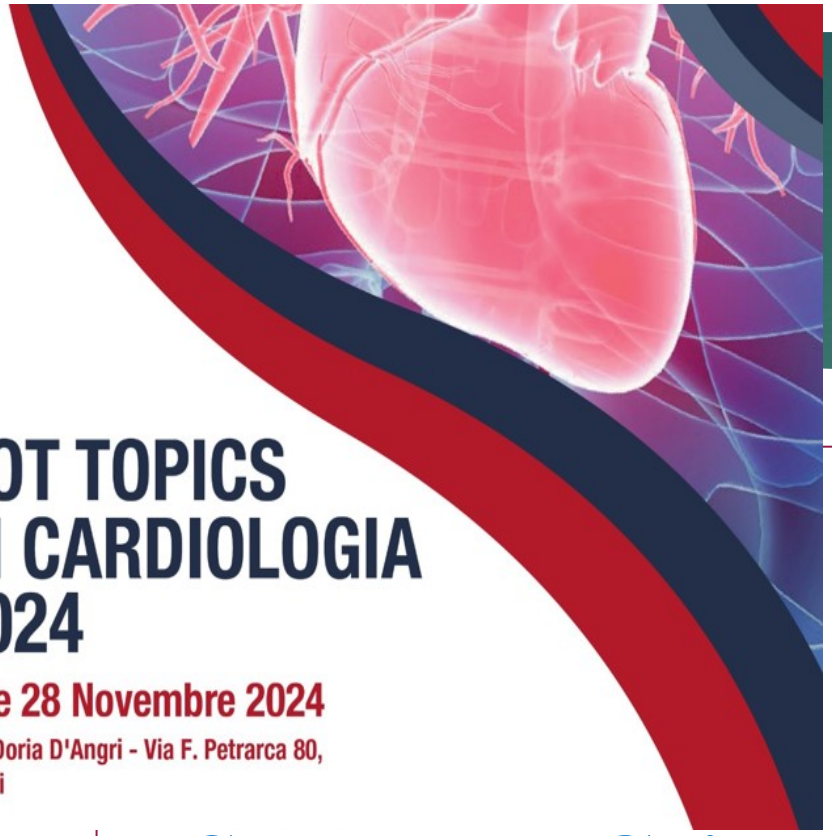
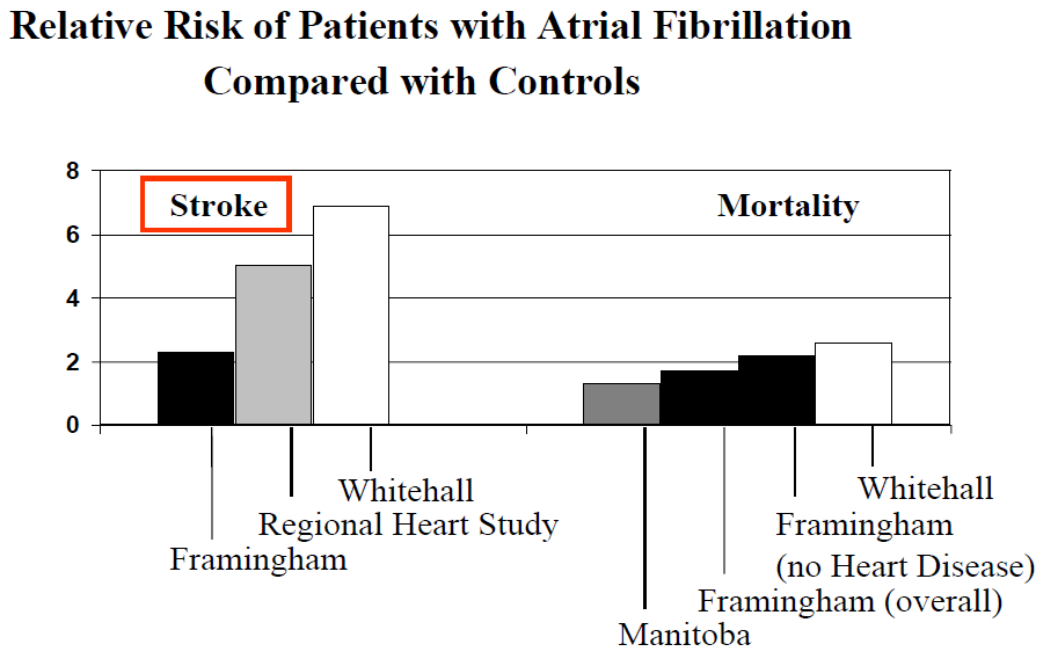
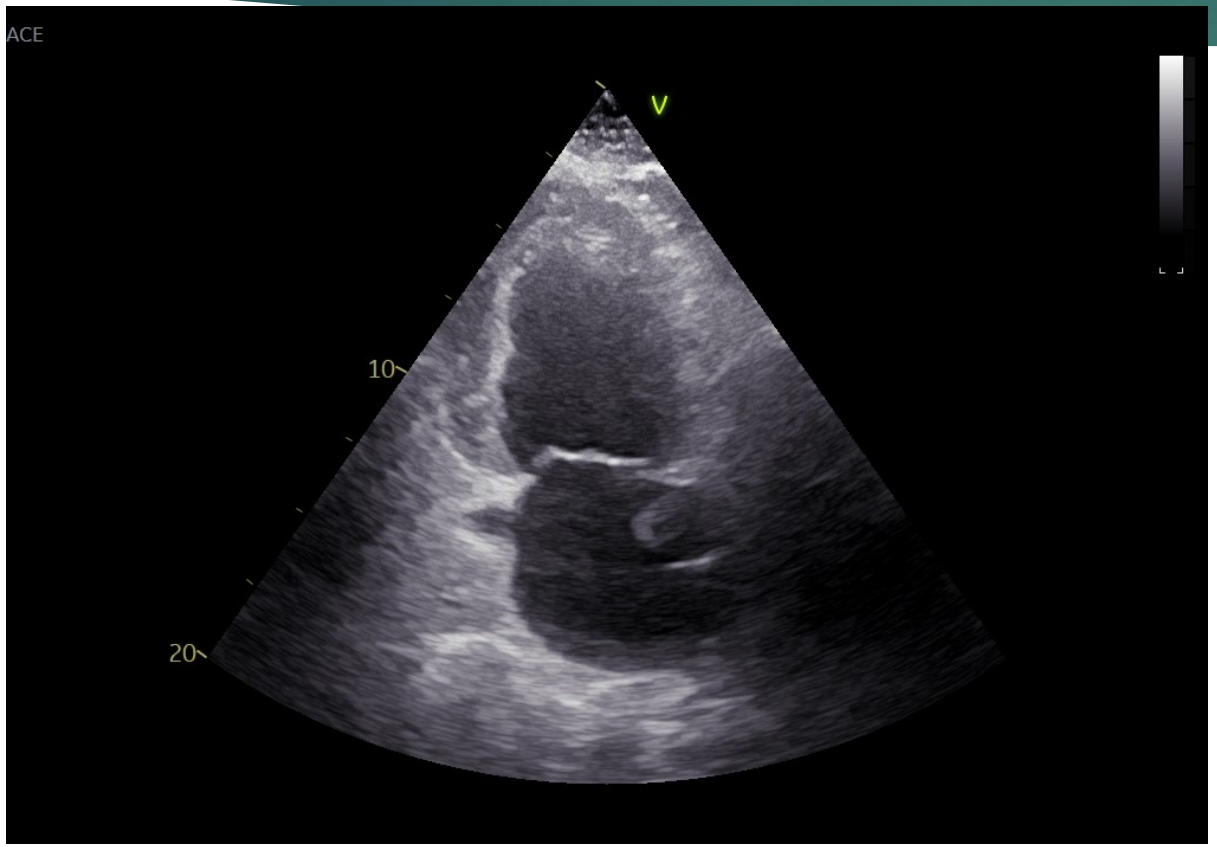


