FA

Du simple au compliqué

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Disclosures

- Consulting and Speaker's fees from Bayer, BMS, Biotronik, Medtronic, Boston Scientific, Abbott, Microport

ESC European Society of Cardiology

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doi:10.1093/eurheartj/ehaa612

ESC GUIDELINES

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association of Cardio-Thoracic Surgery (EACTS)

The Task Force for the diagnosis and management of atrial fibrillation of the European Society of Cardiology (ESC)

Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC

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Le jeune patient des urgences

- Homme
- 40 ans
- 75 Kg pour 1m79
- Pas de facteurs de risque
- Palpitations 2 heures (après un repas et 2 bières)
- FA 180 bpm aux urgences
- Réduction spontanée

Que disent les recommandations?

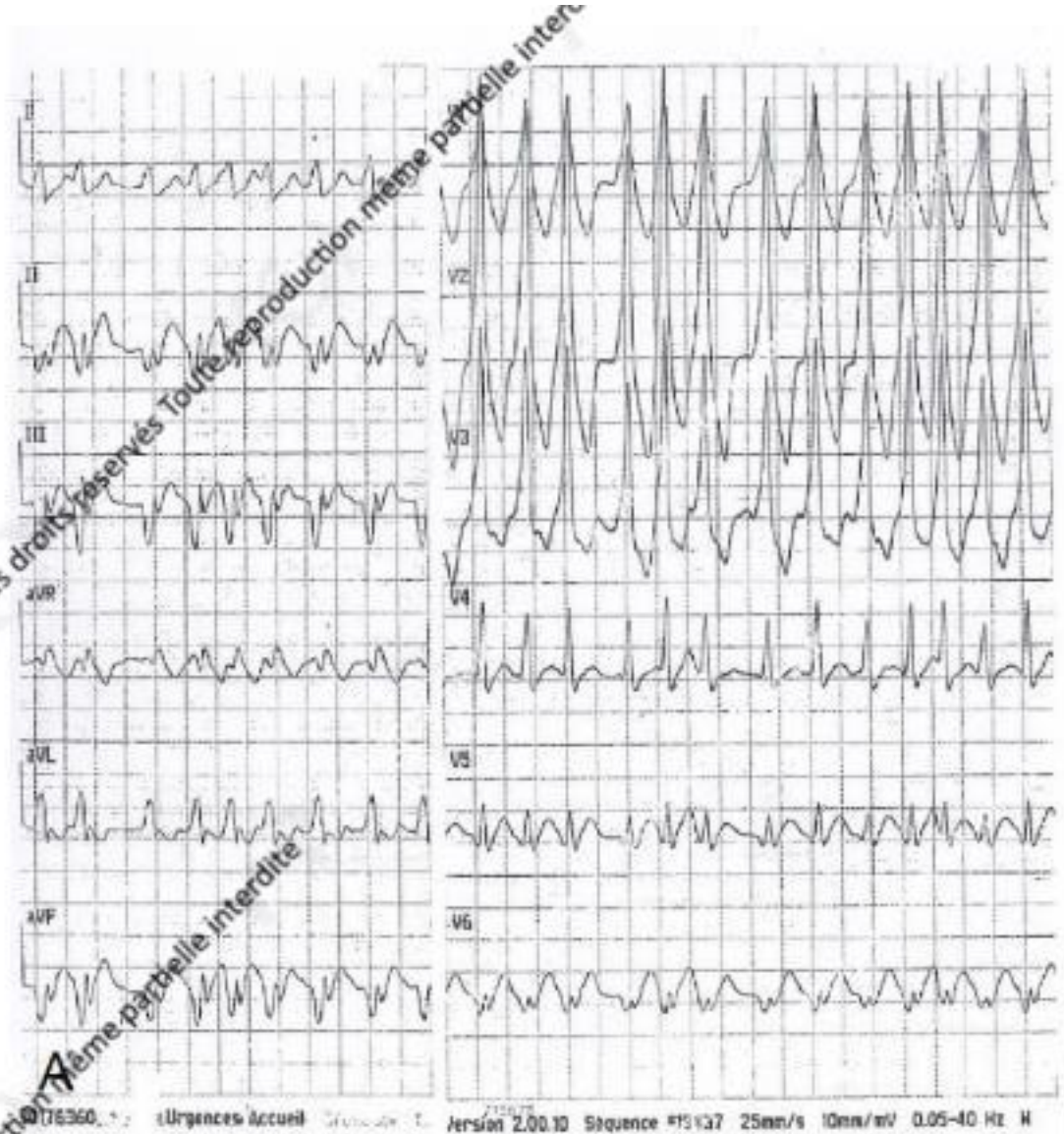
11.2 Long-term antiarrhythmic drug therapy

The aim of antiarrhythmic drug therapy is improvement in AF-related symptoms.[41,580] Hence, the decision to initiate long-term antiarrhythmic drug therapy needs to balance symptom burden, possible adverse drug reactions, and patient preferences. The principles of antiarrhythmic drug therapy outlined in the 2010 ESC AF guidelines[369] are still relevant and should be observed:

(1) Treatment is aimed at reducing AF-related symptoms;
(2) Efficacy of antiarrhythmic drugs to maintain sinus rhythm is modest;
(3) Clinically successful antiarrhythmic drug therapy may reduce rather than eliminate the recurrence of AF;
(4) If one antiarrhythmic drug 'fails', a clinically acceptable response may be achieved with another agent;
(5) Drug-induced pro-arrhythmia or extracardiac side-effects are frequent;
(6) Safety rather than efficacy considerations should primarily guide the choice of antiarrhythmic drug.

Patiente de 45 ans

- Tabac 1 paquet/j



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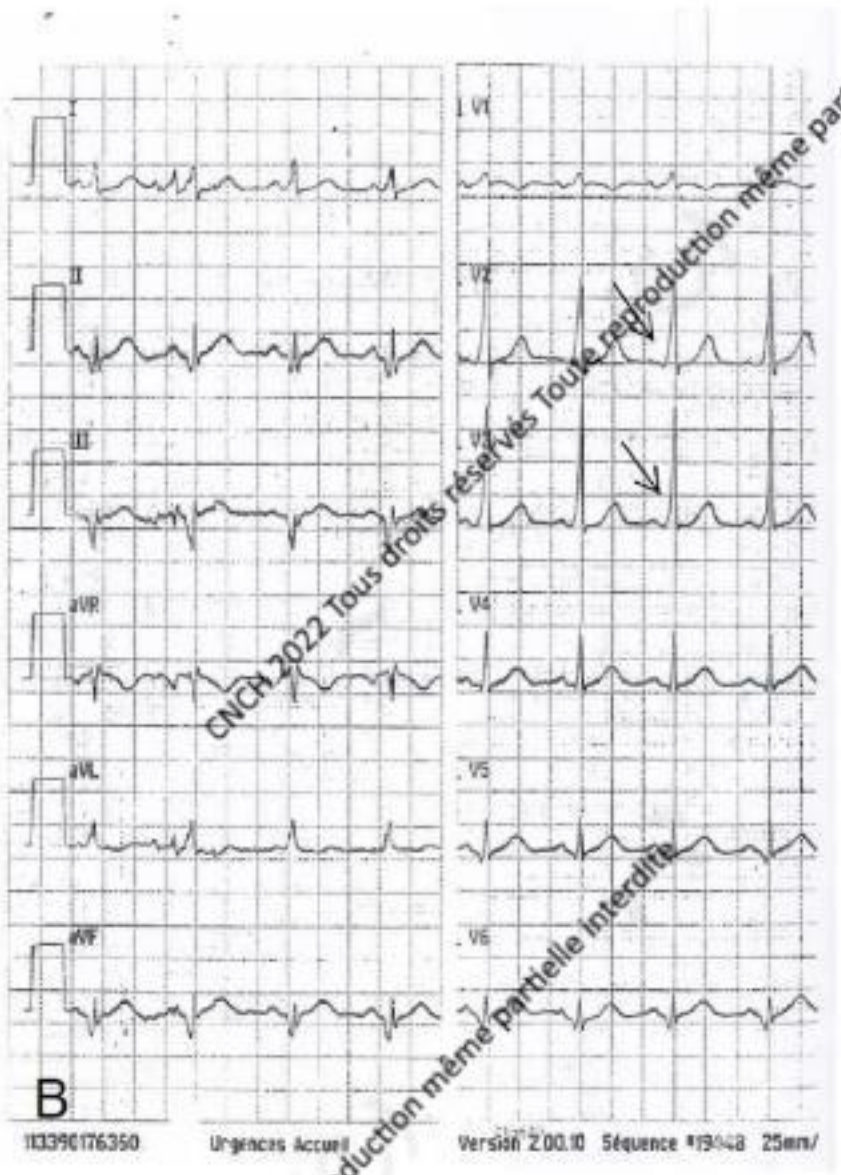

2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Task Force Members:

