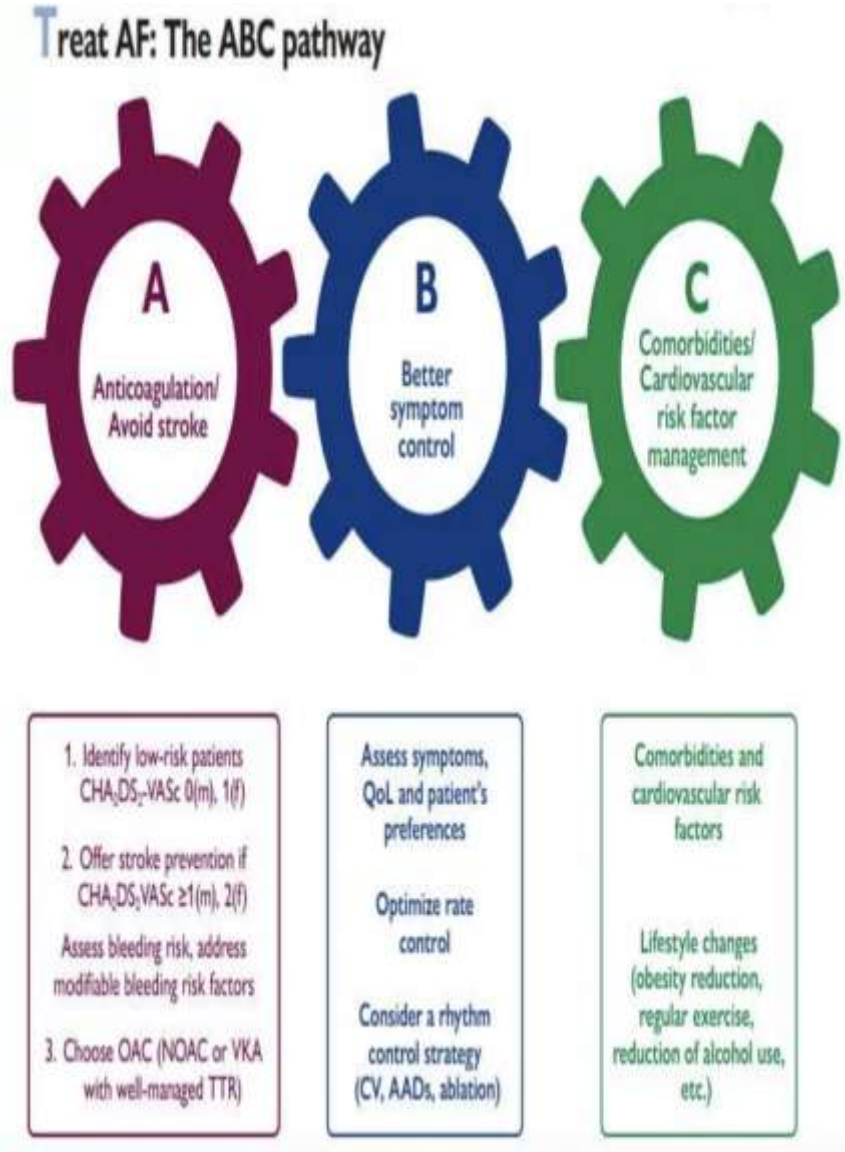
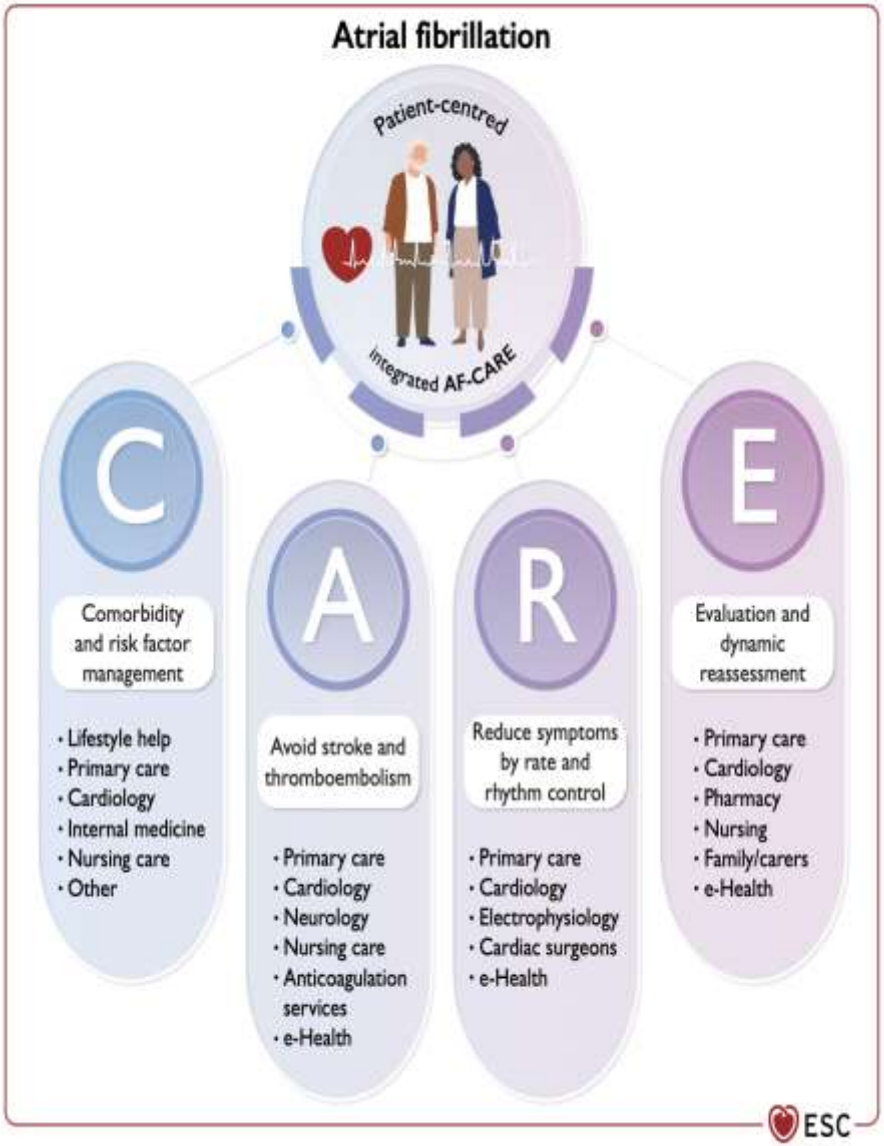
New 2024 Atrial Fibrillation Guidelines and New Devices in Interventional Treatment of AF

Mirza Mutallimov

Department of Cardiology, Klinikum Idar-Oberstein and University of the Saarland, Germany

There are no conflicts of interest to disclose.





European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

Equality in healthcare provision (gender, ethnicity, socioeconomic) (Class I)

Education for patients, families and healthcare professionals (Class I)

Patient-centred AF management with a multidisciplinary approach (Class IIa)

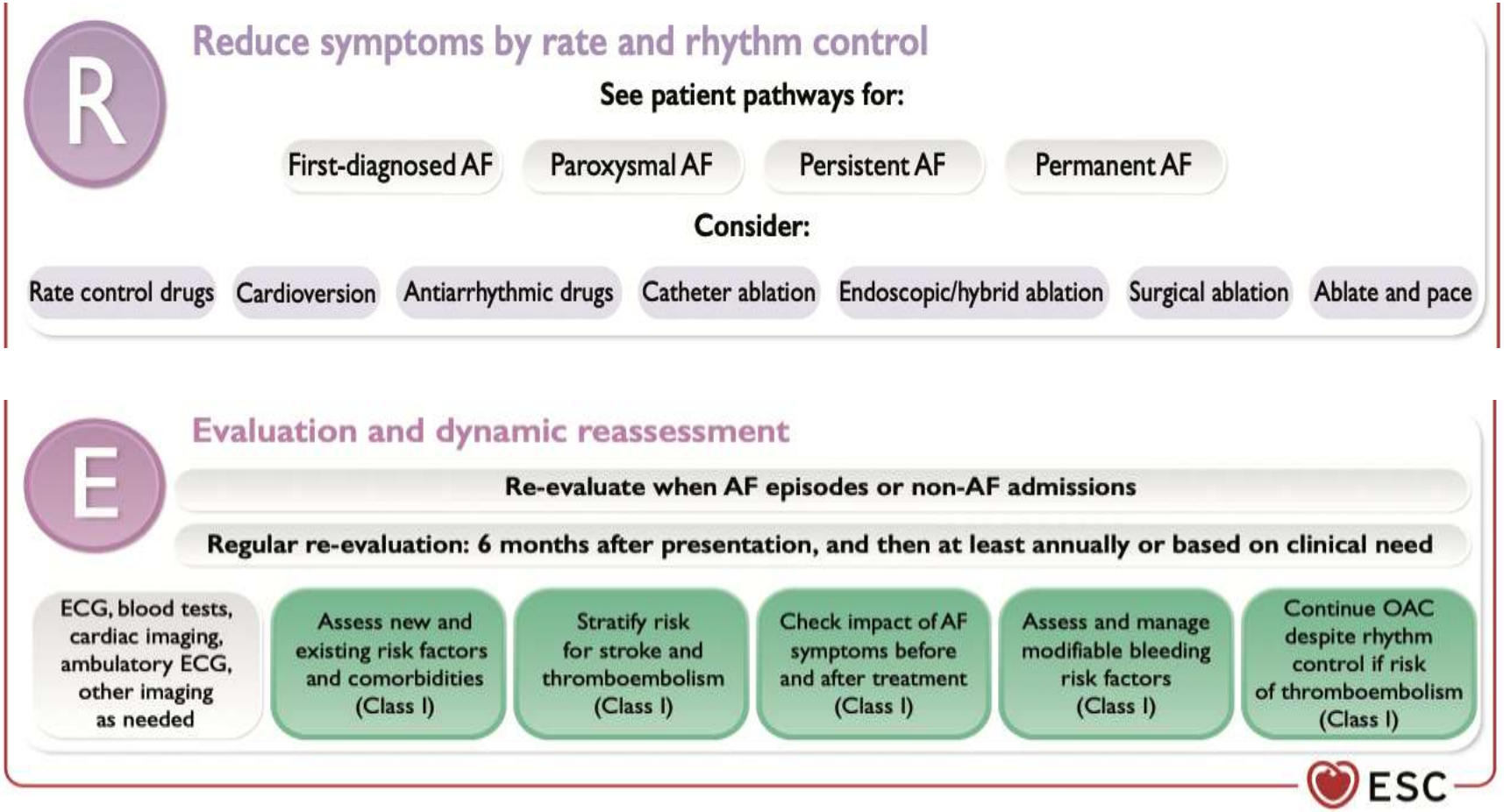
C Comorbidity and risk factor management