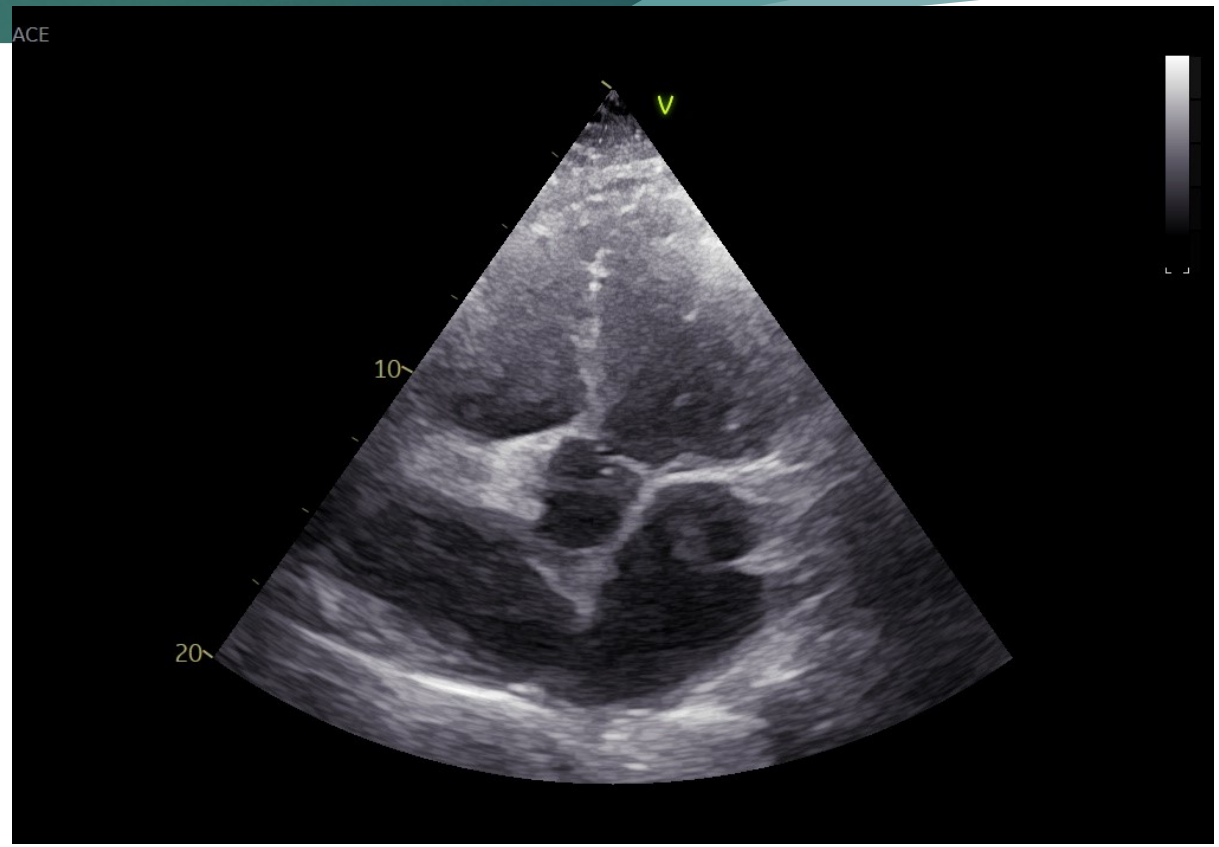
Evidenze dei DOAC nei pazienti con FA candidati a procedura elettrica