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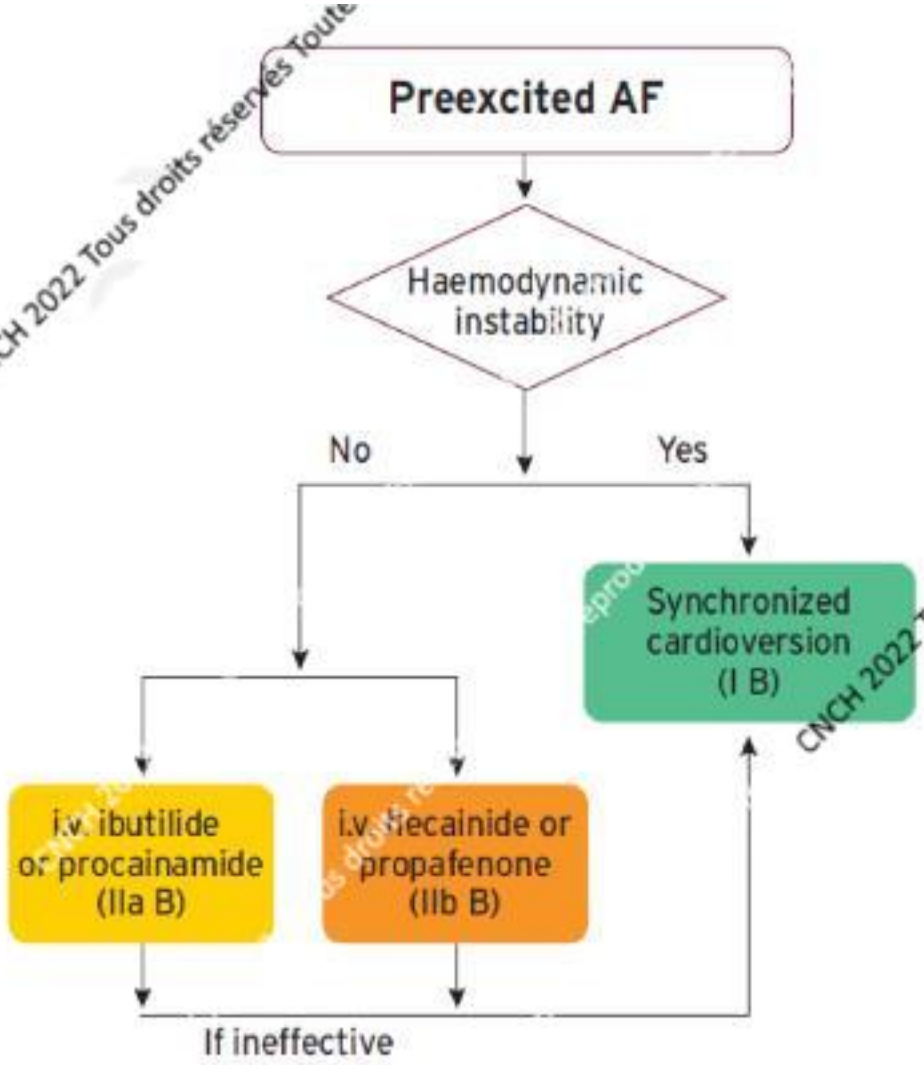
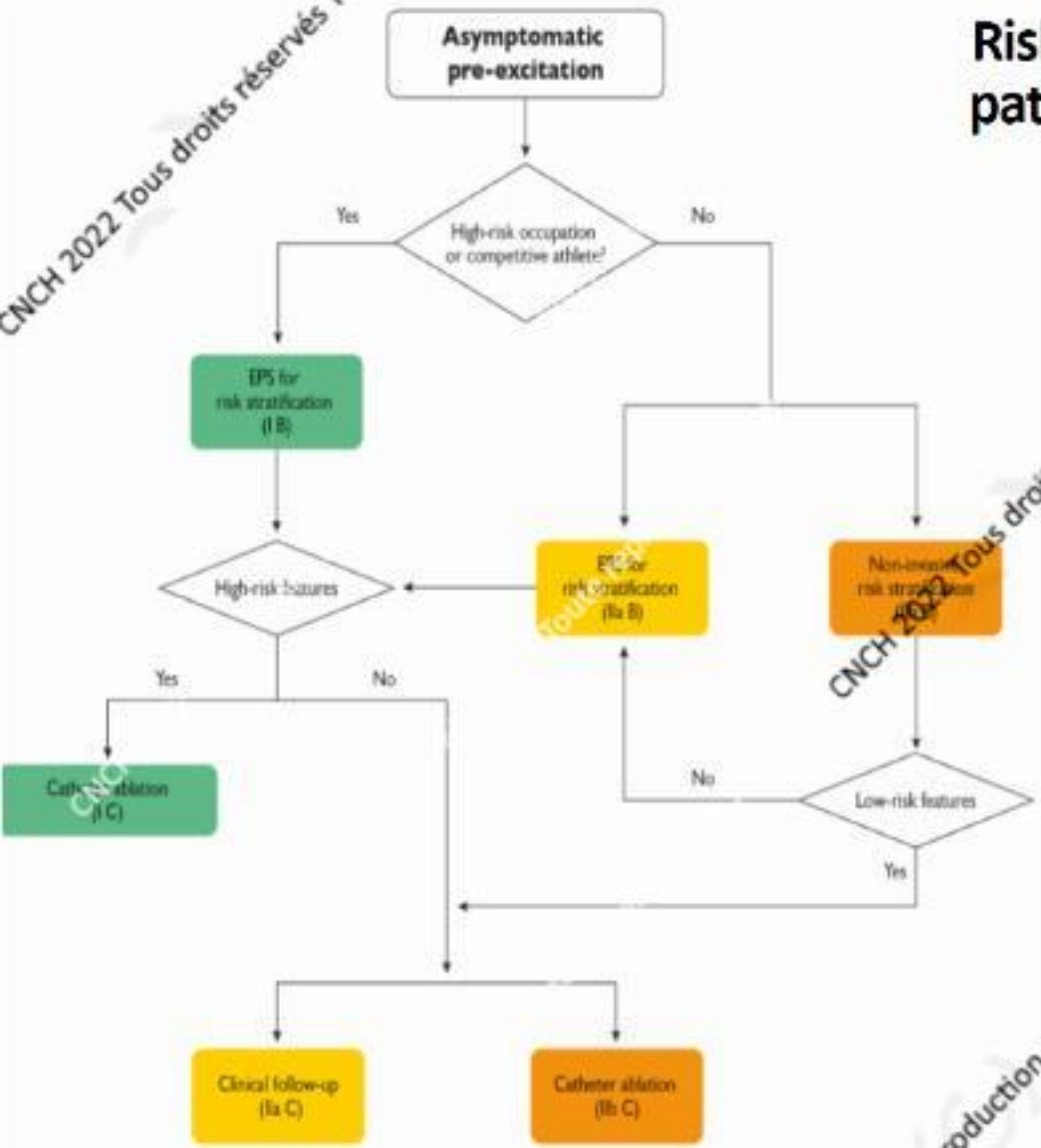
[1] Representing the Association for European Paediatric and Congenital Cardiology (AEPC)

Acute therapy of pre-excited AF

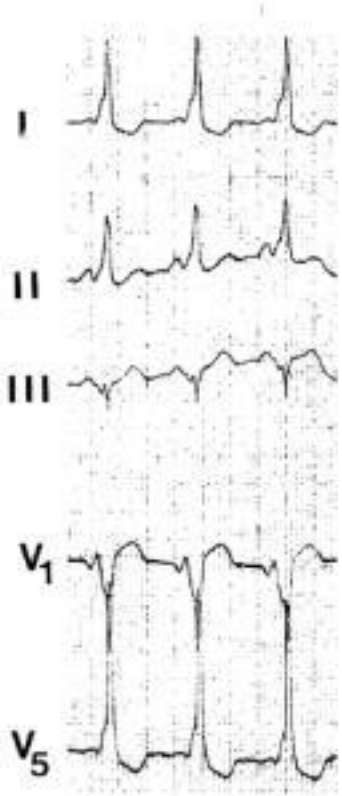


No drug therapy recommendations provided in 2003

Risk stratification and therapy of patients with asymptomatic pre-excitation



Not provided in 2003



ESC Guidelines for the management of patients with supraventricular tachycardia (European Heart Journal; 2019)

Recommendations for the therapy SVT in pregnancy

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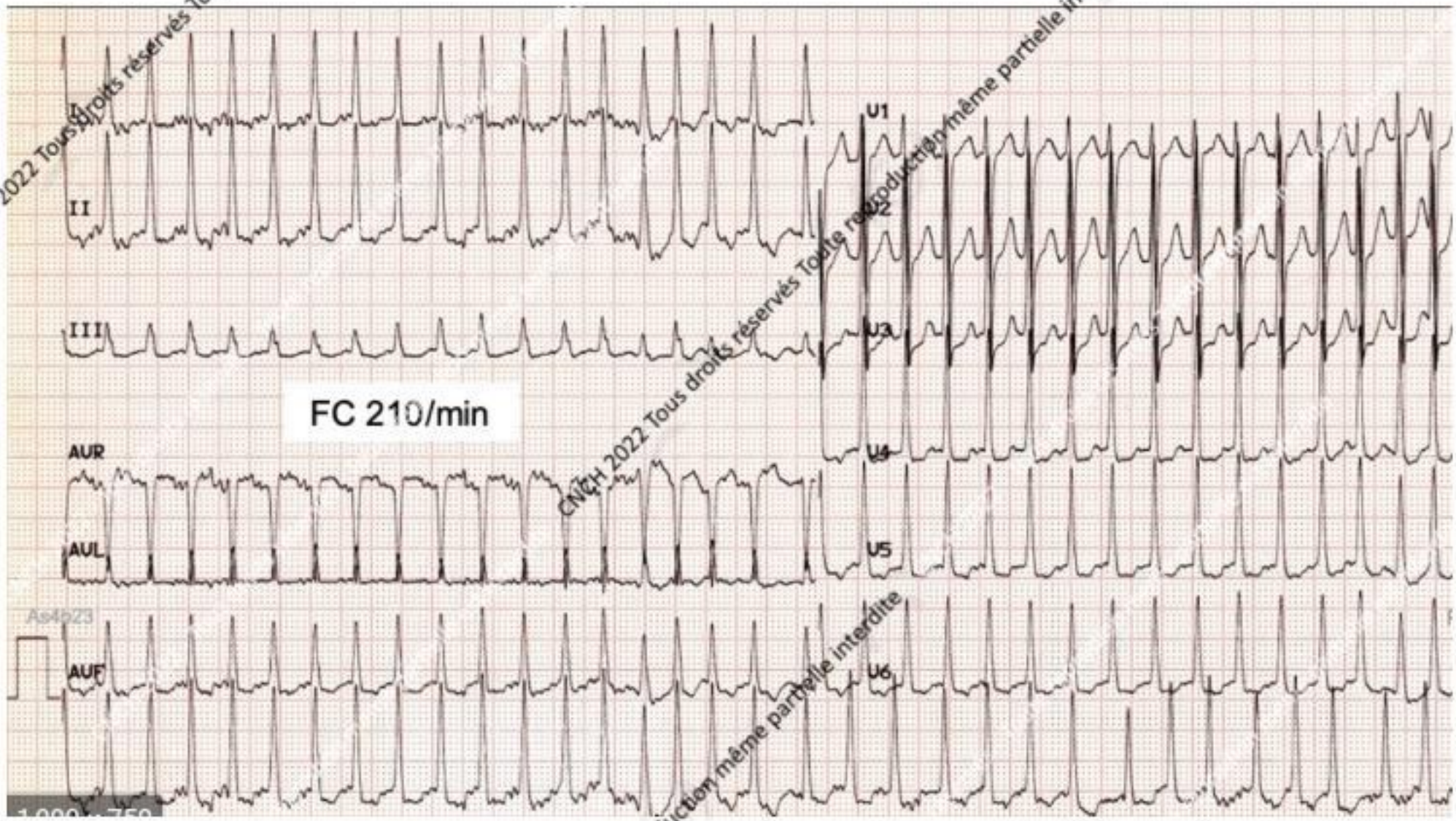
Recommendations	Class[a]	Level[b]
Catheter ablation is recommended in symptomatic women with recurrent SVT who plan to become pregnant.	I	C
Chronic therapy		
During the first trimester of pregnancy it is recommended to avoid all antiarrhythmic drugs, if possible.	I	C
Fluoroless catheter ablation should be considered in case of drug-refractory or poorly tolerated SVT, in experienced centres.	IIa	C

Une première FA

- Hôtesse de l'air
- 40 ans
- 58 kg/1m74
- Pas de FDR
- Adressée en USIC le 2.1.2014 par SAMU pour tachycardie à 200 bpm responsable d'un OAP (VNI 1h)



Une première FA

- Hôtesse de l'air
- 40 ans
- 58 kg/1m74
- Pas de FDR
- Adressée en USIC le 2.1.2014 par SAMU pour FA rapide 200 bpm responsable d'un OAP (VNI 1h)
- ETT FE et OG nles
- Régularisation après 2 jours par amiodarone
- Revue en cs sous amiodarone / AOD

Recommendations for management of AF with haemodynamic instability

Recommendations	Class[a]	Level[b]
Emergency electrical cardioversion is recommended in AF patients with acute onset worsening haemodynamic instability.[1053,1054]	I	B
In AF patients with haemodynamic instability, amiodarone may be considered for acute control of heart rate.[503,511,512]	IIb	B

AF = atrial fibrillation.
[a]Class of recommendation.
[b]Level of evidence.