Hypertension	Heart failure	Overweight or obese	Obstructive sleep apnoea	Alcohol
Blood pressure lowering treatment (Class I)	Diuretics for congestion (Class I)	Weight loss (target 10%)[a] (Class I)	Management of OSA[a] (Class IIb)	Reduce to ≤3 drinks per week (Class I)
	Appropriate HFrEF medical therapy (Class I)	Bariatric surgery if rhythm control[a] (Class IIb)		
Diabetes mellitus			**Exercise capacity**	**Other risk factors/ comorbidities**
Effective glycaemic control[a] (Class I)	SGLT2 inhibitors (Class I)		Tailored exercise programme (Class I)	Identify and manage aggressively[a] (Class I)

A Avoid stroke and thromboembolism

Risk of thrombo-embolism	→ Use locally-validated risk score or CHA_2DS_2-VA	→ Choice of anticoagulant	→ Assess bleeding risk	→ Prevent bleeding
Start oral anticoagulation (Class I)	OAC if CHA_2DS_2-VA score = 2 or more (Class I)	Use DOAC, except mechanical valve or mitral stenosis (Class I)	Assess and manage all modifiable risk factors for bleeding (Class I)	Do not combine antiplatelets and OAC for stroke prevention (Class III)
Temporal pattern of AF not relevant (Class III)	OAC if CHA_2DS_2-VA score = 1 (Class IIa)	If VKA: Target INR 2.0–3.0; (Class I) >70% INR range; (Class IIa) or switch to DOAC (Class I)	Do not use risk scores to withhold anticoagulation (Class III)	Avoid antiplatelets beyond 12 months in OAC treated CCS/PVD (Class III)
Antiplatelet therapy not an alternative (Class III)				

European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176



European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

Diagnostic criteria for AF

Recommendations in 2020 version	Class[a]	Level[b]	Recommendations in 2024 version	Class[a]	Level[b]
ECG documentation is required to establish the diagnosis of AF. A standard 12-lead ECG recording or a single-lead ECG tracing of ≥30 s showing heart rhythm with no discernible repeating P waves and irregular RR intervals (when atrioventricular conduction is not impaired) is diagnostic of clinical AF.	I	B	Confirmation by an electrocardiogram (12-lead, multiple, or single leads) is recommended to establish the diagnosis of clinical AF and commence risk stratification and treatment.	I	A

European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

Comorbidity and risk factor management

Recommendations in 2020 version	Class[a]	Level[b]	Recommendations in 2024 version	Class[a]	Level[b]
Attention to good BP control is recommended in AF patients with hypertension to reduce AF recurrences and risk of stroke and bleeding.	I	B	Blood pressure lowering treatment is recommended in patients with AF and hypertension to reduce recurrence and progression of AF and prevent adverse cardiovascular events.	I	B
In obese patients with AF, weight loss together with management of other risk factors should be considered to reduce AF incidence, AF progression, AF recurrences, and symptoms.	IIa	B	Weight loss is recommended as part of comprehensive risk factor management in overweight and obese individuals with AF to reduce symptoms and AF burden, with a target of 10% or more reduction in body weight.	I	B
Physical activity should be considered to help prevent AF incidence or recurrence, with the exception of excessive endurance exercise, which may promote AF.	IIa	C	A tailored exercise programme is recommended in individuals with paroxysmal or persistent AF to improve cardiorespiratory fitness and reduce AF recurrence.	I	B
Advice and management to avoid alcohol excess should be considered for AF prevention and in AF patients considered for OAC therapy.	IIa	B	Reducing alcohol consumption to ≤3 standard drinks (≤30 grams of alcohol) per week is recommended as part of comprehensive risk factor management to reduce AF recurrence.	I	B

European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

Surgical left atrial appendage occlusion

Recommendations in 2020 version	Class[a]	Level[b]	Recommendations in 2024 version	Class[a]	Level[b]
Surgical occlusion or exclusion of the LAA may be considered for stroke prevention in patients with AF undergoing cardiac surgery.	IIb	C	Surgical closure of the left atrial appendage is recommended as an adjunct to oral anticoagulation in patients with AF undergoing cardiac surgery to prevent ischaemic stroke and thromboembolism.	I	B

European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

Rhythm control strategies in patients with AF

Recommendations in 2020 version	Class[a]	Level[b]	Recommendations in 2024 version	Class[a]	Level[b]
***Section 7.2*—Rhythm control strategies in patients with AF**					
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.	IIa	B	Catheter ablation is recommended as a first-line option within a shared decision-making rhythm control strategy in patients with paroxysmal AF, to reduce symptoms, recurrence, and progression of AF.	I	A

European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

TABLE 1 Study Design of Trials Using Rhythm- and Rate-Control Strategies in Treatment of AF

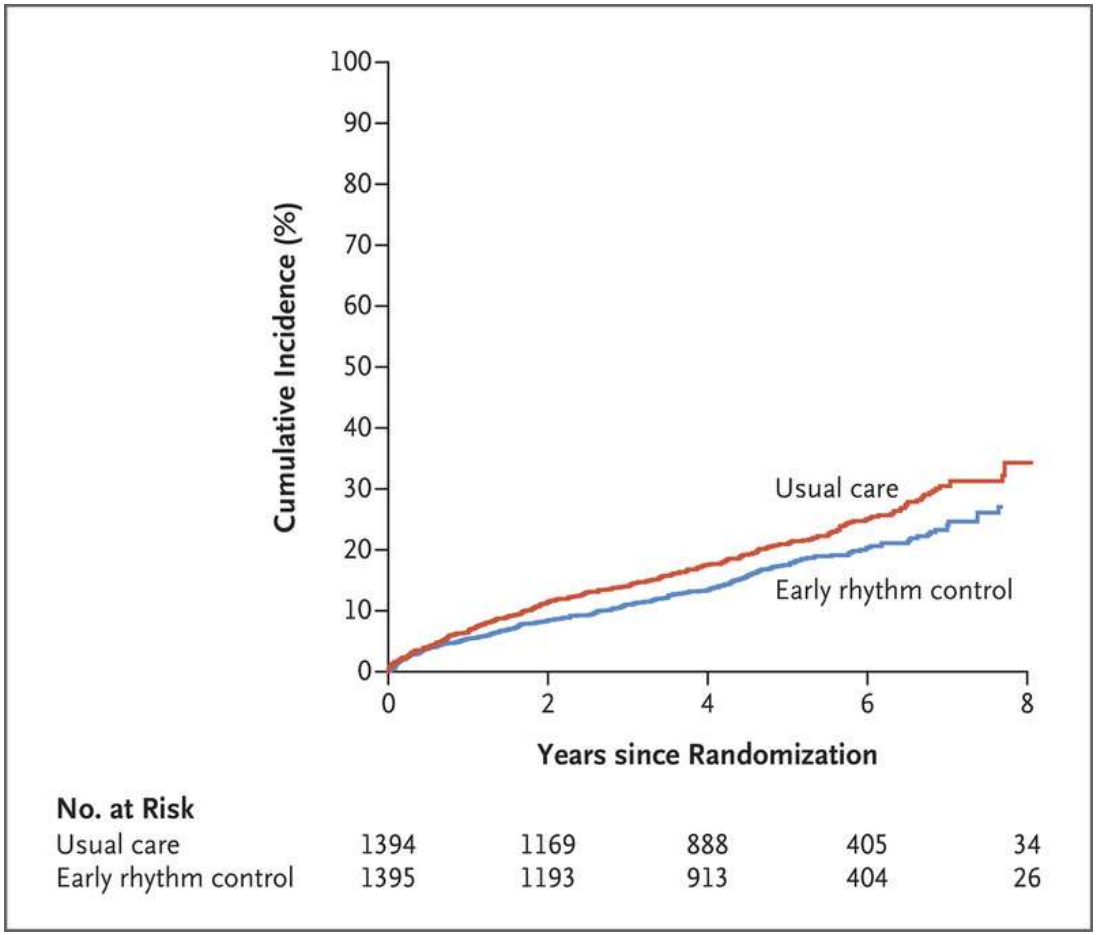
Trial[a]	N	Follow-Up	AF Classification	Rhythm-Control Strategy[b]	Rate-Control Strategy	Anticoagulation
PIAF[17]	252	1 y	Persistent AF	Amiodarone for 3 wks, cardioversion thereafter if needed. Amiodarone for maintenance. For recurrences, therapy as needed at physician's discretion.	Diltiazem. Additional therapy as needed at physician's discretion.	All patients
AFFIRM[18]	4,060	Mean: 3.5 y; maximum: 6 y	Recurrent non-permanent AF	At physician's discretion: amiodarone (62.8% used at any time), disopyramide (4.3%), flecainide (8.3%), moricizine (1.7), procainamide (8.5%), propafenone (14.5%), quinidine (7.4%), sotalol (41.4%) and combinations of these. Dofetilide could be used once available (0.6%).	At physician's discretion: beta-blockers, calcium-channel blockers (verapamil and diltiazem), digoxin, or combinations of these.	Continuous OAC encouraged in the rhythm-control group, but could be stopped at physician's discretion.[c]
RACE[19]	522	Mean: 2.3 y	Persistent AF or AFL	Electrical cardioversion then AAD therapy with sotalol. Amiodarone, flecainide, and propafenone used for recurrences.	Digitalis, a nondihydropyridine calcium-channel blocker, or a beta-blocker, alone or in combination.	OAC for 4 wks before and 4 wks after cardioversion. OAC could be stopped at 1 mo.[d]
STAF[147]	200	36 mo	Persistent AF	Internal or external cardioversion, with repeated cardioversions for AF recurrence. For prophylaxis of AF recurrence: class I AADs or sotalol[e], or beta-blocker and/or amiodarone.[f]	Beta-blockers, digitalis, calcium antagonists, or AV-nodal ablation/modification with/without a pacemaker.	All patients
AF-CHF[20]	1,376	Mean: 37 mo; maximum 74 mo	History of AF with ECG documentation[g]	Aggressive therapy with AADs and electrical cardioversion within 6 wks of randomization if sinus rhythm not attained. Repeat cardioversions for AF recurrence. Amiodarone for maintenance and sotalol or dofetilide if required. Amiodarone (82%), dofetilide (<1%), and sotalol (2%).	Adjusted doses of beta-blockers with digitalis. AV-nodal ablation with pacemaker recommended if target heart rate not met.	All patients
J-RHYTHM[22]	885	Mean: 578 d	Paroxysmal AF	AADs according to contemporaneous Japanese guidelines.[148] Amiodarone (0.5%), aprindine (7.2%), bepridil (6.7%), cibenzoline (20.8%), disopyramide (8.8%), flecainide (8.1%), pilsicainide (32.5%), pirmenol (1.0%), and propafenone (11.7%).	Beta-blockers, calcium-channel blockers, or digitalis.	All patients[h]

