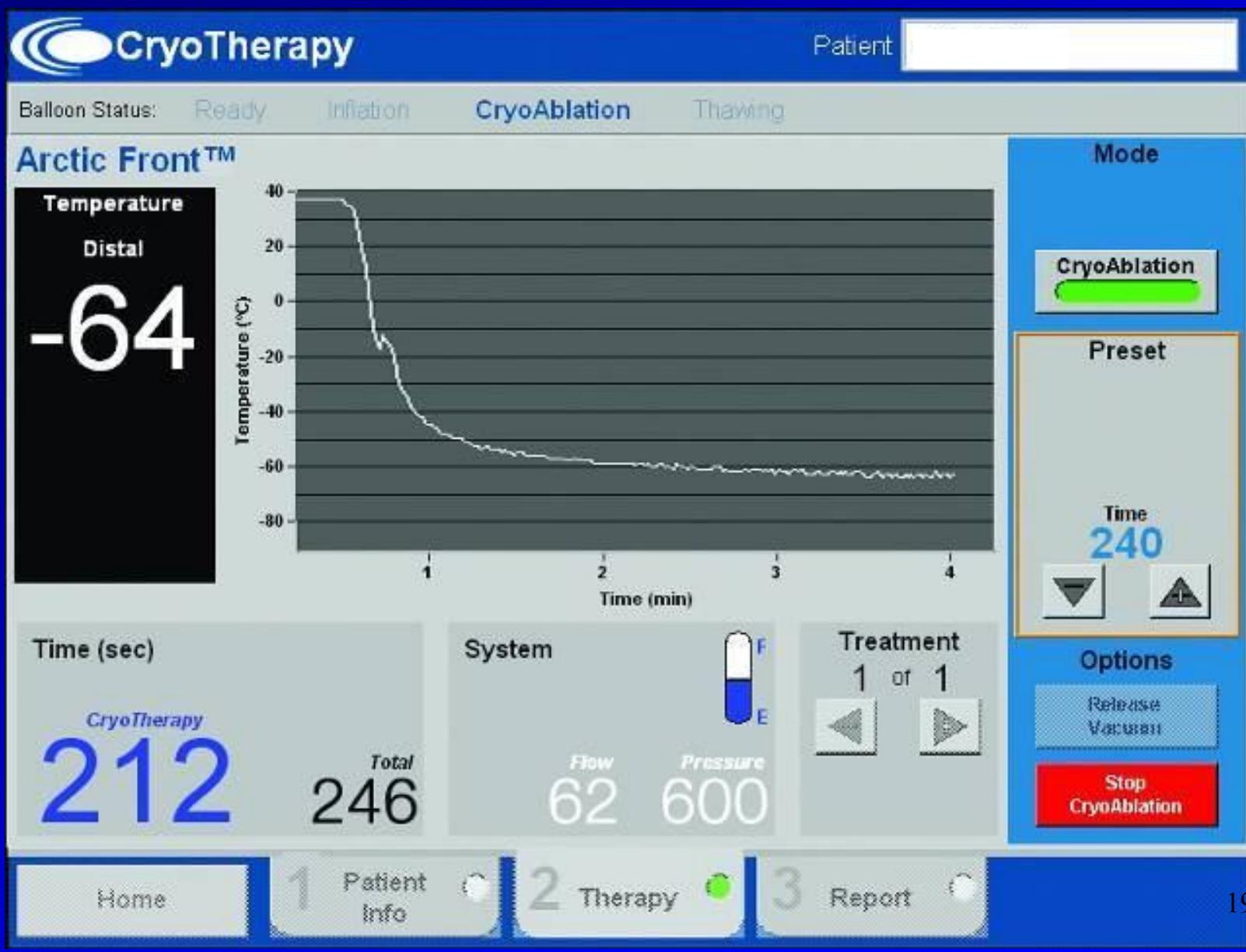


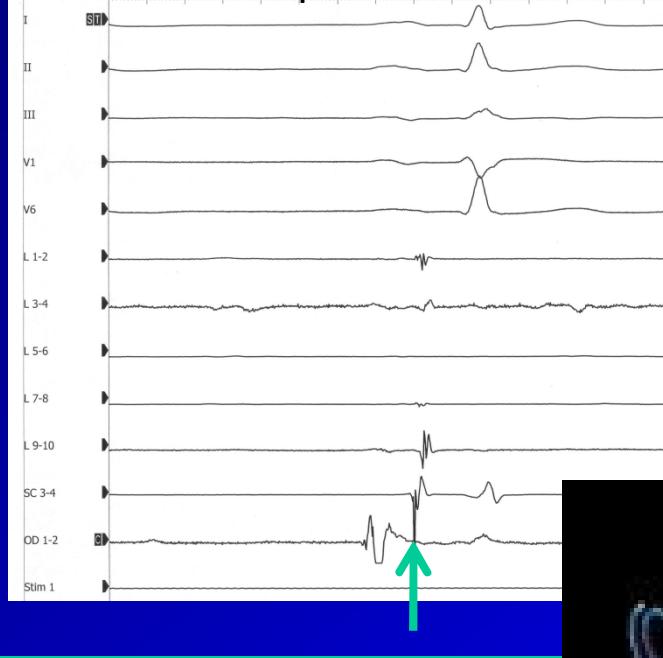
Table 18 Randomized clinical trials of catheter ablation vs. antiarrhythmic drugs or no treatment in AF

Study	Reference	Patients (n)	Age, years	Type of AF	Previous use of AAD	Ablation technique	Repeat ablation in the ablation group	Crossed to ablation in the AAD group	AF free at 1 year	
									Ablation	AAD
Kritayaphong et al 2003	Online	30	55 ± 10 (ablation) 47 ± 15 (AAD)	Paroxysmal, persistent	≥1 ^a	PVI + LA lines + CTI ablation + RA lines	Not stated	Not stated	75%	40%
Wazri et al. 2005 (RAAFT)	134	70	53 ± 8 (ablation) 54 ± 8 (AAD)	Mainly paroxysmal	No	PVI	12% ^f	49% ^c	87%	37%
Stabile et al. 2005 (CACAF) ^d	Online	245	62 ± 9 (ablation) 62 ± 10 (AAD)	Paroxysmal, persistent	≥2	PVI + LA lines ± CTI ablation	No exact data	57%	56%	9%
Orai et al. 2006 ^e	Online	245	57 ± 9	Persistent	≥1 (mean 2.1 ± 1.2)	CPVA	26% for AF; 6% for LA flutter	77%	74%	4%