Table 18 Principles of antiarrhythmic drug therapy

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Principles
AAD therapy aims to reduce AF-related symptoms
Efficacy of AADs to maintain sinus rhythm is modest
Clinically successful AAD therapy may reduce rather than eliminate AF recurrences
If one AAD 'fails', a clinically acceptable response may be achieved by another drug
Drug-induced proarrhythmia or extracardiac side-effects are frequent
Safety rather than efficacy considerations should primarily guide the choice of AAD

Recommendations for long-term antiarrhythmic drugs (1)

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Reduces CV hospitalizations & death
Most solid safety data.

Recommendations	Class	Level
Flecainide or propafenone is rec[illegible]d for long-term rhythm control in AF patients with **normal LV fu[illegible]nd without structural heart disease**, including significant LVH and m[illegible]rdial ischaemia.	I	A
Dronedarone is recommended for long-term rhythm control in AF patients with: • **Normal or mildly impaired (but stable) LV function, or** • **HFpEF, ischaemic, or valvular heart disease**	I	A
Amiodarone is recommended for long-term rhythm control in all AF patients, including those with HFrEF. However, owing to its extracardiac toxicity, other AADs should be considered first whenever possible.	I	A
Sotalol may be considered for long-term rhythm control in patients with normal LV function or with ischaemic heart disease **if close monitoring** of QT interval, serum potassium levels, creatinine clearance, and other proarrhythmia risk factors is provided.	IIb	A

New !

2020 ESC Guidelin[illegible]gement of atrial fibrillation
(Europ[illegible]1093/eurheartj/ehaa612)

Recommendations for rhythm control/catheter ablation of AF (2)

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Recommendations	Class	Level
AF catheter ablation after failure of drug therapy		
AF catheter ablation for PVI is recommended for rhythm control after one failed or intolerant class I or III AAD, to improve symptoms of AF recurrences in patients with:	I	A
• **Paroxysmal** AF, or		
• **Persistent** AF without major risk factors for AF recurrence, or		
• **Persistent** AF with major risk factors for AF recurrence		
AF catheter ablation for **PVI should be considered** for rhythm control **after one failed or intolerant to beta-blocker** treatment to improve symptoms of AF recurrences in patients with paroxysmal and persistent AF.	IIa	B

Results from CAPTAF & CABANA trials

Change IIa

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation (European Heart Journal 2020-doi/10.1093/eurheartj/ehaa612)

Recommendations for rhythm control/catheter ablation of AF (3)

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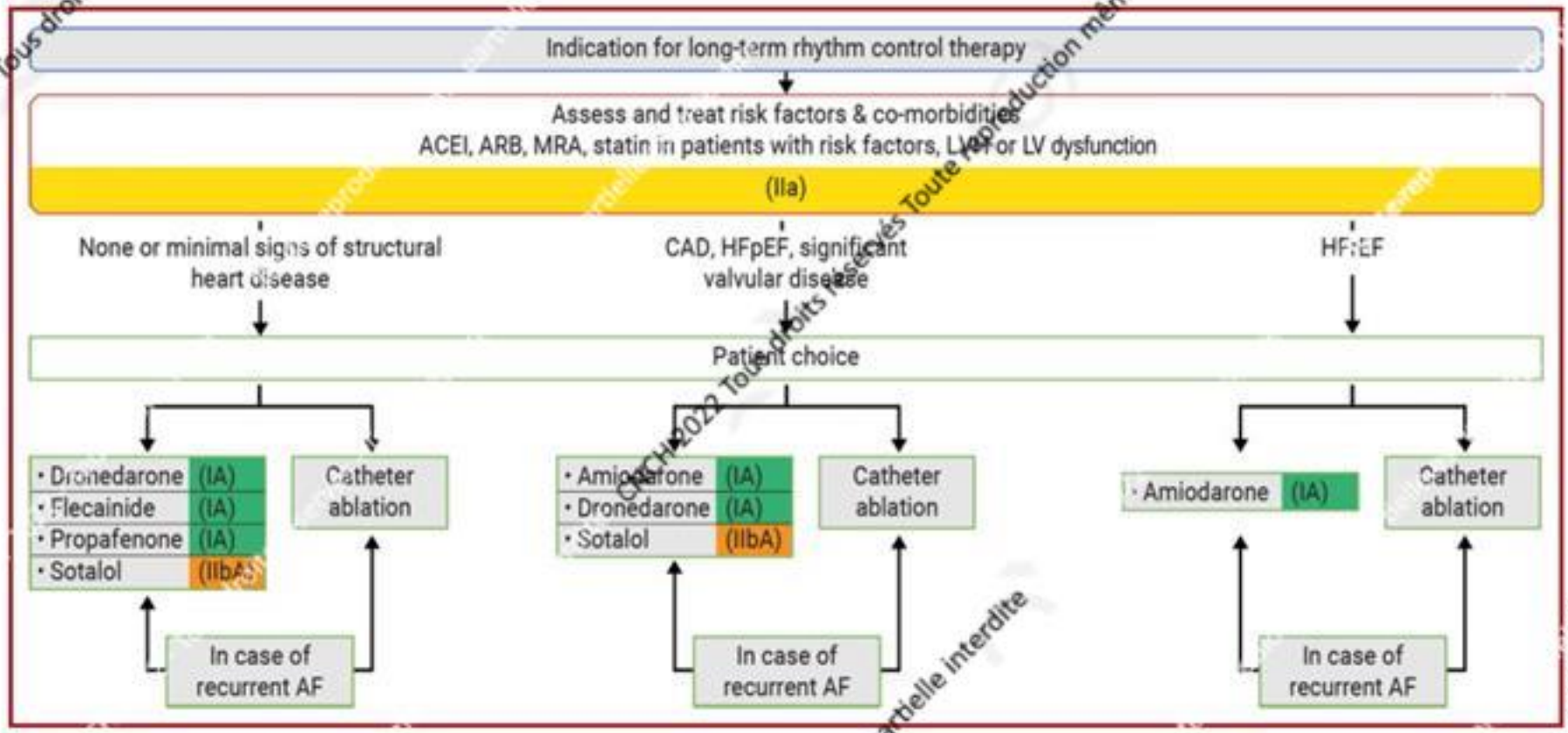
Recommendations	Class	Level
First-line therapy		
AF catheter ablation for PVI should/may be considered as first-line rhythm control therapy to improve symptoms in selected patients with symptomatic:		
• **Paroxysmal** AF episodes, or	IIa	B
• **Persistent** AF **without major risk factors for AF recurrence**.	IIb	C
as an alternative to AAD class I or III, considering patient choice, benefit, and risk.		

New !

Recommendations	Class	Level
Women with symptomatic paroxysmal or persistent AF should be offered timely access to rhythm control therapies, including AF catheter ablation, when appropriate for medical reasons.	IIa	B

New !