[a]Traditional rhythm vs rate trials. [b]Percentages of patients receiving AADs provided where available and when more than one drug was used in the study. [c]If SR maintained for ≥4, and preferably 12, consecutive weeks with AAD therapy. [d]If SR present at 1 month, OAC could be stopped or changed to aspirin. [e]In the absence of coronary heart disease and in patients with normal LV function. [f]In patients with coronary heart disease or impaired LV function. [g]Defined as 1 episode lasting for ≥6 h or requiring cardioversion within the previous 6 mo or an episode lasting for ≥10 min within the previous 6 mo and previous electrical cardioversion for AF. [h]According to a protocol modified from that used in AFFIRM.

AAD — antiarrhythmic drug; AF — atrial fibrillation; AF-CHF — Atrial Fibrillation and Congestive Heart Failure; AFFIRM — Atrial Fibrillation Follow-up Investigation of Rhythm Management; AFL — atrial flutter; AV — atrioventricular; ECG — electrocardiogram; J-RHYTHM — Japanese Rhythm Management Trial for Atrial Fibrillation; LV — left ventricular; OAC — oral anticoagulation; PIAF — Pharmacological Intervention in Atrial Fibrillation; RACE — Rate Control Versus Electrical Cardioversion for Persistent Atrial Fibrillation; SR — sinus rhythm; STAF — Strategies of Treatment of Atrial Fibrillation.

Kirchhof P, et al. Early rhythm-control therapy in patients with atrial fibrillation. New England Journal of Medicine. 2020;383(14):1305-16.

EAST AF4: Primary Endpoint



n= 2789 patients

mean FU 5,1 years/patient

21% risk reduction for the primary endpoint(CV death, stroke,hospitalization for heart failure or ACS)

Kirchhof P, et al. Early rhythm-control therapy in patients with atrial fibrillation. New England Journal of Medicine. 2020;383(14):1305-16.

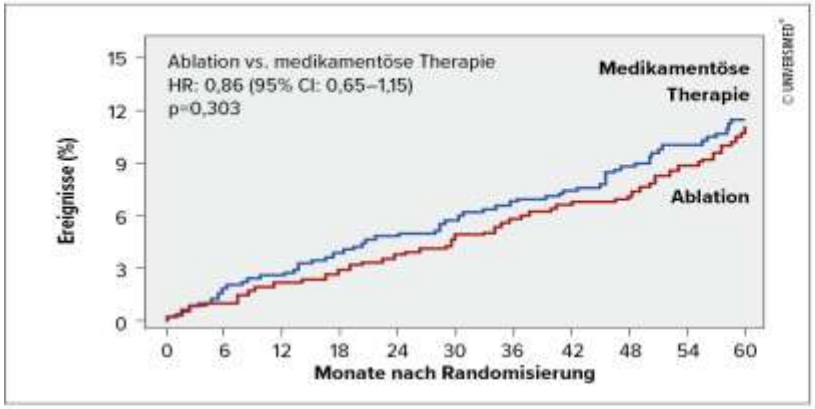


Abb. 1: CABANA-Studie: primärer Endpunkt (ITT): Gesamtmortalität, Schlaganfall, schwere Blutungen oder Herzstillstand

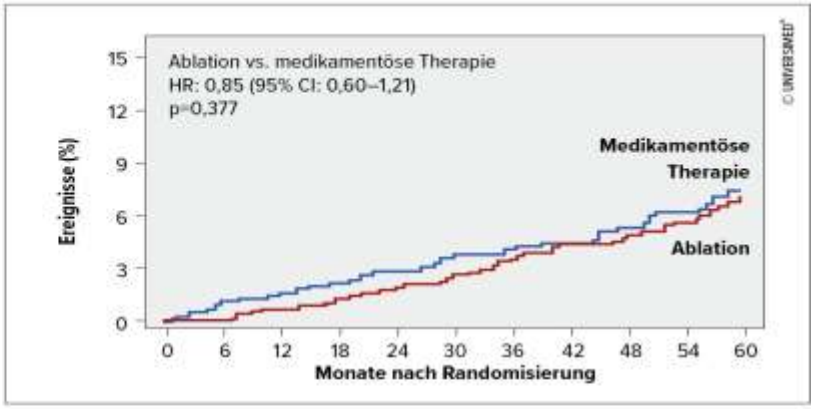


Abb. 2: CABANA-Studie: primärer Endpunkt (ITT): Gesamtmortalität

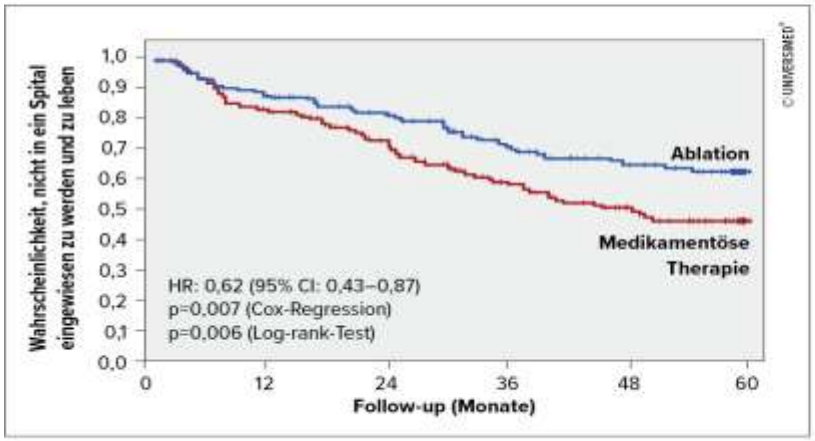


Abb. 3: CASTLE-AF-Studie: Tod oder Hospitalisierung aufgrund von HI

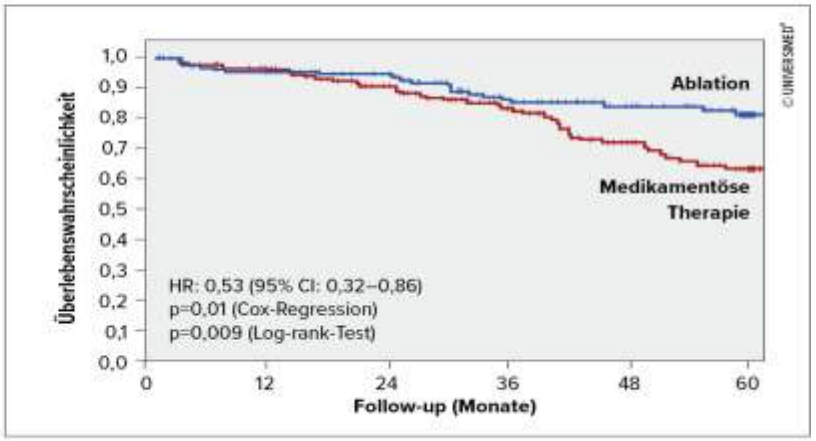
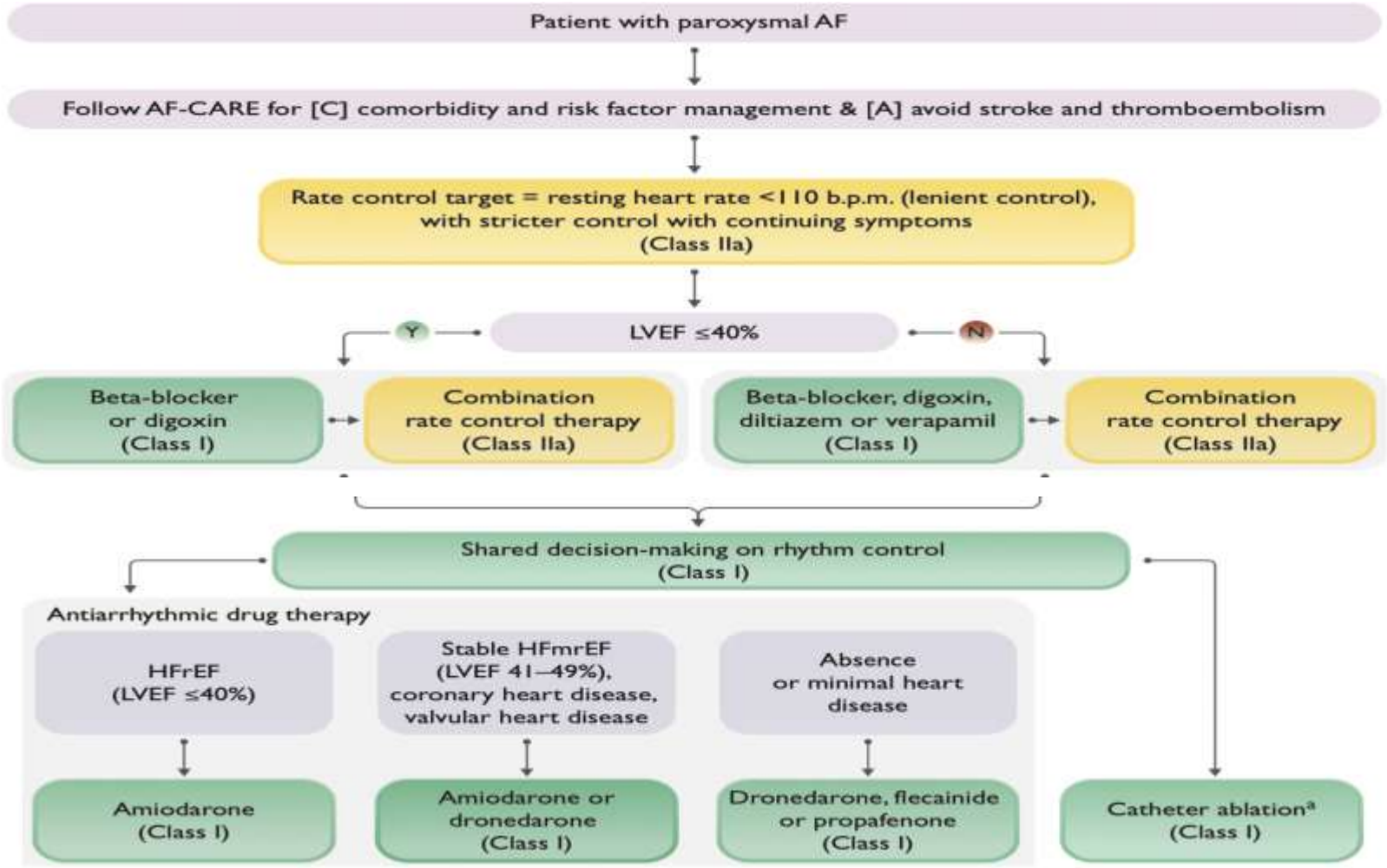