- Salvatore Crispo
- Cardiologia con UTIC ed Emodinamica
- AORN A Cardarelli

Incrementato rischio di ictus rispetto alla popolazione generale




ACE
V
10
20

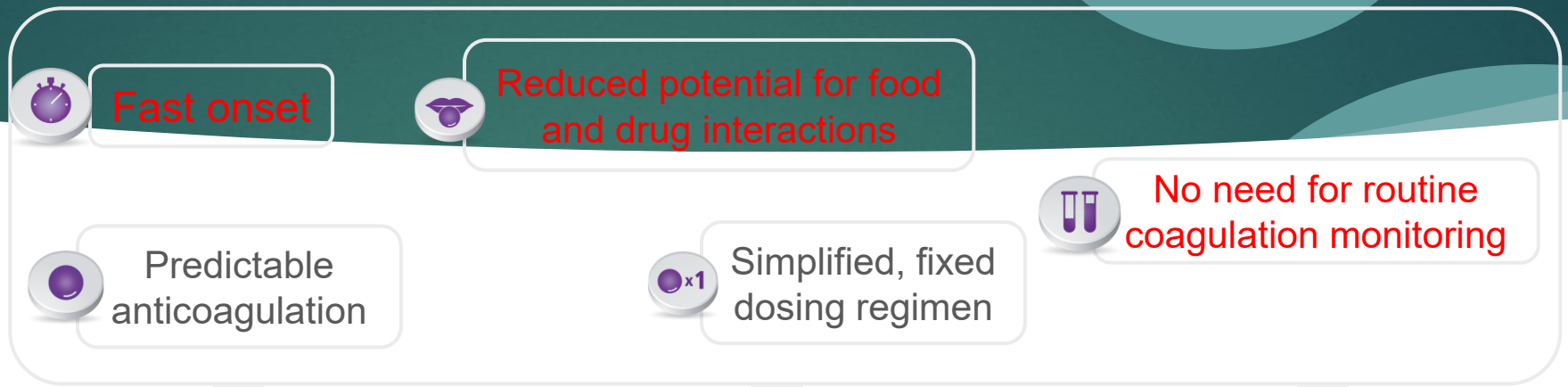

ACE
V
10
20

Recommendations for oral anticoagulation in atrial fibrillation

Recommendations	Class	Level
Direct oral anticoagulants are recommended in preference to VKAs to prevent ischaemic stroke and thromboembolism, except in patients with mechanical heart valves or moderate-to-severe mitral stenosis.	I	A
A target INR of 2.0–3.0 is recommended for patients with AF prescribed a VKA for stroke prevention to ensure safety and effectiveness.	I	B
Switching to a DOAC is recommended for eligible patients that have failed to maintain an adequate time in therapeutic range on a VKA (TTR <70%) to prevent thromboembolism and intracranial haemorrhage.	I	B
Keeping the time in therapeutic range above 70% should be considered in patients taking a VKA to ensure safety and effectiveness, with INR checks at appropriate frequency and patient-directed education and counselling.	IIa	A
Maintaining VKA treatment rather than switching to a DOAC may be considered in patients aged ≥75 years on clinically stable therapeutic VKA with polypharmacy to prevent excess bleeding risk.	IIb	B
A reduced dose of DOAC therapy is not recommended, unless patients meet DOAC-specific criteria, to prevent underdosing and avoidable thromboembolic events.	III	B