Indication for long-term rhythm control therapy
Assess and treat risk factors & co-morbidities
ACEI, ARB, MRA, statin in patients with risk factors, LVH or LV dysfunction
(IIa)
None or minimal signs of structural heart disease
CAD, HFpEF, significant valvular disease
HFrEF
Patient choice
• Dronedarone (IA)
• Flecainide (IA)
• Propafenone (IA)
• Sotalol (IIbA)
Catheter ablation
In case of recurrent AF
• Amiodarone (IA)
• Dronedarone (IA)
• Sotalol (IIbA)
Catheter ablation
In case of recurrent AF
• Amiodarone (IA)
Catheter ablation
In case of recurrent AF
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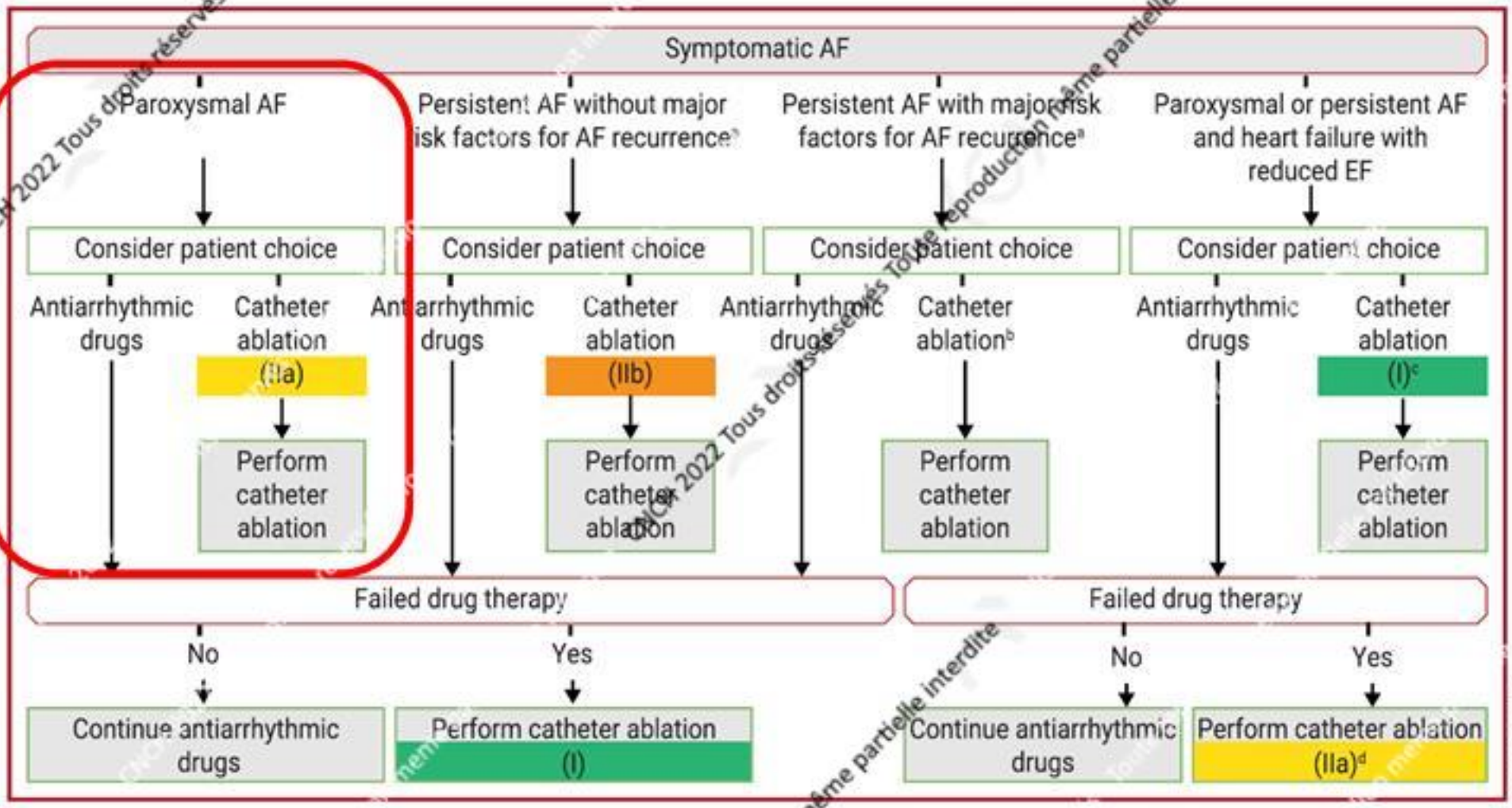
Symptomatic AF
Paroxysmal AF
Persistent AF without major risk factors for AF recurrence
Persistent AF with major risk factors for AF recurrence[a]
Paroxysmal or persistent AF and heart failure with reduced EF
Consider patient choice
Consider patient choice
Consider patient choice
Consider patient choice
Antiarrhythmic drugs
Catheter ablation
(IIa)
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation
(IIb)
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation[b]
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation
(I)[c]
Perform catheter ablation
Failed drug therapy
Failed drug therapy
No
Yes
No
Yes
Continue antiarrhythmic drugs
Perform catheter ablation
(I)
Continue antiarrhythmic drugs
Perform catheter ablation
(IIa)[d]
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Catheter ablation of atrial fibrillation and atrial fibrillation surgery (1)

Recommendations	Class	Level
Catheter ablation of symptomatic paroxysmal AF is recommended to improve AF symptoms in patients who have symptomatic recurrences of AF on antiarrhythmic drug therapy (amiodarone, dronedarone, flecainide, propafenone, sotalol) and who prefer further rhythm control therapy, when performed by an electrophysiologist who has received appropriate training and is performing the procedure in an experienced centre.	I	A
Ablation of common atrial flutter should be considered to prevent recurrent flutter as part of an AF ablation procedure if flutter has been documented or occurs during the AF ablation.	IIa	B
Catheter ablation of AF should be considered as first-line therapy to prevent recurrent AF and to improve symptoms in selected patients with symptomatic paroxysmal AF as an alternative to antiarrhythmic drug therapy, considering patient choice, benefit, and risk.	IIa	B
All patients should receive oral anticoagulation for at least 8 weeks after catheter (IIaB) or surgical (IIaC) ablation.	IIa	B C
Anticoagulation for stroke prevention should be continued indefinitely after apparently successful catheter or surgical ablation of AF in patients at high-risk of stroke.	IIa	C
When catheter ablation of AF is planned, continuation of oral anticoagulation with a VKA (IIaB) or NOAC (IIaC) should be considered during the procedure, maintaining effective anticoagulation.	IIb	B C
Catheter ablation should target isolation of the pulmonary veins using radiofrequency ablation or cryothermy balloon catheters.	IIa	B

European Heart Journal - doi:10.1093/eurheartj/ehw210

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Early Rhythm-Control Therapy in Patients with Atrial Fibrillation

P. Kirchhof, A.J. Camm, A. Goette, A. Brandes, L. Eckardt, A. Elvan, T. Fetsch, I.C. van Gelder, D. Haase, L.M. Haegeli, F. Hamann, H. Heidbüchel, G. Hindricks, J. Kautzner, K.-H. Kuck, L. Mont, G.A. Ng, J. Rekosz, N. Schoen, U. Schotten, A. Suling, J. Taggeselle, S. Themistoclakis, E. Vettorazzi, P. Vardas, K. Wegscheider, S. Willems, H.J.G.M. Crijns, and G. Breithardt, for the EAST-AFNET 4 Trial Investigators*

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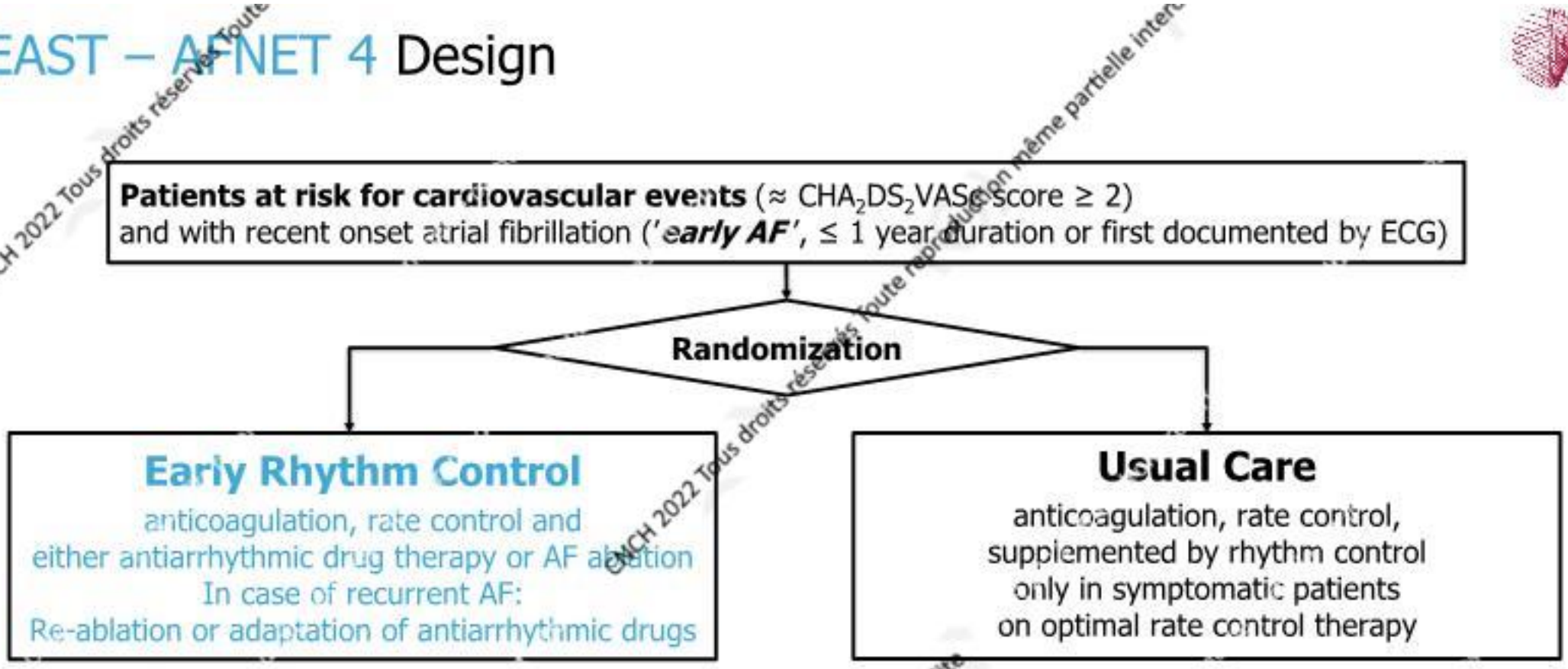
UNIVERSITY OF BIRMINGHAM | INSTITUTE OF CARDIOVASCULAR SCIENCES

Universitäres Herz- und Gefäßzentrum UKE Hamburg

EAST – AFNET 4 Design



therapy of concomitant cardiovascular diseases (both randomized groups)
in-person follow-up at 1 and 2 years
all patients were followed up until the end of the study

www.easttrial.org

Kirchhof P, et al. *Am H J* 166:442-448 (2013)

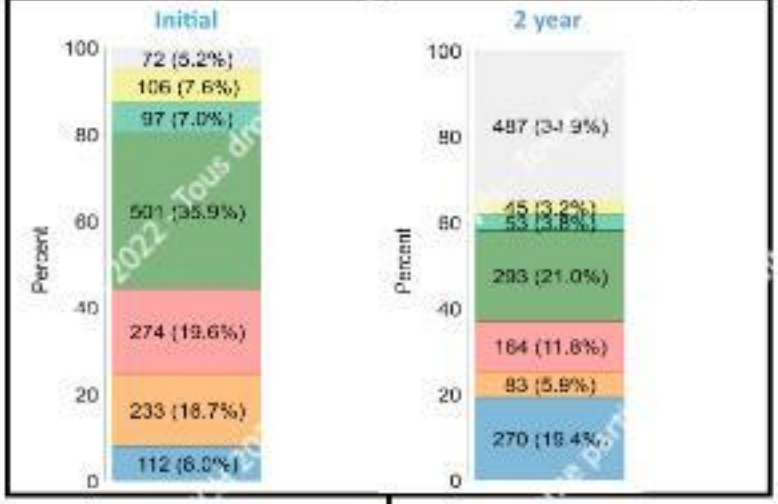
EAST – AFNET 4 CONSORT diagram

2789 patients randomized by 135 sites in 11 countries

Randomization

Early Rhythm Control (n=1,395)

Included in primary analysis n=1,395



Total FU-years lost: 681/7596 (9.0%)