Abb. 4: CASTLE-AF-Studie: Gesamtmortalität

Castle-AF and CABANA-Studie

Kirchhof P, et al. Early rhythm-control therapy in patients with atrial fibrillation. New England Journal of Medicine. 2020;383(14):1305-16.

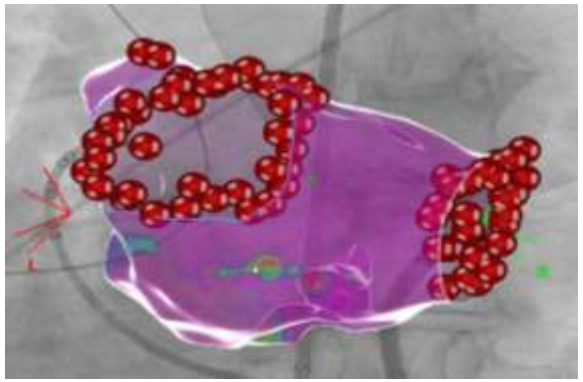
Rhythm control strategies in patients with AF

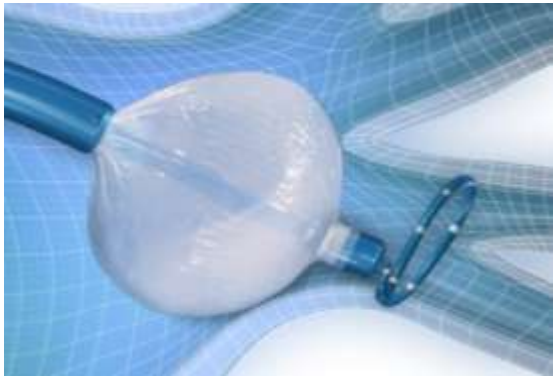


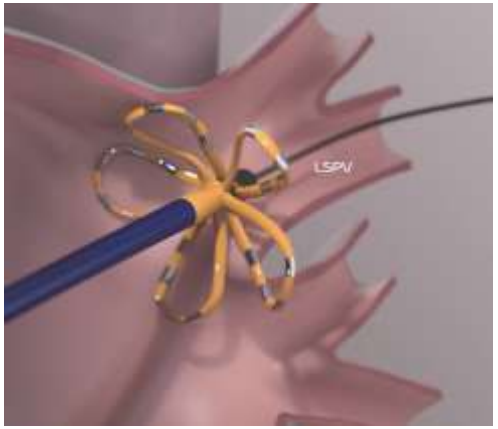
European Heart Journal, Volume 45, Issue 36, 21 September 2024, Pages 3314–3414, https://doi.org/10.1093/eurheartj/ehae176

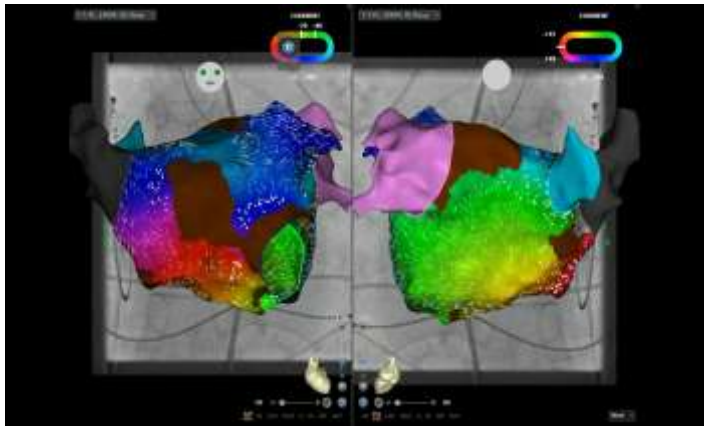
Ablation of Atrial Fibrillation 2024

- **Novel Energy:** Cryo, RF, Laser, PFA
- **Single Shot Devices**
- **High-Density Mapping**
- **Procedure Time:** 30–40 minutes
- **1-Year Success:** 80–90% SR





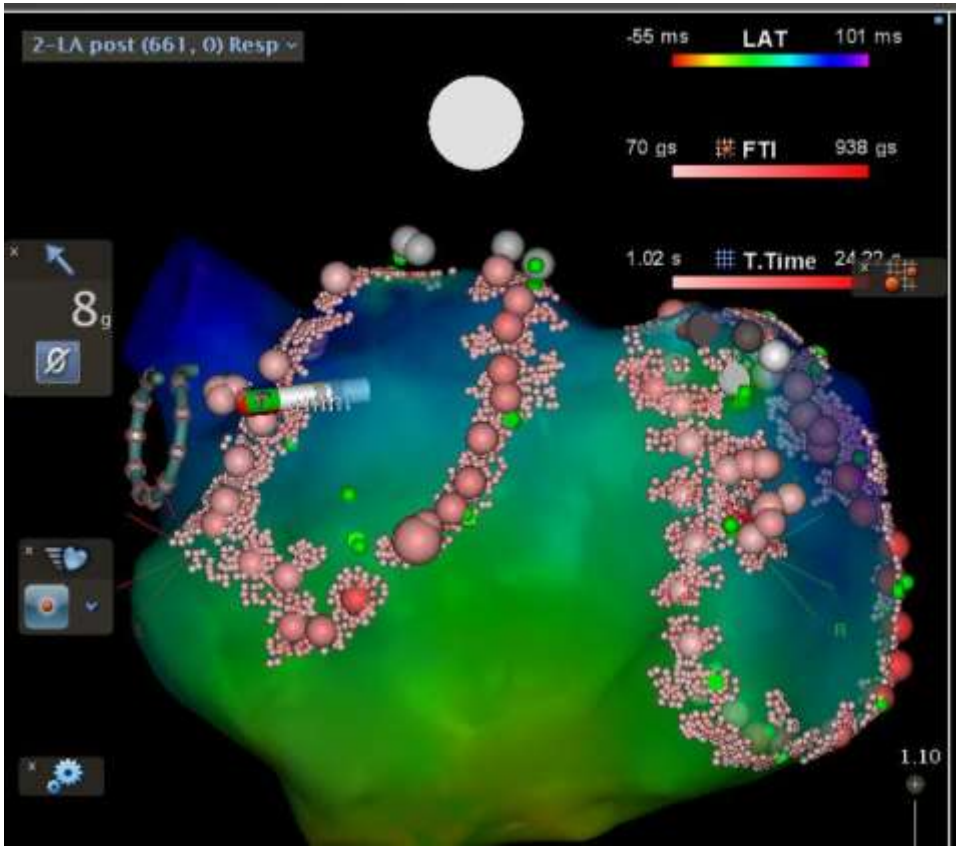




PVI with point-by-point 3D-Mapping and RF Ablation

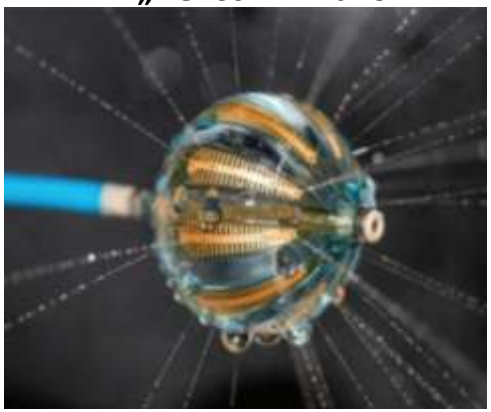
Limitations:

- Complex procedure
- Long learning curve
- Point-by-point approach – no continuous lesion formation