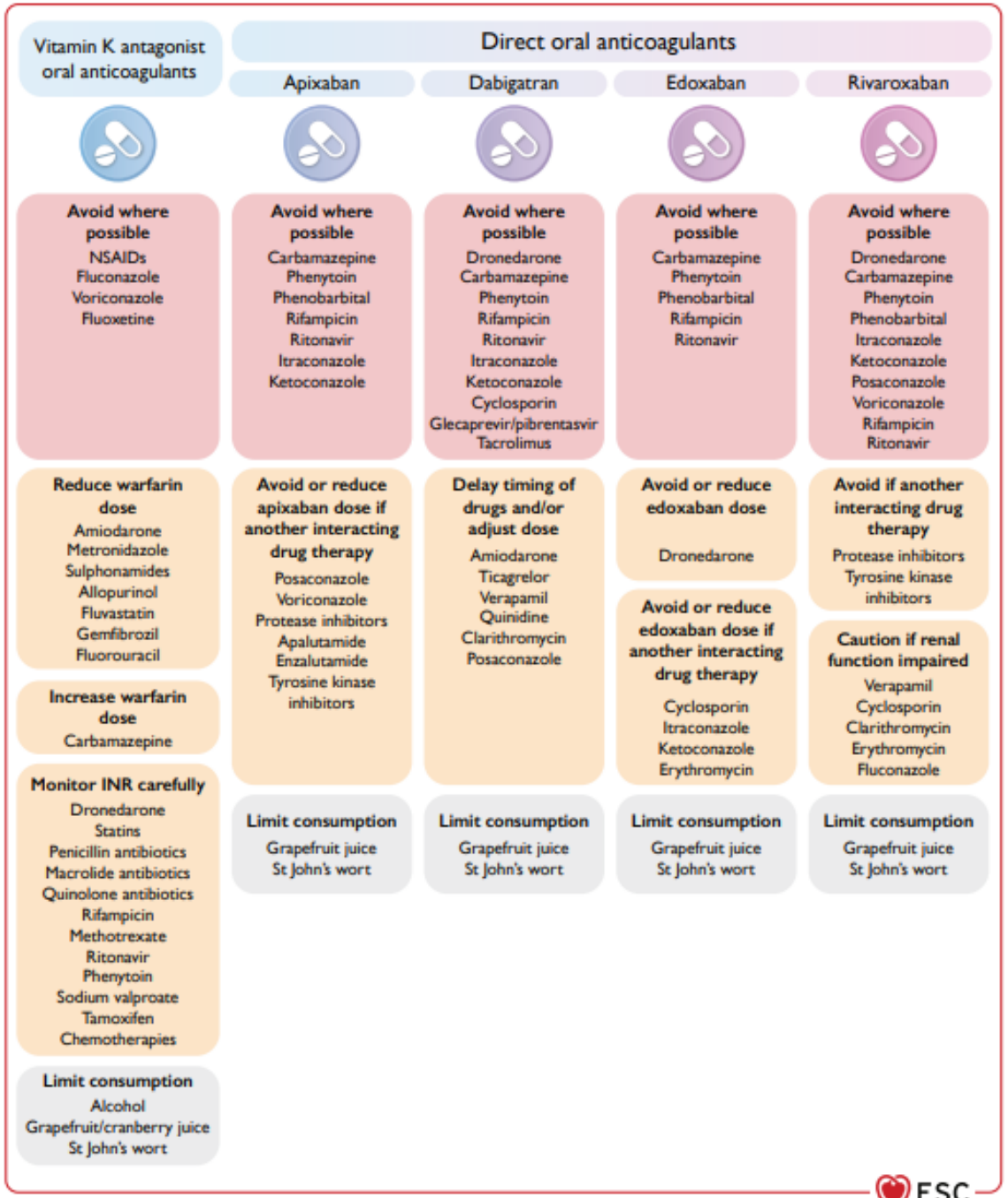
2024 ESC Guidelines for the management of atrial fibrillation
(European Heart Journal; 2024 – doi: 10.1093/eurheartj/ehae176)

Important Benefits of Novel OACs Over VKAs[1–6]



1. Ansell J et al. Chest. 2004;126(3):204S–233S; 2. Mueck W et al. Int J Clin Pharmacol Ther. 2007;45(6):335–344;
3. Mueck W et al. Clin Pharmacokinet. 2008;47(3):203–216; 4. Mueck W et al. Thromb Haemost. 2008;100(3):453–461;
5. Raghavan N et al. Drug Metab Dispos. 2009;37(1):74–81; 6. Shantsila E, Lip GY. Curr Opin Investig Drugs. 2008;9(9):1020–1033.