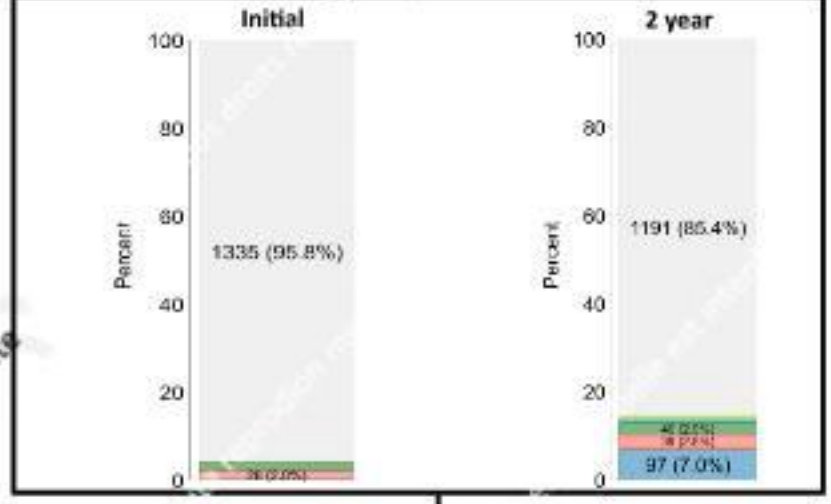
524 (6.9%) FU-years lost because 123 withdrew

157 (2.1%) FU-years lost because 102 were lost to FU

- None
- Other antiarrhythmic drug
- Propafenone
- Flecainide
- Amiodarone
- Dronedarone
- AF ablation

Usual Care (n=1,394)

Included in primary analysis n=1,394

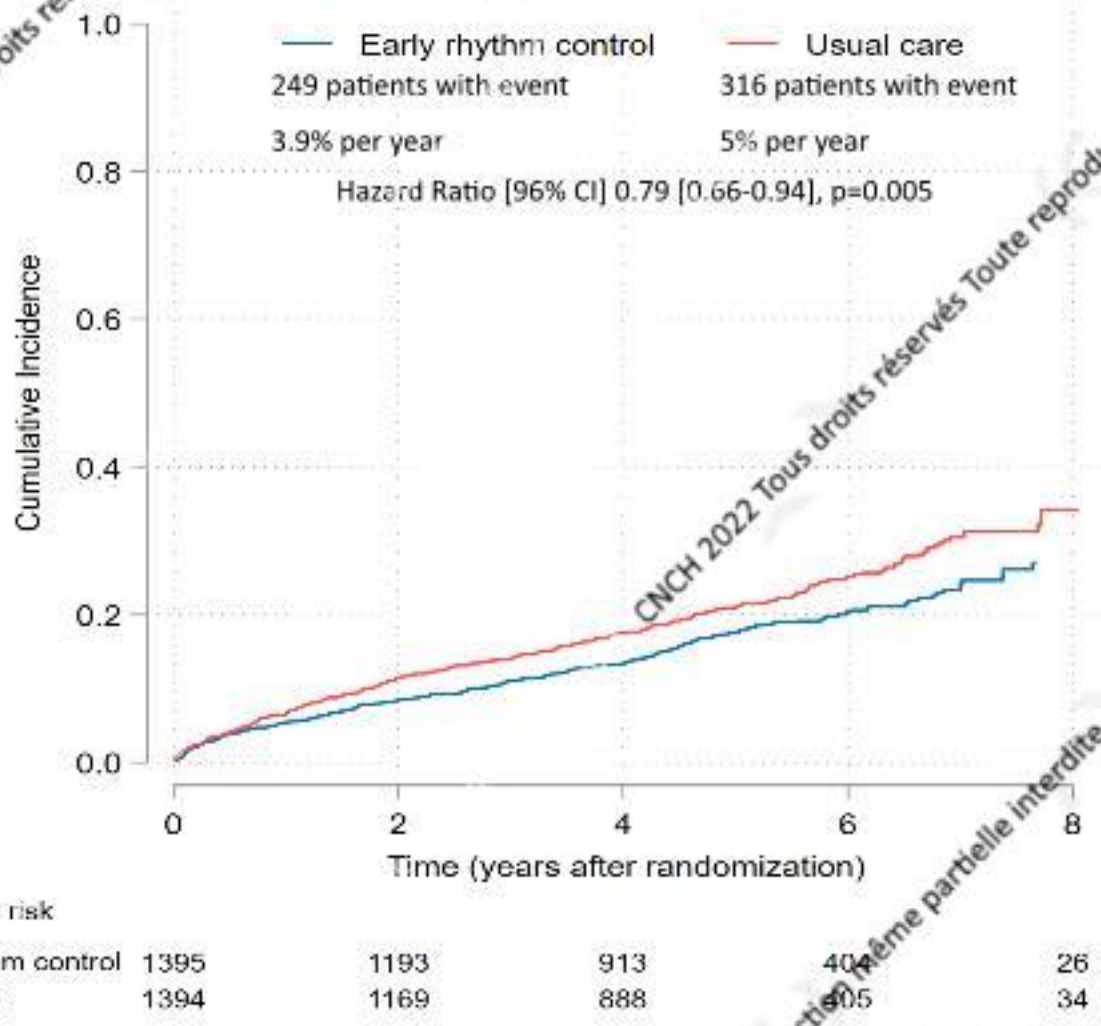


Total FU-years lost: 491/7479 (6.6%)

339 (4.5%) FU-years lost because 83 withdrew

152 (2.0%) FU-years lost because 106 were lost to FU

EAST – AFNET 4 Analysis of first primary outcome



	Patients with event in Early Rhythm Control (n=1395)	Patients with event in Usual Care (n=1394)	Uncorrected Hazard Ratio [95% CI]
Cardiovascular death	67	94	0.72 [0.52-0.98]
Stroke	40	62	0.65 [0.44-0.97]
Hospitalization with worsening of heart failure	139 (2.1)	169	0.81 [0.65-1.02]
Hospitalization with acute coronary syndrome	53 (0.8)	65	0.83 [0.58-1.19]

Kirchhof P, *et al. NEJM*, doi: 10.1056/NEJMoa2019422 (published online 29 Aug 2020)

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CCI-CIC Centre for Cardiovascular Innovation
Centre d'Innovation Cardiovasculaire

NCE RCE

CANet.

UNIVERSITY OF OTTAWA HEART INSTITUTE
INSTITUT DE CARDIOLOGIE DE L'UNIVERSITÉ D'OTTAWA

Embargoed for 9:34am CT 11-16-20

Early Intervention for Atrial Fibrillation: The EARLY-AF Study

Jason G. Andrade, Jean Champagne, Marc W. Deyell, Vidal Essebag, Sandra Lauck, Carlos A. Morillo, John L. Sapp, Allan Skanes, Patricia Theoret-Patrick, George Wells, Atul Verma

EARLY-AF

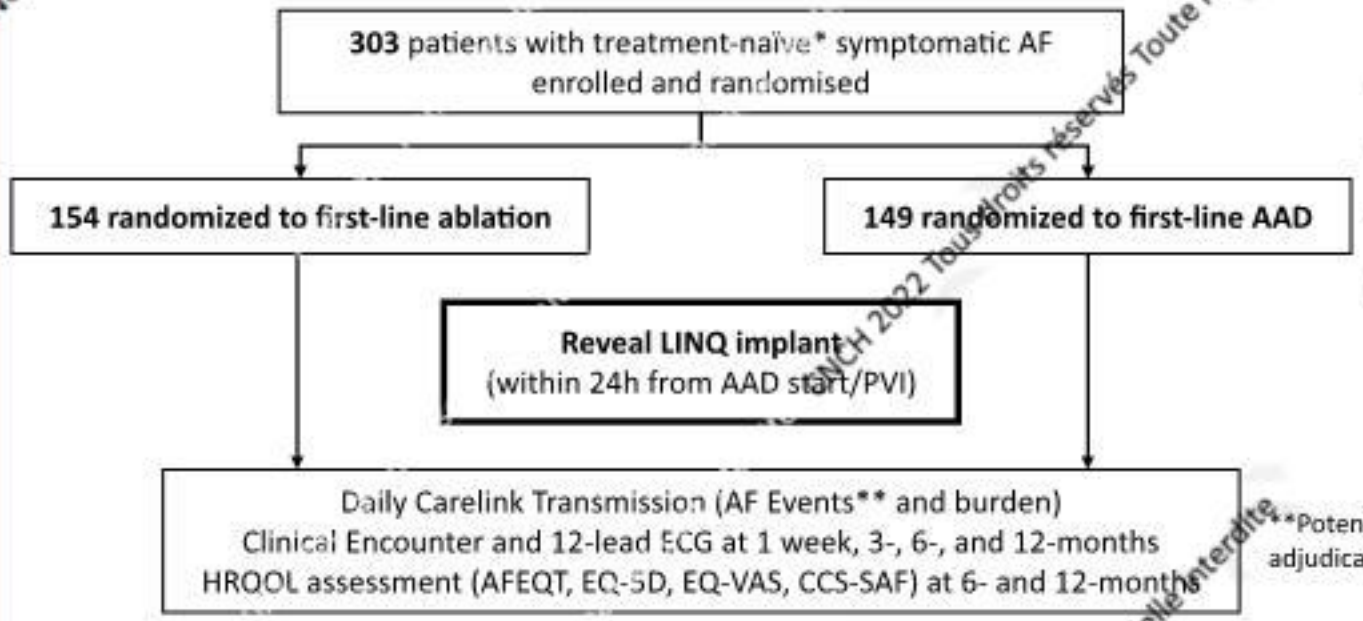
#AHA20

American Heart Association.
Scientific Sessions

American Heart Association
Scientific Sessions

EARLY-AF

Patient flow



*Enrollment Permitted if:

1. AAD Treatment Naive
- Never treated with an AAD

2. Current AAD use
- Treatment < 6m but **below** therapeutic threshold

3. Previous AAD use
- Treatment initiated, discontinued, and washed out >6m

4. Temporary AAD use
- Treatment at therapeutic dose for a period <4 weeks

No adverse drug effects or inefficacy

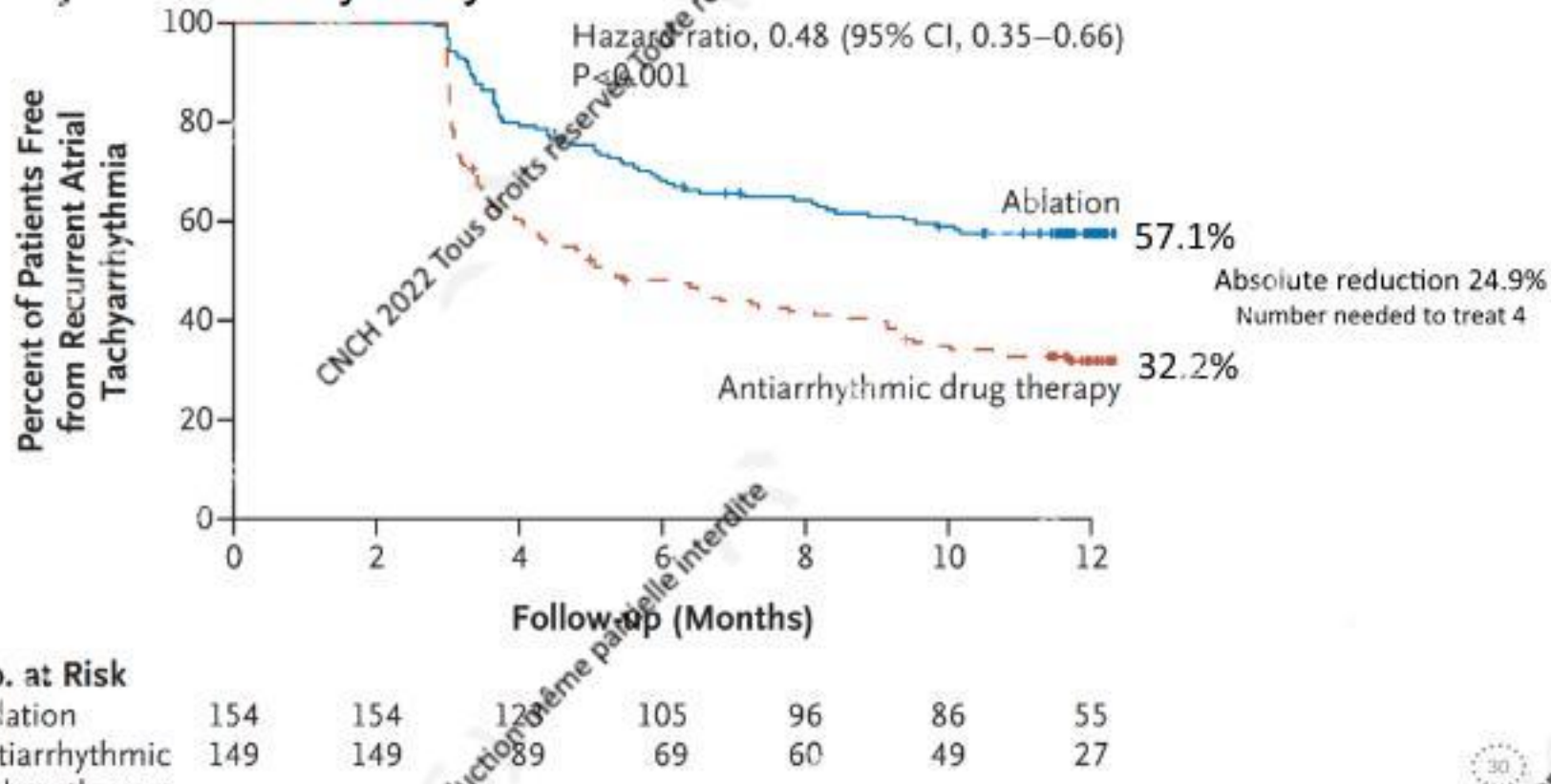
**Potential arrhythmia events detected by the device were stored for adjudication by an independent, blinded clinical end-point committee.

American Heart Association
Scientific Sessions

EARLY-AF

Primary Outcome

Freedom from *any* atrial tachyarrhythmia on continuous cardiac monitoring



American Heart Association
Scientific Sessions

EARLY-AF

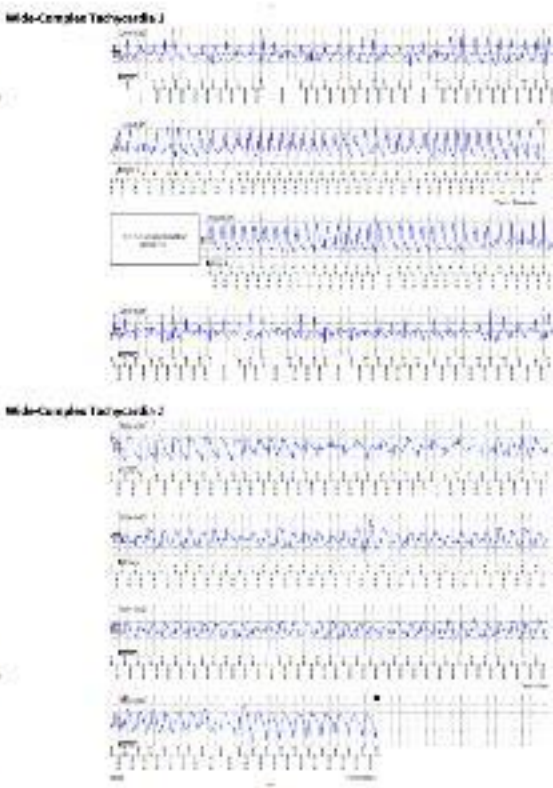
Adverse Events

Serious Adverse Events - HR 0.81 (0.25–2.59)

- **Ablation** – 5 (3.2%)
  - 3 phrenic nerve injuries
  - 2 pacemakers for bradycardia
- **Antiarrhythmic drugs** – 6 (4.0%)
  - 2 wide-complex tachycardia
  - 2 pacemakers for bradycardia
  - 1 heart failure
  - 1 syncope

Any Safety Endpoint - HR 0.59 (0.29–1.21)

- **Ablation** – 14 (9.1%)



American Heart Association Scientific Sessions

EARLY-AF

Conclusions

- First-line ablation was associated with significant reductions in arrhythmia outcomes:
  - Time to first recurrence of ***any*** AF/AFL/AT
  - Time to first recurrence of ***any*** AF
  - Time to first recurrence of ***symptomatic*** AF/AFL/AT
  - Time to first recurrence of ***symptomatic*** AF
  - Total AF burden
  - Days with AF

Continuous cardiac monitoring with implantable loop recorders

- First-line ablation was associated with meaningful improvements in quality of life and symptoms

- Adverse events were similar between contemporary cryoballoon ablation and AAD therapy

Revue 6 mois après ablation FA

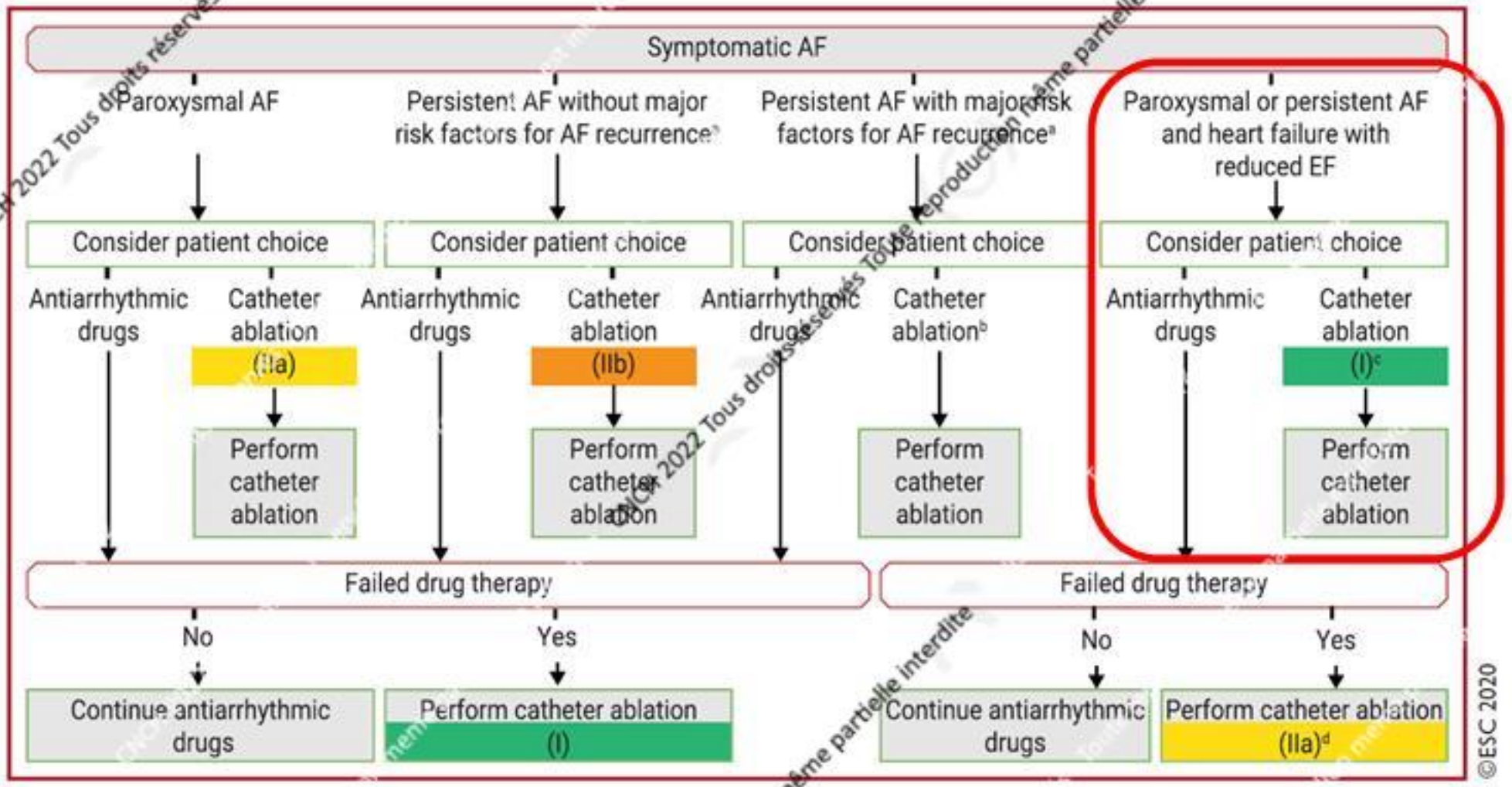
- Asymptomatique
- Pas de traitement
- ECG : RS
- Au sol et pas autorisée à voler…

Cas

- Patient de 40 ans
- Diabète de type 2
- Obésité BMI 42 kg/m2
- HTA traitée par ARA2 – amlodipine
- Hospitalisé pour OAP sous VNI
- FA 180 bpm
- FE 25%