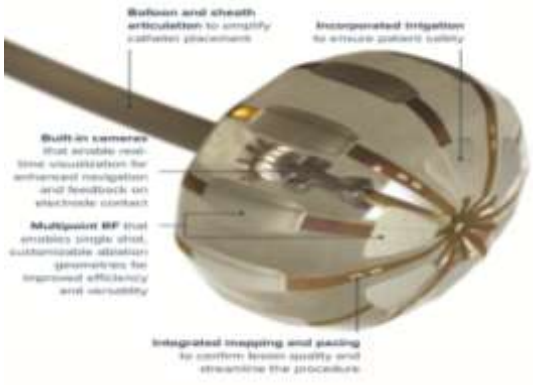


Latest balloon based ablation systems

„Helios“ RF Ballon

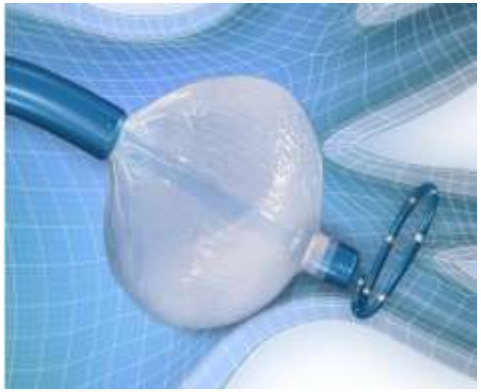


„Luminize“ RF Ballon



„Globe“ RF Ballon

„Arctic front advanced Pro“

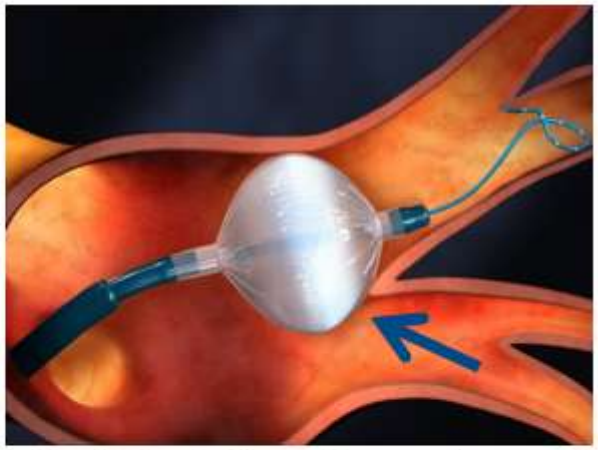


„PolarX“

„X3“ Laser Ballon

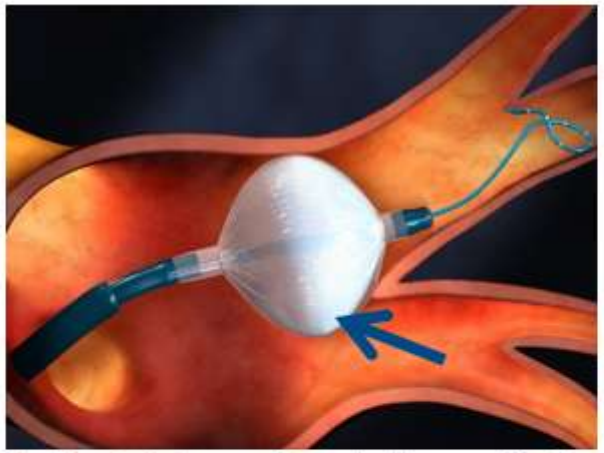
EVENCOOL™ CRYO TECHNOLOGY DESIGNED TO ABLATE A BROADER RANGE OF PULMONARY VEIN ANATOMIES

Arctic Front Cryoballoon



In Arctic Front Cryoballoon, the most concentrated cooling zone occurs near the equator of the balloon. Aligning the balloon coaxially with the PV may be an important factor, but may be difficult in some vein anatomies.

Arctic Front Advance Cryoballoon



Arctic Front Advance Cryoballoon with EvenCool Cryo Technology is designed to allow more flexibility in balloon positioning to ablate the PVs.

HOW ARCTIC FRONT ADVANCE CRYOBALLOON
AND ACHIEVE MAPPING CATHETER WORK

1. Access targeted vein

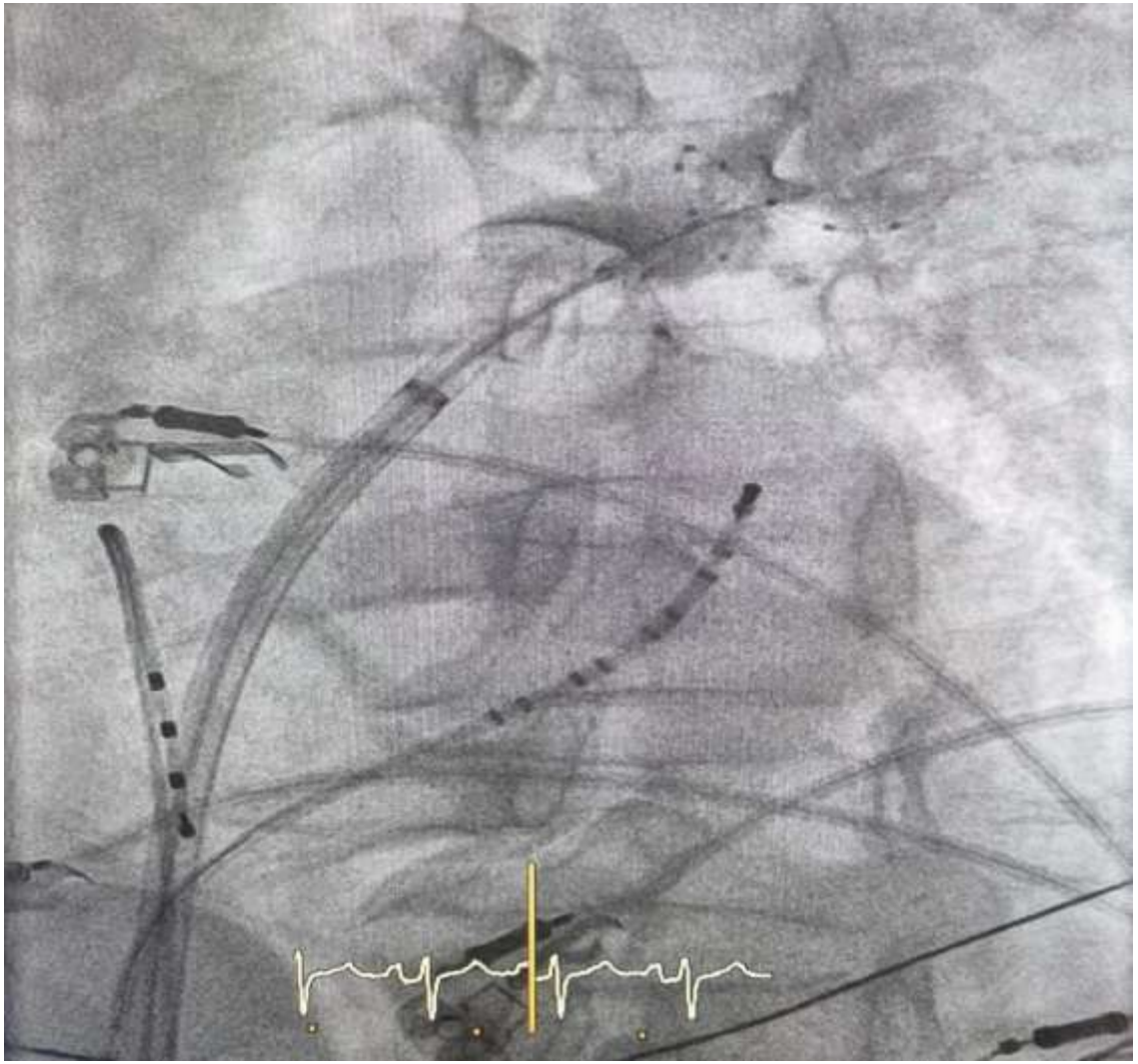
2. Inflate and position

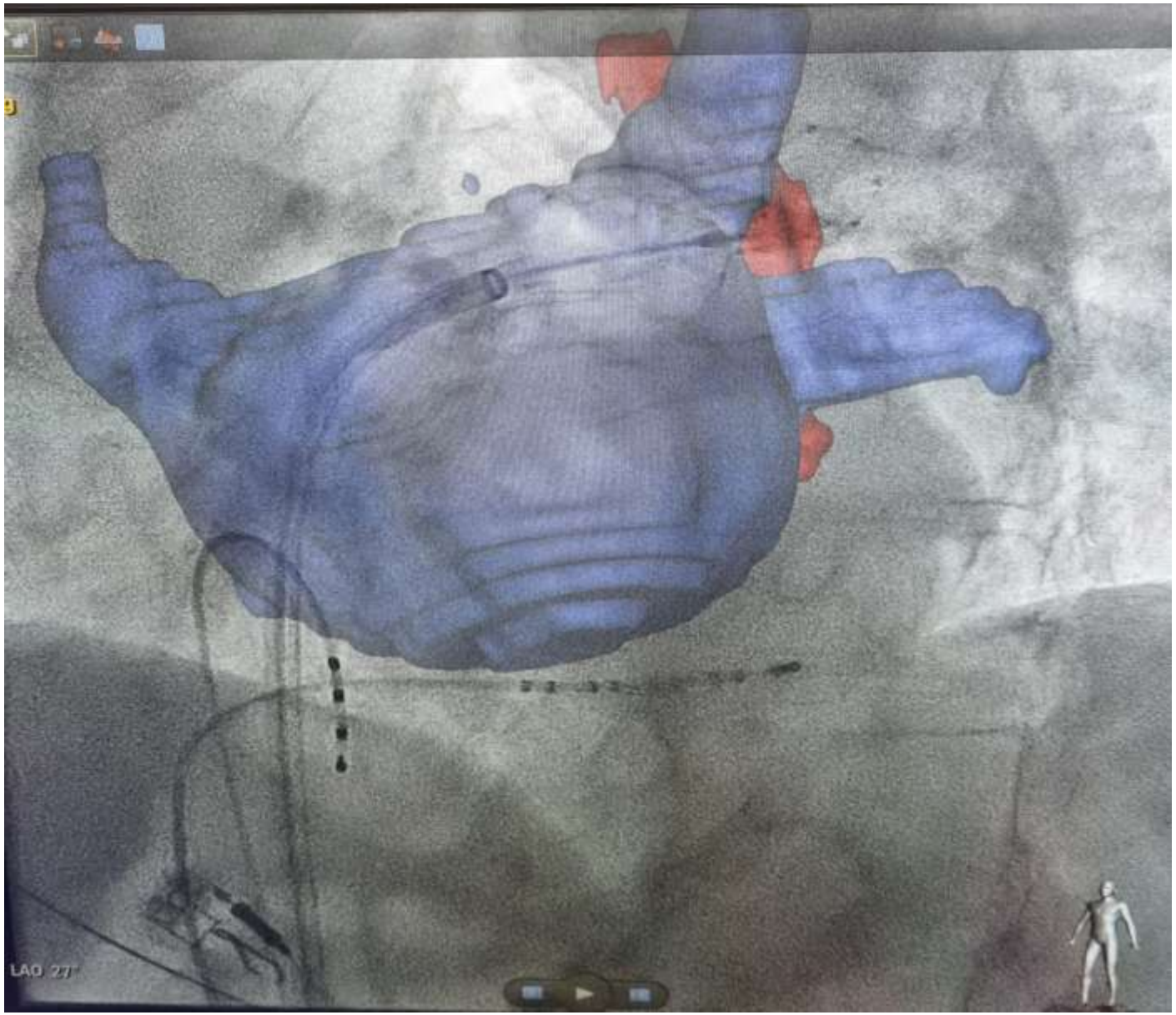
3. Occlude and ablate

4. Assess PVI


Interventionelle Werkzeuge
EP niedrig
Normal
57
98
143/ 68
00:00:00
00:00:00
PHILIPS