A.N.:L.IT.MA.01.2017.2136


Vitamin K antagonist oral anticoagulants
Direct oral anticoagulants
Apixaban
Dabigatran
Edoxaban
Rivaroxaban
Avoid where possible
NSAIDs
Fluconazole
Voriconazole
Fluoxetine
Avoid where possible
Carbamazepine
Phenytoin
Phenobarbital
Rifampicin
Ritonavir
Itraconazole
Ketoconazole
Avoid where possible
Dronedarone
Carbamazepine
Phenytoin
Rifampicin
Ritonavir
Itraconazole
Ketoconazole
Cyclosporin
Glecaprevir/pibrentasvir
Tacrolimus
Avoid where possible
Carbamazepine
Phenytoin
Phenobarbital
Rifampicin
Ritonavir
Avoid where possible
Dronedarone
Carbamazepine
Phenytoin
Phenobarbital
Itraconazole
Ketoconazole
Posaconazole
Voriconazole
Rifampicin
Ritonavir
Reduce warfarin dose
Amiodarone
Metronidazole
Sulphonamides
Allopurinol
Fluvastatin
Gemfibrozil
Fluorouracil
Avoid or reduce apixaban dose if another interacting drug therapy
Posaconazole
Voriconazole
Protease inhibitors
Apalutamide
Enzalutamide
Tyrosine kinase inhibitors
Delay timing of drugs and/or adjust dose
Amiodarone
Ticagrelor
Verapamil
Quinidine
Clarithromycin
Posaconazole
Avoid or reduce edoxaban dose
Dronedarone
Avoid or reduce edoxaban dose if another interacting drug therapy
Cyclosporin
Itraconazole
Ketoconazole
Erythromycin
Avoid if another interacting drug therapy
Protease inhibitors
Tyrosine kinase inhibitors
Caution if renal function impaired
Verapamil
Cyclosporin
Clarithromycin
Erythromycin
Fluconazole
Increase warfarin dose
Carbamazepine
Monitor INR carefully
Dronedarone
Statins
Penicillin antibiotics
Macrolide antibiotics
Quinolone antibiotics
Rifampicin
Methotrexate
Ritonavir
Phenytoin
Sodium valproate
Tamoxifen
Chemotherapies
Limit consumption
Grapefruit juice
St John's wort
Limit consumption
Grapefruit juice
St John's wort
Limit consumption
Grapefruit juice
St John's wort
Limit consumption
Grapefruit juice
St John's wort
Limit consumption
Alcohol
Grapefruit/cranberry juice
St John's wort
ESC

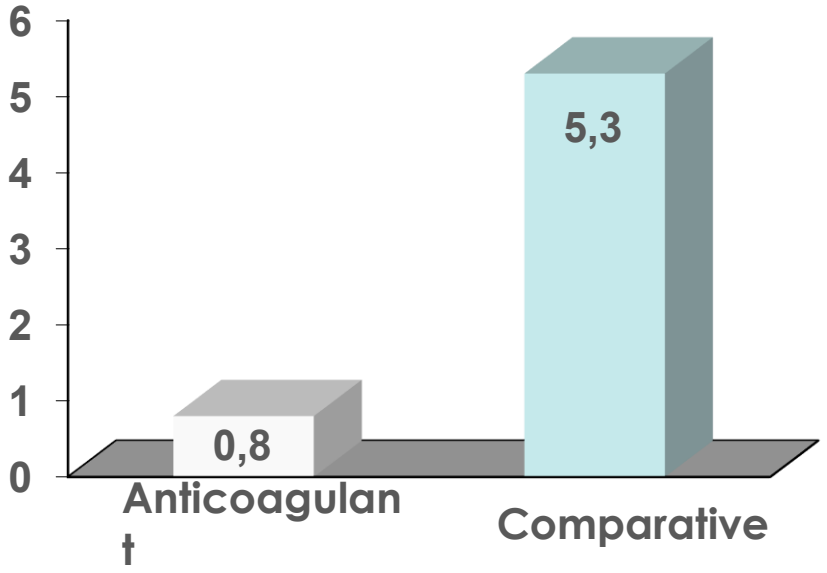
Procedure elettriche e FA

- Cardioversione elettrica
- Ablazione della FA

Cardioversione elettrica

The efficacy of anticoagulant prophylaxis in connection with electrical cardioversion of AF

Objective: to elucidate whether treatment with orally administered anticoagulant agent is desirable in connection with conversion of atrial fibrillation



La terapia anticoagulante profilattica è chiaramente indicata prima e dopo i tentativi di cardiovertire la fibrillazione atriale nei pazienti con una storia di precedenti episodi embolici