Suite

- Coro Nle
- Ralentissement FA
- FE 45% sous traitement


Symptomatic AF
Paroxysmal AF
Persistent AF without major risk factors for AF recurrence
Persistent AF with major risk factors for AF recurrence[a]
Paroxysmal or persistent AF and heart failure with reduced EF
Consider patient choice
Consider patient choice
Consider patient choice
Consider patient choice
Antiarrhythmic drugs
Catheter ablation
(IIa)
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation
(IIb)
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation[b]
Perform catheter ablation
Antiarrhythmic drugs
Catheter ablation
(I)[c]
Perform catheter ablation
Failed drug therapy
Failed drug therapy
No
Yes
No
Yes
Continue antiarrhythmic drugs
Perform catheter ablation
(I)
Continue antiarrhythmic drugs
Perform catheter ablation
(IIa)[d]
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Recommendations for rhythm control/catheter ablation of AF (4)

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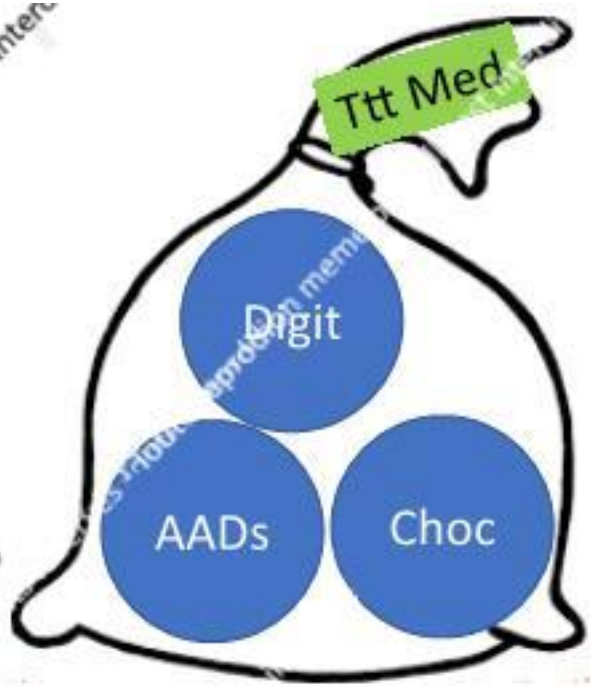
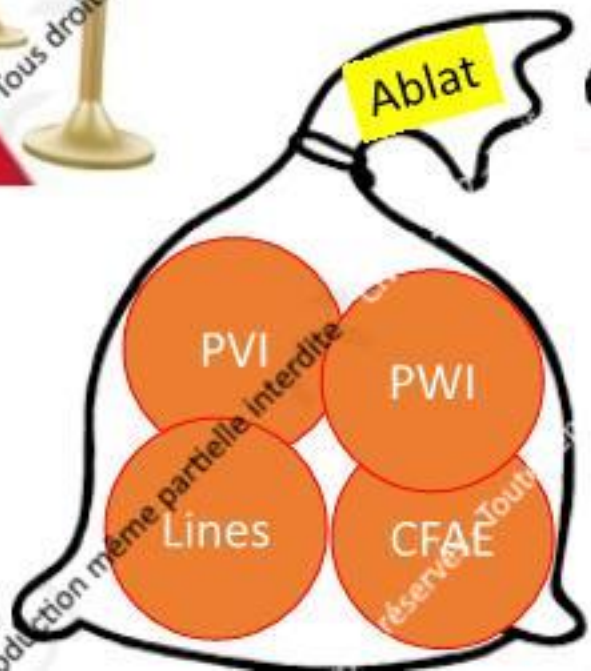
Recommendations	Class	Level
First-line therapy (continued)		
AF catheter ablation:		
• Is recommended to reverse LV dysfunction in AF patients when tachycardia-induced cardiomyopathy is highly probable, independent of their symptom status.	I	Change IIa
• Should be considered in selected AF patients with **HF with reduced LVEF to improve survival and reduce HF hospitalization**.	IIa	B
AF catheter ablation for **PVI** should be considered as a **strategy to avoid pacemaker** implantation in patients with **AF-related bradycardia or symptomatic pre-automaticity pause after AF conversion** considering the clinical situation.	IIa	C

Et CASTLE-AF arriva....





N Engl J Med 2018;378:417-27

Study Design— CASTLE AF

- **Essai thérapeutique contrôlé randomisé (31 sites, 9 pays),**

3013 pts

Eligibilité?

FA parox ou persist
FE<35%

21 pts exclus

200 pts

Random°

5 semaines

397 pts

197 pts

13 pts exclus

179 pts

Ablation
PVI+/-…

153 pts (26 cross overs)

Ttt Médical

184 pts

165 pts (18 crossovers)

suivi: 3, 6, 12, 24, 36, 48, 60 mois

Contrôle DAI/CRTD
Effet indesirables
ETT
6 minute walk test
Optimisation ttt IC
Telecardiologie:
(NYHA, Poids, TA, QoL Patients' diary)

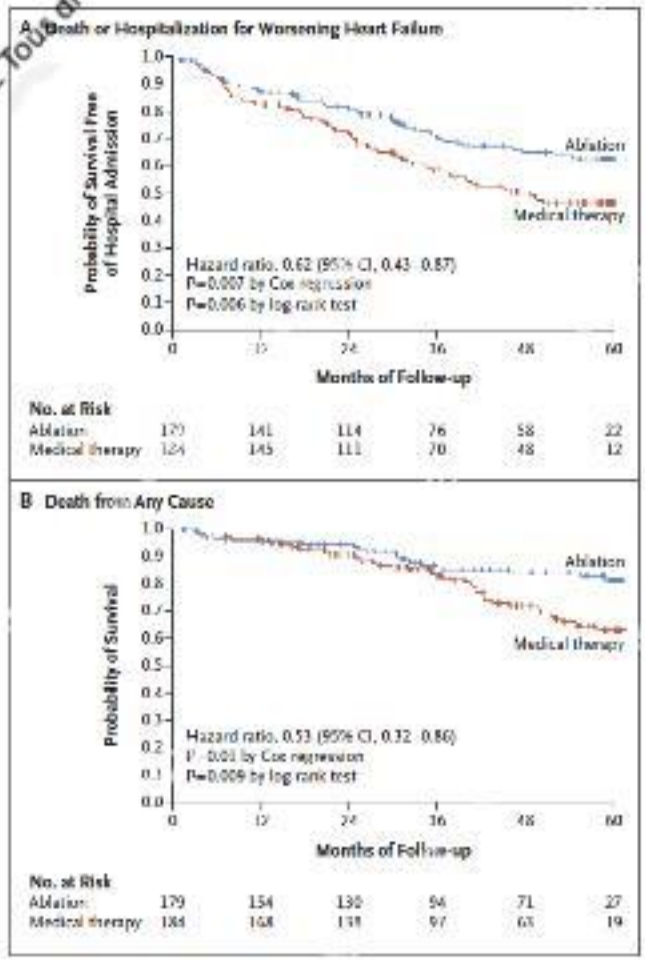
N Engl J Med 2018;378:417-27

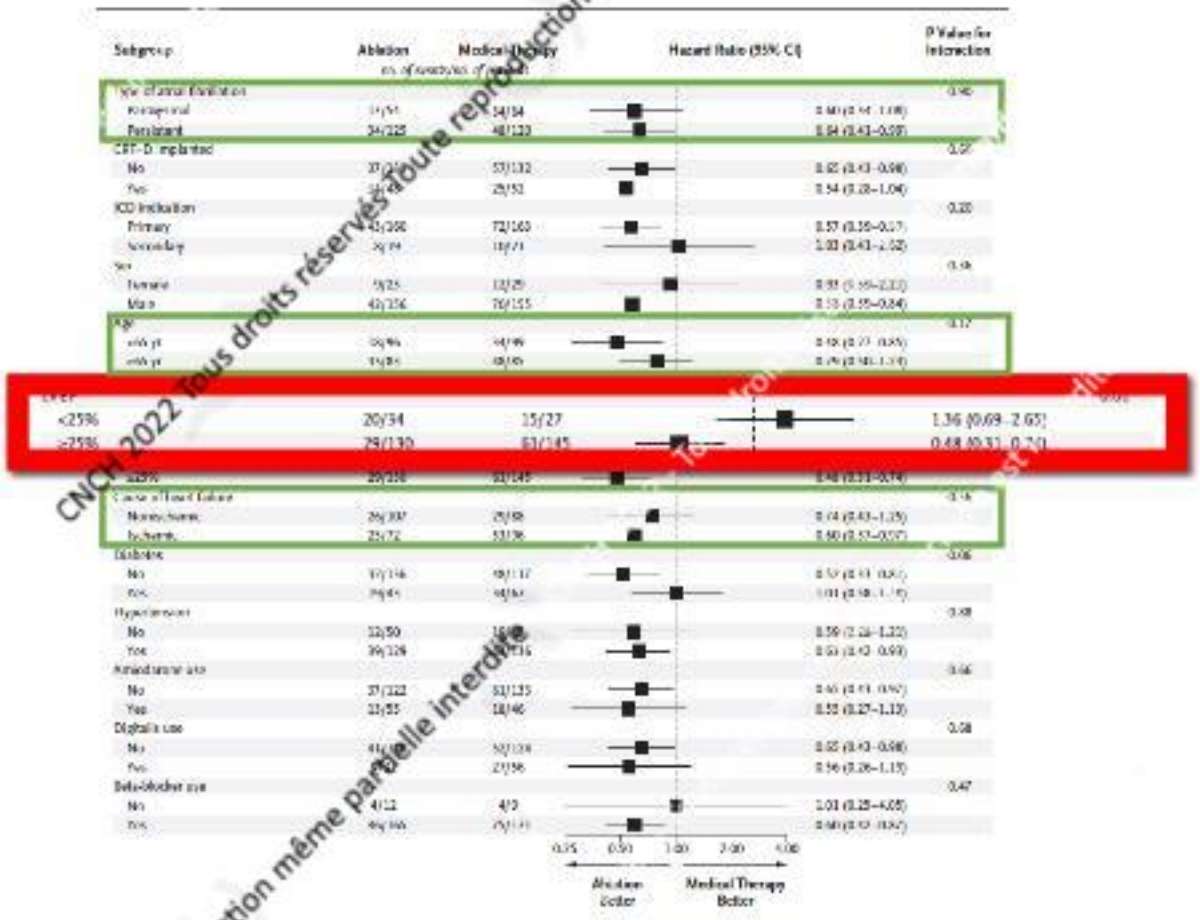
Patients CASTLE AF

	Ablation (179 patients)	Medical (184 patients)
Age – years	64 (56 71)	64 (56 73.5)
New York Heart Association class		
I (%)	11	11
II (%)	58	61
III (%)	29	27
IV (%)	2	1
Left ventricular ejection fraction – %	32.5 (25.0 38.0)	31.5 (27.0 37.0)
Left atrial diameter– mm	48	49.5
Current type of atrial fibrillation		
Paroxysmal (%)	**30**	**35**
Persistent (%)	**70**	**65**
Long standing Persistent (%)	**28**	**29**
CRT D implanted (%)	27	28

N Engl J Med 2018;378:417-27

Castle AF Résultats





N Engl J Med 2018;378:417-27

Cas

- Patient de 40 ans
- Diabète de type 2
- Obésité BMI 42 kg/m2
- HTA traitée par ARA2 – amlodipine
- Hospitalisé pour OAP sous VNI
- FA 180 bpm
- FE 25%

Après 2 ablations et une chirurgie de l'obésité:

RS

Ce n'est pas qu'une histoire de rythme

In addition to antiarrhythmic drug therapy and catheter ablation (see Chapter 11.3), management of concomitant cardiovascular conditions can reduce symptom burden in AF and facilitate the maintenance of sinus rhythm.[203,204,296,312] This includes weight reduction, blood pressure control, heart failure treatment, increasing cardiorespiratory fitness, and other measures (see Chapter 7).