HALYARD
Drape, BASICS
Femoral Angiography
CAMMEX
Latex Powder-Free




LAO 27°

Complications of AFib ablation:

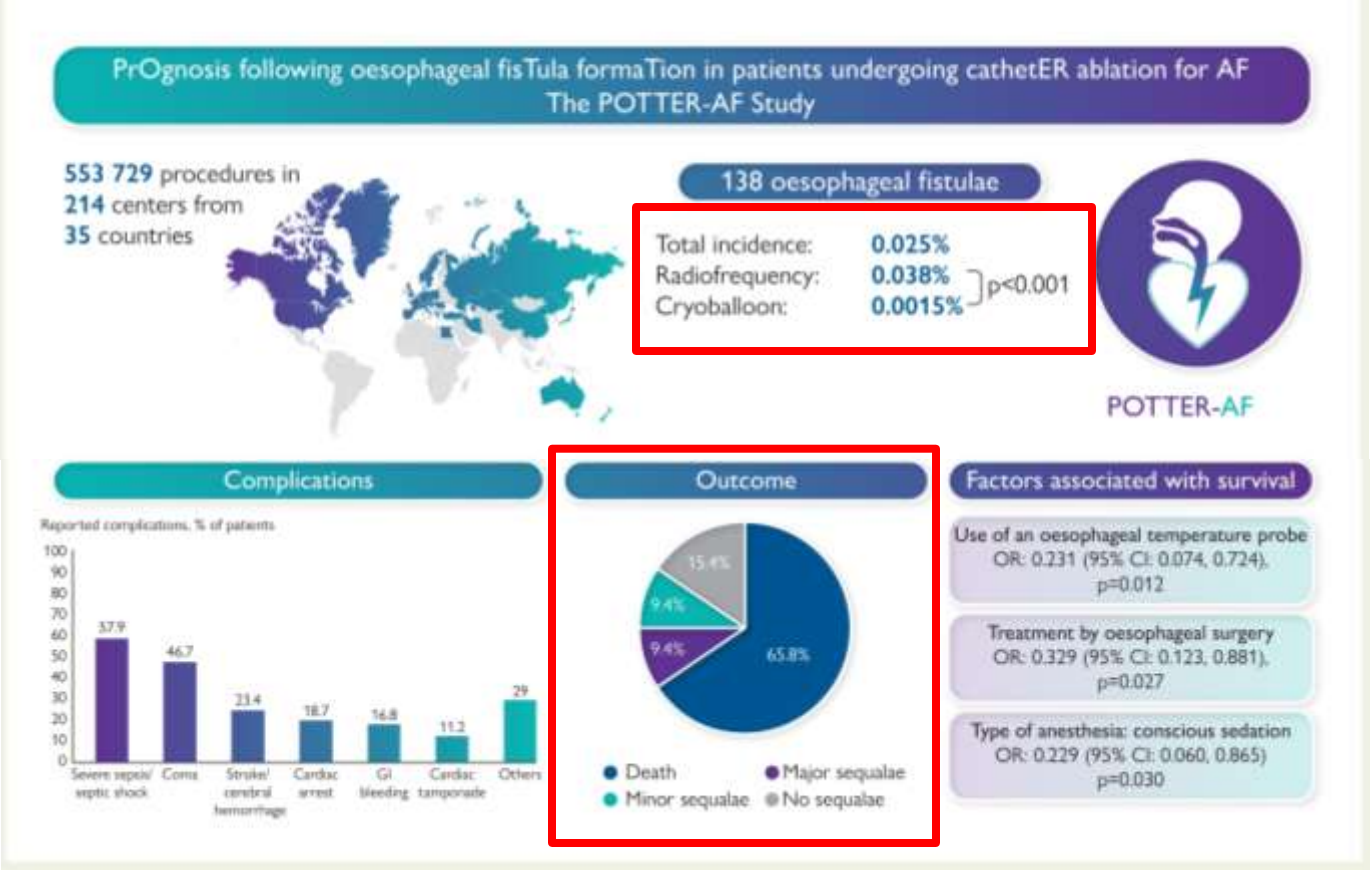
Table 16 Procedure-related complications in catheter ablation and thoracoscopic ablation of AF[771]

Complication severity	Complication type	Complication rate	
		Catheter ablation	Thoracoscopic ablation
Life-threatening complications	Periprocedural death	<0.1%	<0.1%
	Oesophageal perforation/fistula	<0.5%	N/A
	Periprocedural thromboembolic event	<1.0%	<1.5%
	Cardiac tamponade	≈1%	<1.0%
Severe complications	Pulmonary vein stenosis	<1.0%	N/A
	Persistent phrenic nerve palsy	<1.0%	N/A
	Vascular complications	2-4%	N/A
	Conversion to sternotomy	N/A	<1.7%
	Pneumothorax	N/A	<6.5%
Moderate or minor complications	Various	1 - 2%	1 - 3%
Complications of unknown significance	Asymptomatic cerebral embolism	5 - 15%	N/A

NA = not available.

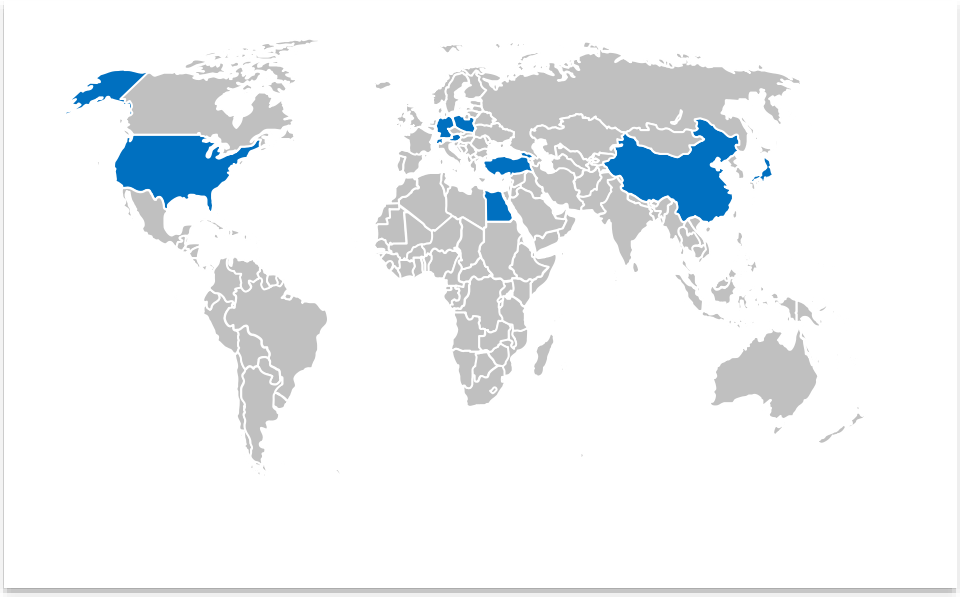
Hindricks G et al. EHJ, AF guidelines, 2020