Pappone et al. 2006 (APAF)	135	198	55 ± 10 (ablation) 57 ± 10 (AAD)	Paroxysmal	≥2 (mean 2 ± 1)	CPVA + CTI ablation	6% for AF; 3% for atrial tachycardia	42%	86%	22%
Jais et al. 2008 (A4 study)	133	112	51 ± 11	Paroxysmal	≥1	PVI ± LA lines ± CTI ablation	Mean 1.8 ± 0.8, median 2 per patient	63%	89%	23%
Forleo et al. 2008 ^f	Online	70	63 ± 9 (ablation) 65 ± 6 (AAD)	Paroxysmal, persistent	≥1	PVI ± LA lines ± CTI ablation	Not stated	Not stated	80%	43%
Wilber et al. 2010 (Thermocool) ^g	96	167	55.5 (ablation) 56.1 (AAD)	Paroxysmal	≥1 (mean 1.3) ^h	PVI ± LA lines ± CFAEs ± CTI ablation ± RA lines	12.6% within 90 days after 1st procedure ⁱ	59% ^c	66%	16%
Packer et al. 2010 (STOP-AF) ^j	Online	245	56.7 (ablation) 56.4 (AAD)	Paroxysmal	≥1 ^b	Cryo-PVI ± LA lines	19% within 90 days after 1st procedure	79%	69.9%	7.3%

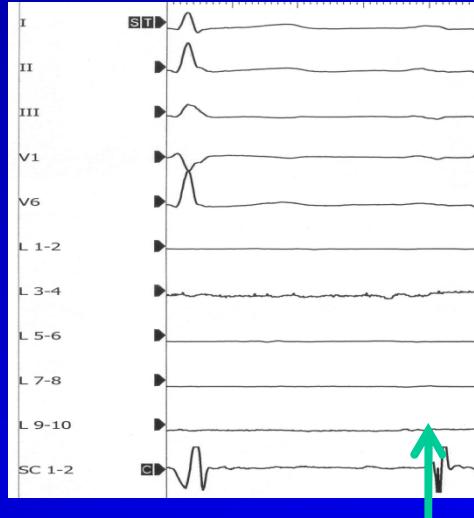
Mapping des veines pulmonaires

Pré-ablation

Exemple VPSD



Post-ablation



Exemple VPSG