Cas

- Patient de 40 ans
- Obésité BMI 40 kg/m2
- HTA traitée par ARA2 – amlodipine
- Hospitalisé pour OAP sous VNI
- FA 180 bpm
- FE 30%

Résultat après ablation ??

Weight reduction in patients with atrial fibrillation

Recommendations	Class	Level
In obese patients with AF, weight loss together with management of other risk factors should be considered to reduce AF burden and symptoms.	IIa	B

European Heart Journal - doi:10.1093/eurheartj/ehw210

Management of respiratory diseases in patients with atrial fibrillation

Recommendations	Class	Level
Correction of hypoxaemia and acidosis should be considered as initial management for patients who develop AF during an acute pulmonary illness or exacerbation of chronic pulmonary disease.	IIa	C
Interrogation for clinical signs of obstructive sleep apnoea should be considered in all AF patients.	IIa	B
Obstructive sleep apnoea treatment should be optimized to reduce AF recurrences and improve AF treatment results.	IIa	B

European Heart Journal - doi:10.1093/eurheartj/ehw210

A qui proposer l'ablation de FA ?

Quels patients ne pas proposer en ablation ?

- Asymptomatiques.
- Trop âgés (ou mauvais état général).
- Trop de comorbidités.
- Cardiopathie sous-jacente (Valvulopathie +++)
- OG trop dilatée
- Fibrose OG

- FA persistante « très » prolongée

Ablation de FA

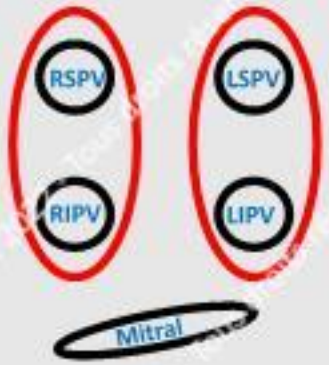
Comment je fais en pratique ?

Groupement Hospitalier de Territoire

Grand Paris Nord-Est

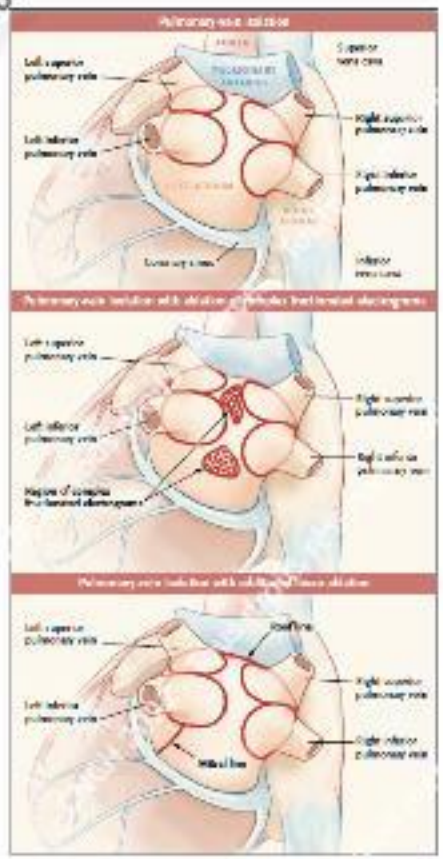
Aulnay-sous-Bois - Le Raincy-Montfermeil - Montreuil

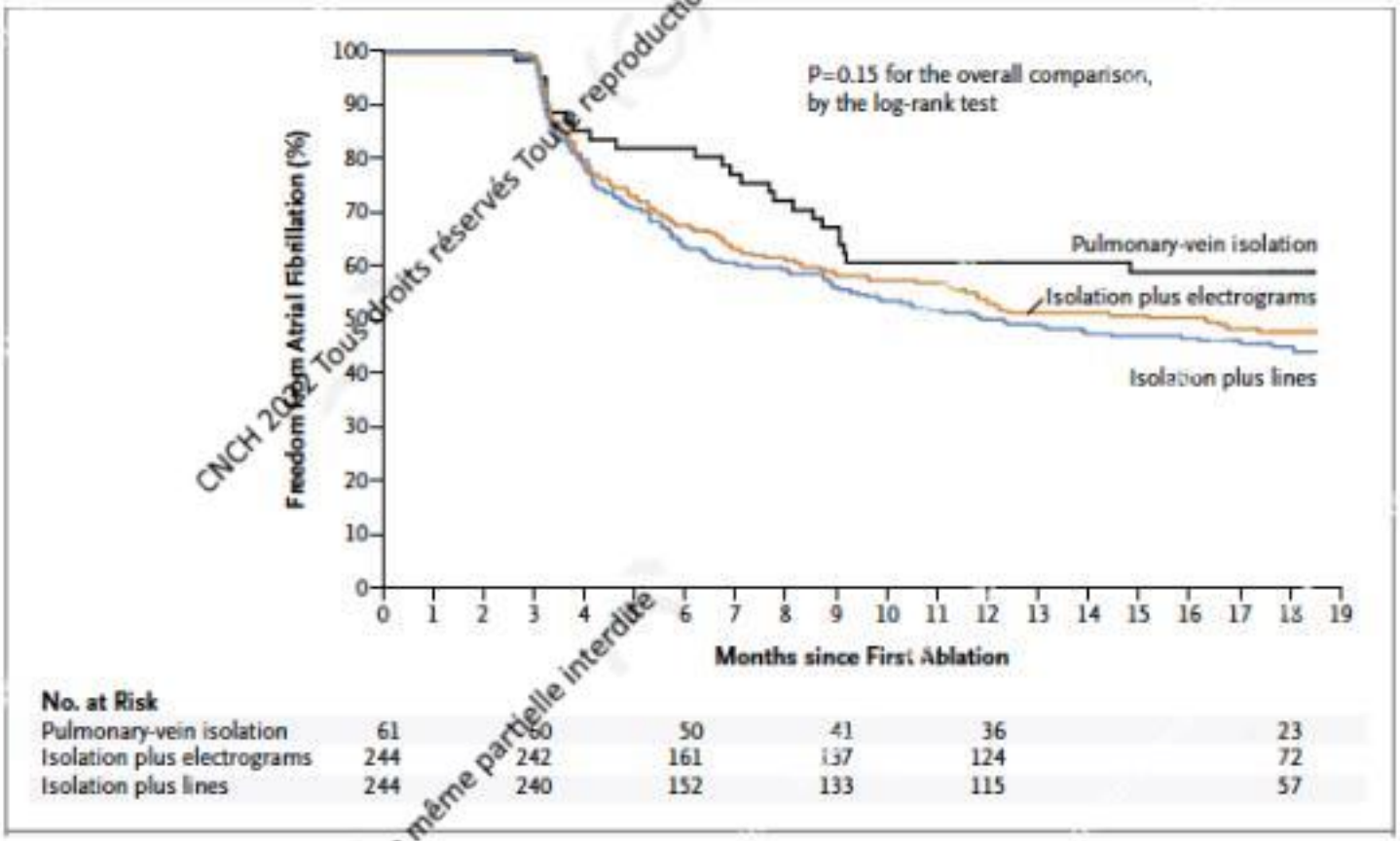
Comment ablater la FA persistante?

PAF	(LS)PsAF		
PVI	Lines	CFA	BIFA
			
AntalPV Block	AF Conversion? SR?		

Interresting but non reproducible

Et si isoler les veines pulmonaires suffisait





N Engl J Med 2015;372:1812-22

Techniques

Technique	Class-LOE
Isolation VP	I-A
Lignes	**IIb-C**
Isolation du mur posterieur	**IIb-C**
Domain Frequency Ablation	IIb-C
Ablation BIFA	IIb-B
Ablation CFAEs	IIb-B
Ablation de rotors	IIb-B
Ablation ganglions	IIb-B

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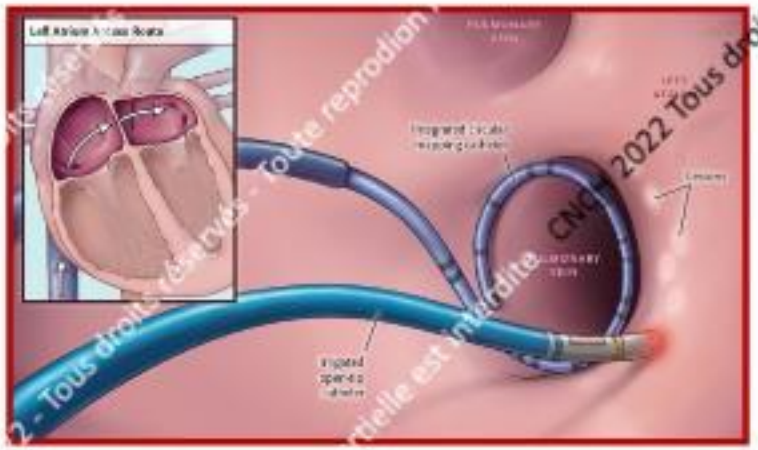
FIRE AND ICE

AF Clinical Trial

- **RFC Ablation ("FIRE")**
  - Power was not to exceed
    - 40 W at A/I aspect
    - 30 W at P/S aspect
  - 3D electroanatomical mapping



- **Cryoballoon Ablation ("ICE")**
  - Max. freeze duration of 240s recommended
  - Bonus freeze after isolation recommended
  - Phrenic nerve pacing required