Bjerkelund CJ, Am J Cardiol. 1969;23:208-16

2024 ESC Guidelines for the management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS)

Developed by the task force for the management of atrial fibrillation of the European Society of Cardiology (ESC), with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC.
Endorsed by the European Stroke Organisation (ESO)

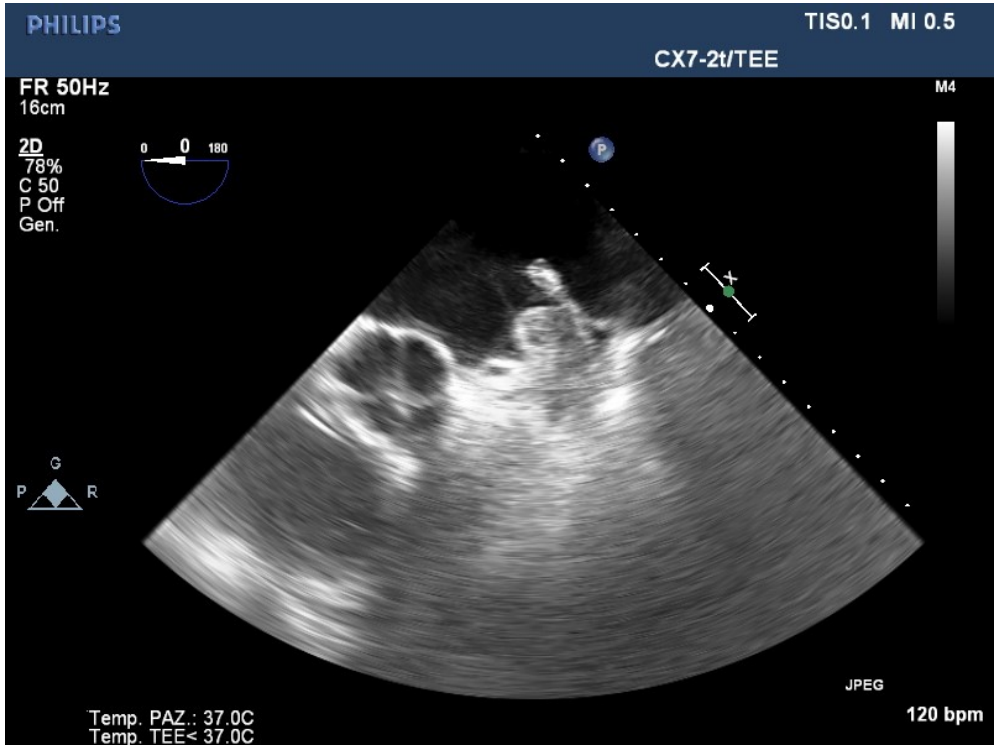
General principles and anticoagulation—*Section 7.2.1*		
Direct oral anticoagulants are recommended in preference to VKAs in eligible patients with AF undergoing cardioversion for thromboembolic risk reduction.	I	A
Cardioversion of AF (either electrical or pharmacological) should be considered in symptomatic patients with persistent AF as part of a rhythm control approach.	IIa	B
A wait-and-see approach for spontaneous conversion to sinus rhythm within 48 h of AF onset should be considered in patients without haemodynamic compromise as an alternative to immediate cardioversion.	IIa	B
Implementation of a rhythm control strategy should be considered within 12 months of diagnosis in selected patients with AF at risk of thromboembolic events to reduce the risk of cardiovascular death or hospitalization.	IIa	B
Early cardioversion is not recommended without appropriate anticoagulation or transoesophageal echocardiography if AF duration is longer than 24 h, or there is scope to wait for spontaneous cardioversion.	III	C