Esophagus injuries



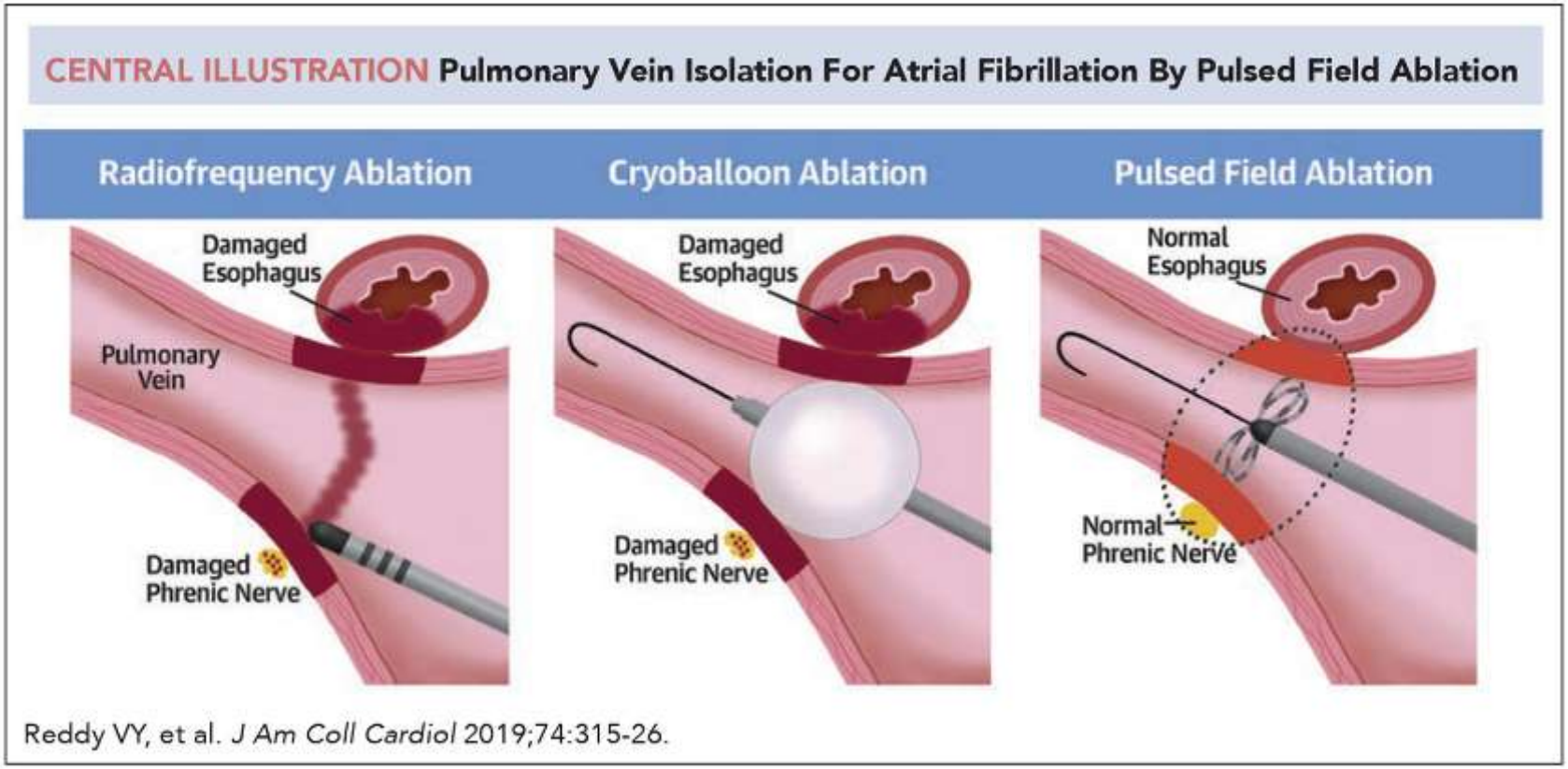
Tilz, Heeger et al. EHJ 2023

Phrenic nerve injury during CB based PVI: Outcome and prognostic factors



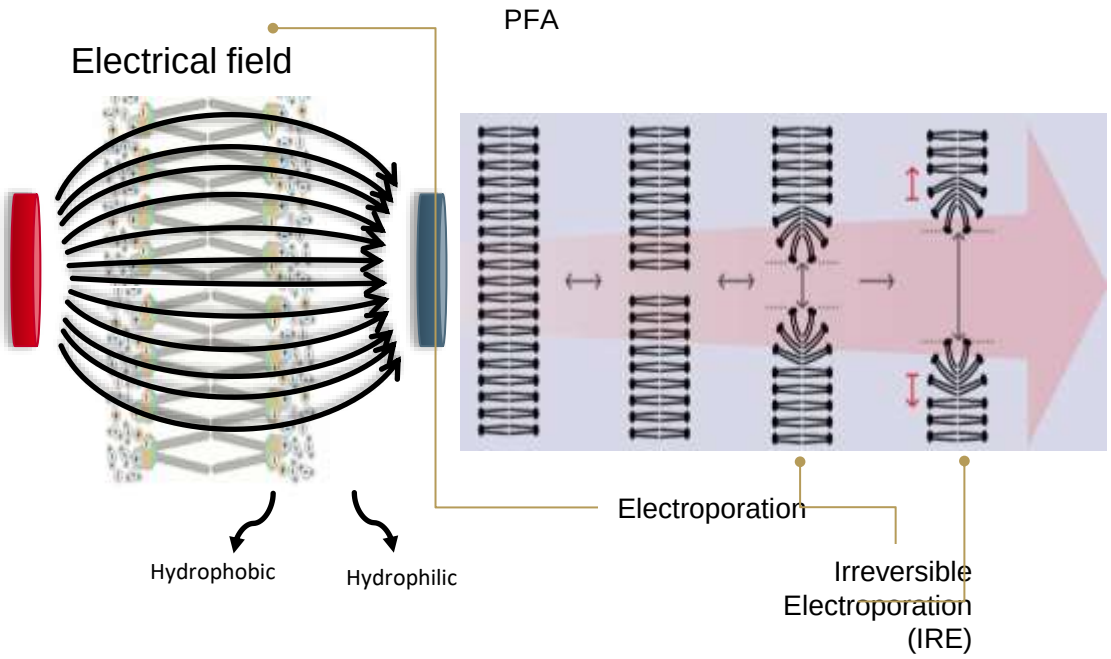
- 33 centers from 10 countries provided their data.
- 17356 patients with second- (third- and fourth-) generation Cryoballoon based PVI
- 731 patients with phrenic nerve injury
- Incidence of phrenic nerve injury: 4.2%

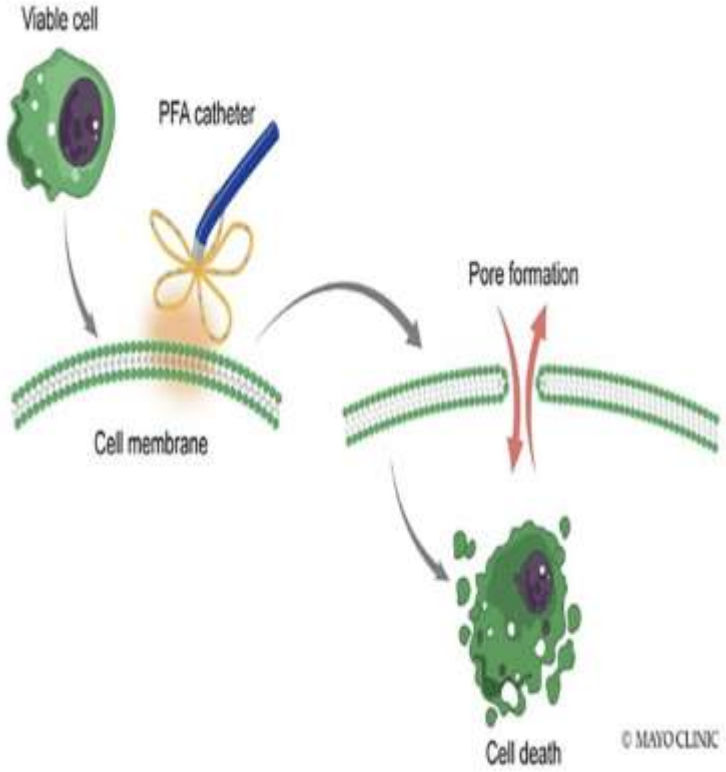
Heeger et al. Circulation AE, 2022


CENTRAL ILLUSTRATION Pulmonary Vein Isolation For Atrial Fibrillation By Pulsed Field Ablation
Radiofrequency Ablation
Cryoballoon Ablation
Pulsed Field Ablation
Damaged Esophagus
Pulmonary Vein
Damaged Phrenic Nerve
Damaged Esophagus
Damaged Phrenic Nerve
Normal Esophagus
Normal Phrenic Nerve
Reddy VY, et al. J Am Coll Cardiol 2019;74:315-26.

Pulse field ablation (PFA)

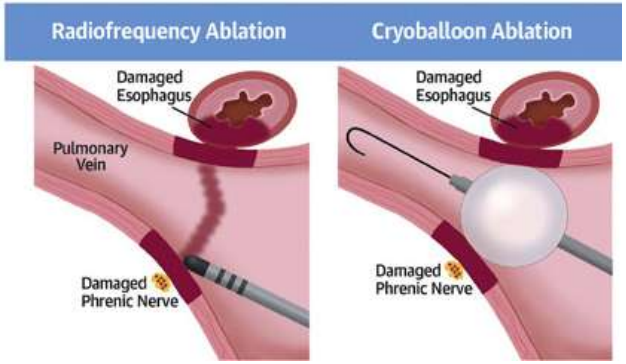
Non-thermal Irreversible electroporation