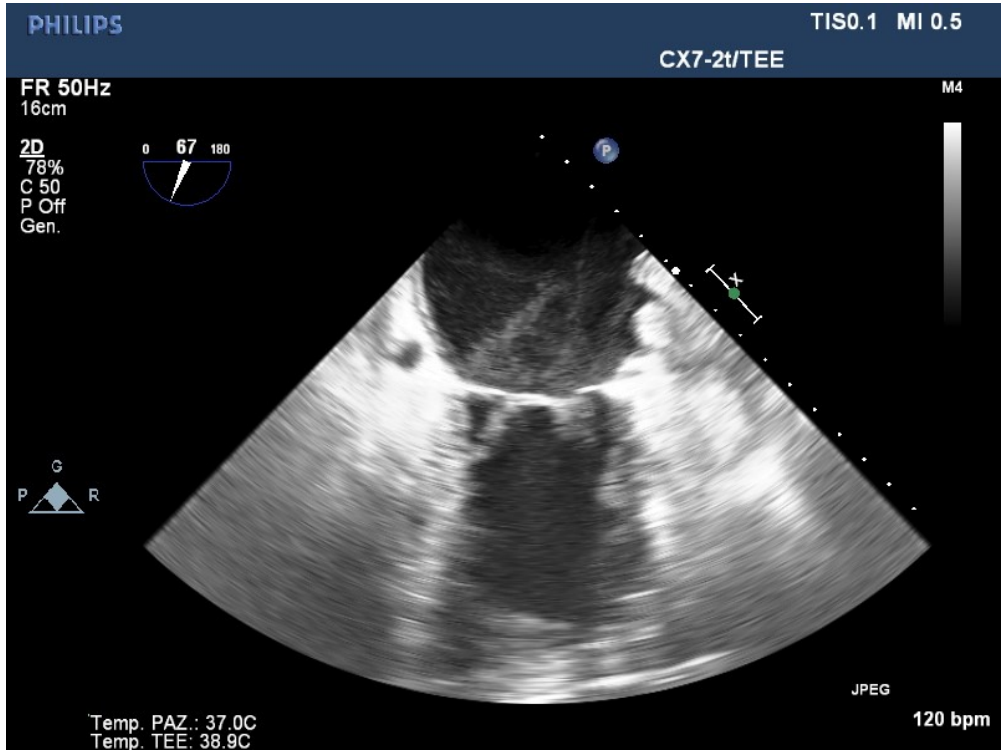
Recommendation Table 15 — Recommendations for general concepts in rhythm control (see also Evidence Table 15)

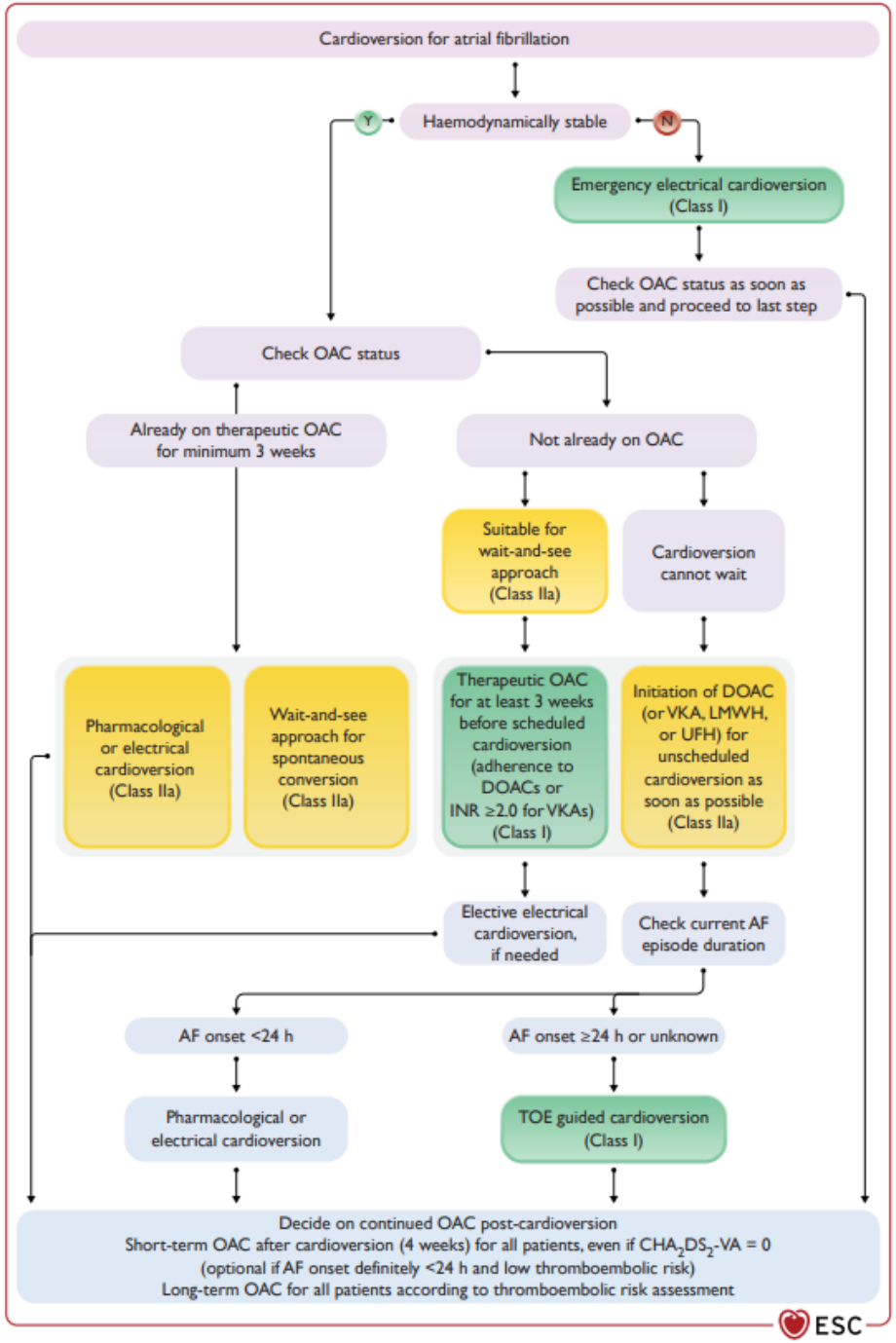
Recommendations	Class[a]	Level[b]
Electrical cardioversion is recommended in AF patients with acute or worsening haemodynamic instability to improve immediate patient outcomes.[520]	I	C
Direct oral anticoagulants are recommended in preference to VKAs in eligible patients with AF undergoing cardioversion for thromboembolic risk reduction.[293,319–321,521]	I	A
Therapeutic oral anticoagulation for at least 3 weeks (adherence to DOACs or INR ≥2.0 for VKAs) is recommended before scheduled cardioversion of AF and atrial flutter to prevent procedure-related thromboembolism.[319–321]	I	B
Transoesophageal echocardiography is recommended if 3 weeks of therapeutic oral anticoagulation has not been provided, for exclusion of cardiac thrombus to enable early cardioversion.[319–321,522]	I	B
Oral anticoagulation is recommended to continue for at least 4 weeks in all patients after cardioversion and long-term in patients with thromboembolic risk factor(s) irrespective of whether sinus rhythm is achieved, to prevent thromboembolism.[239,319,320,523,524]	I	B
Cardioversion of AF (either electrical or pharmacological) should be considered in symptomatic patients with persistent AF as part of a rhythm control approach.[52,525,526]	IIa	B
A wait-and-see approach for spontaneous conversion to sinus rhythm within 48 h of AF onset should be considered in patients without haemodynamic compromise as an alternative to immediate cardioversion.[90,525]	IIa	B
Implementation of a rhythm control strategy should be considered within 12 months of diagnosis in selected patients with AF at risk of thromboembolic events to reduce the risk of cardiovascular death or hospitalization.[17,527]	IIa	B
Initiation of therapeutic anticoagulation should be considered as soon as possible in the setting of unscheduled cardioversion for AF or atrial flutter to prevent procedure-related thromboembolism.[319–321,528]	IIa	B
Repeat transoesophageal echocardiography should be considered before cardioversion if thrombus has been identified on initial imaging to ensure thrombus resolution and prevent peri-procedural thromboembolism.[529]	IIa	C
Early cardioversion is not recommended without appropriate anticoagulation or transoesophageal echocardiography if AF duration is longer than 24 h, or there is scope to wait for spontaneous cardioversion.[522]	III	C