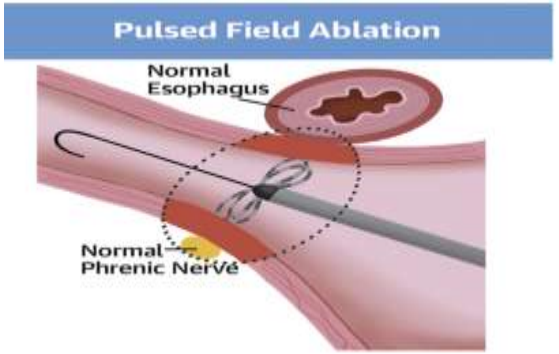


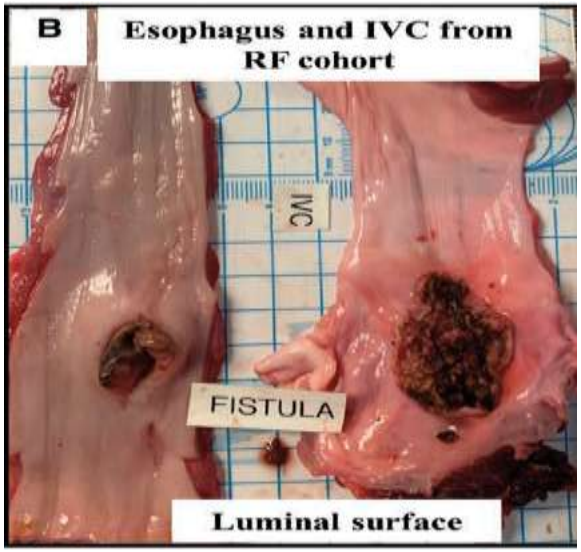


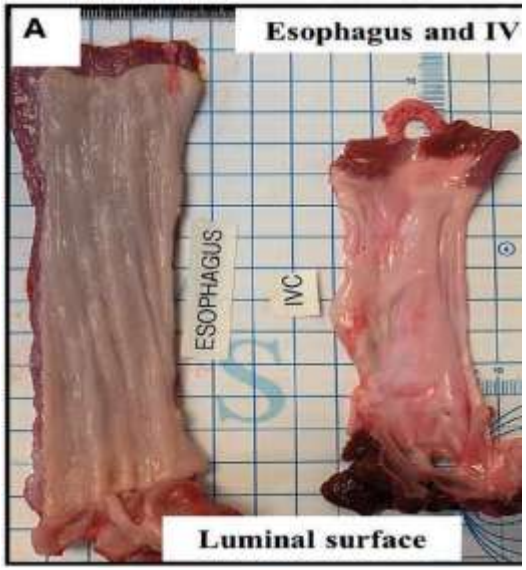
Wittkampf, JACC EP 2018

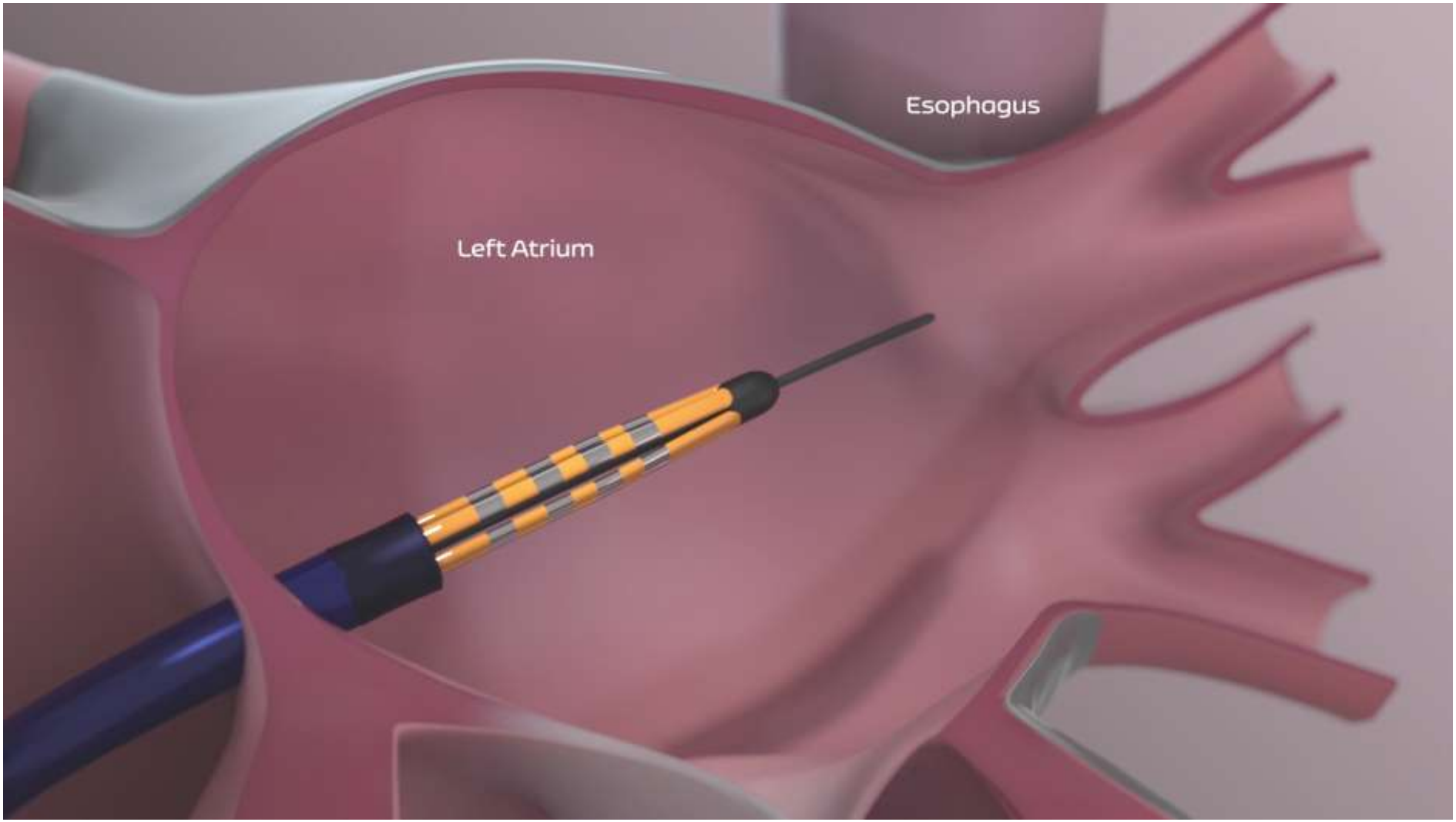
Pulse Field Ablation: Basics – Tissuespecific



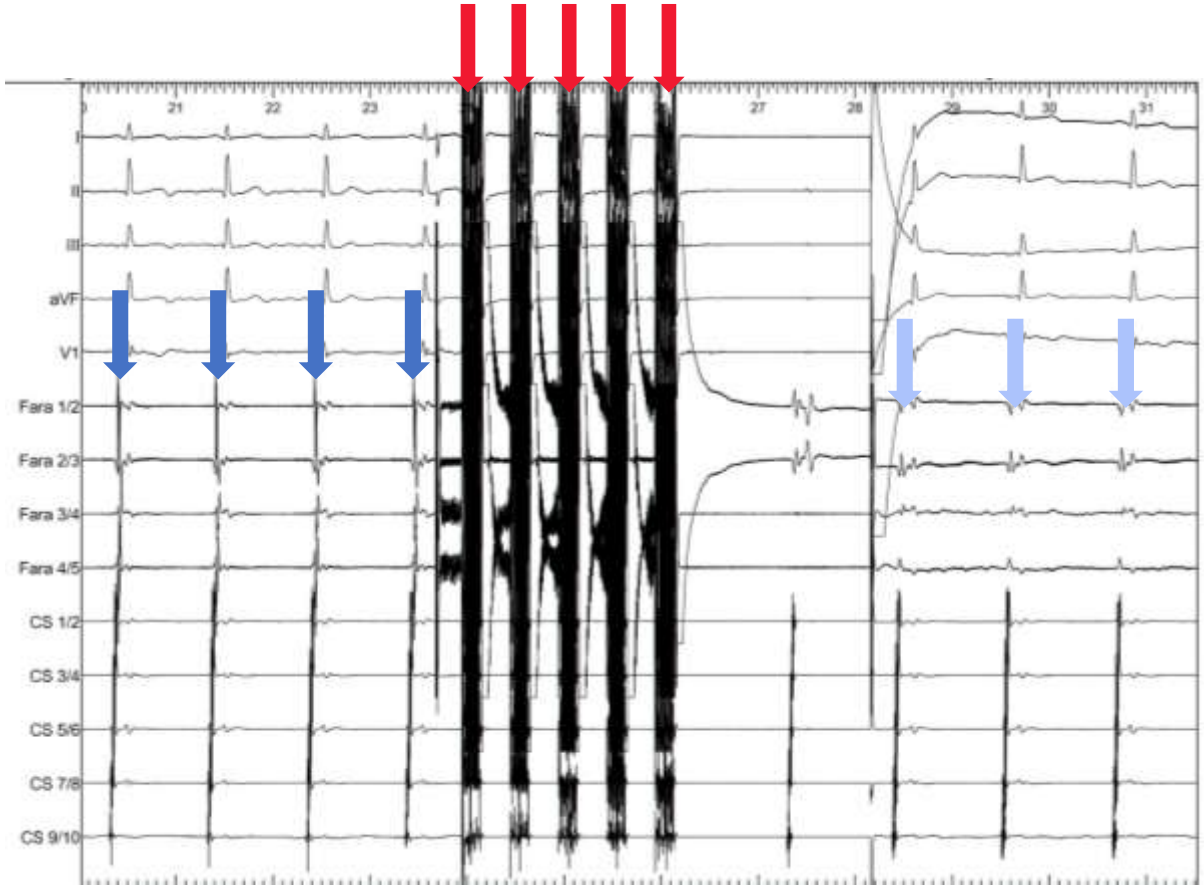







Esophagus
Left Atrium

PFA Application: VERY FAST!



PFA impulse
- biphasic bipolar
- 2.000 V / 2.5 sec

PV signal vor PFA

PV signal nach PFA
- isolated vein


18:27
51
97
51
109/58
(75)


66712062
PACING CONTROL
Mode
Sync
Async
Cycle Length
500
Channel 1
10
Channel 2
10
PACING
THERAPY CONTROL
End Procedure
VOLTAGE
kV
8
1.9
2.0
FARAWAVE connected.
Cancel Therapy
Please wait
DELIVER
Total Deliveries 5
History


58
96
59
110/60
(77)


56
98
51
108/54
(72)

Nahe-Zeitung

eis Cochem-Zell | Nahe-Zeitung | Oeffentlicher An

Idar-Oberstein

Neue Operationsmethode zur Behandlung von Vorhofflimmern: Klinikum Idar-Oberstein setzt Meilenstein

14. August 2024, 14:39 Uhr

Chefarzt Prof. Dr. Natig Gassanov (von links), die Krankenpfleger Luca Bender und Daniel Groß sowie Oberarzt Dr. Mirza Mutallimov freuen sich über den Meilenstein in der Behandlung von Vorhofflimmern. Foto: Foto:

Take Home Messages

Yeni ESC təlimatları əvvəlki versiyadan daha qısa və sadədir. Sadələşdirilmiş yanaşma ilə klinik nəticələrin yaxşılaşdırılması, xüsusilə yaşlanan əhali üçün hədəflənir

Yeni AF-"CARE" təlimatı yanaşı xəstəlikləri prioritet edir və uzunmüddətli multidissiplinar dəstəyi vurğulayır

CASTLE AF: AF və HFrEF pasiyentlərində ablasiya ölüm və hospitalizasiyanı 38% azaldır.

EAST-AFNET 4: Yüksək riskli AF pasiyentlərində erkən Ritm-Bərpa terapiyası ölüm və hospitalizasiyanı 21% azaldır.

Atrial fibrillasiya ablasiyası, simptomatik və paroksizmal atrial fibrillasiyası olan pasiyentlər üçün primer müalicə üsulu olaraq tövsiyə olunur və artıq I/A sinfi terapiya kimi qəbul edilir.

Ən yeni terapiya forması olan PFA, atrial fibrillasiya olan xəstələrin müalicəsi üçün yeni, effektiv və təhlükəsiz enerji növü hesab olunur.

Diqqətinizə görə təşəkkürlər!

mutallimovmirza **Profil bearbeiten** **Zum Archiv** **Werbetools**

42 Beiträge **1.525** Follower **1.909** Gefolgt

Dr. med. Mirza Mutallimov, MD, FESC
Kardiologe
Facharzt für Innere Medizin, Kardiologie und Intensivmedizin
Zusatzqual.: Spezielle Rhythmologie, Invasive Elektrophysiologie/ Herzrhythmusimplantate
Dr.-Ottmar-Kohler Strasse, Idar-Oberstein, Germany 55743
www.shg-kliniken.de/idar-oberstein/klinik/kardiologie-pneumologie-internistische-inte...

2100 Konten in den vergangenen 30 Tagen erreicht. **Insights ansehen**