AF, atrial fibrillation; DOAC, direct oral anticoagulant; INR, international normalized ratio of prothrombin time; VKA, vitamin K antagonist.

Attenzione


PHILIPS
TIS0.1 MI 0.5
CX7-2t/TEE
FR 50Hz
16cm
M4
2D
78%
C 50
P Off
Gen.
0 0 180
G
P R
JPEG
120 bpm
Temp. PAZ.: 37.0C
Temp. TEE< 37.0C


PHILIPS
TIS0.1 MI 0.5
CX7-2t/TEE
FR 50Hz
16cm
M4
2D
78%
C 50
P Off
Gen.
0 67 180
G
P R
JPEG
120 bpm
Temp. PAZ.: 37.0C
Temp. TEE: 38.9C


Cardioversion for atrial fibrillation
Haemodynamically stable
Y
N
Emergency electrical cardioversion (Class I)
Check OAC status as soon as possible and proceed to last step
Check OAC status
Already on therapeutic OAC for minimum 3 weeks
Not already on OAC
Suitable for wait-and-see approach (Class IIa)
Cardioversion cannot wait
Pharmacological or electrical cardioversion (Class IIa)
Wait-and-see approach for spontaneous conversion (Class IIa)
Therapeutic OAC for at least 3 weeks before scheduled cardioversion (adherence to DOACs or INR ≥2.0 for VKAs) (Class I)
Initiation of DOAC (or VKA, LMWH, or UFH) for unscheduled cardioversion as soon as possible (Class IIa)
Elective electrical cardioversion, if needed
Check current AF episode duration
AF onset <24 h
AF onset ≥24 h or unknown
Pharmacological or electrical cardioversion
TOE guided cardioversion (Class I)
Decide on continued OAC post-cardioversion
Short-term OAC after cardioversion (4 weeks) for all patients, even if CHA_2DS_2-VA = 0
(optional if AF onset definitely <24 h and low thromboembolic risk)
Long-term OAC for all patients according to thromboembolic risk assessment
ESC

<24 ore

massima energia

DOAC post cardioversione

- A tutti per 4 settimane
- Anche CHAD2DS2 VA 0 o1
- Sola eccezione se CHAD2DS2VA 0 e inizio <24 ore

- A lungo termine in base al rischio tromboembolico se CHAD2DS2VA≥ 1 o ≥ 2

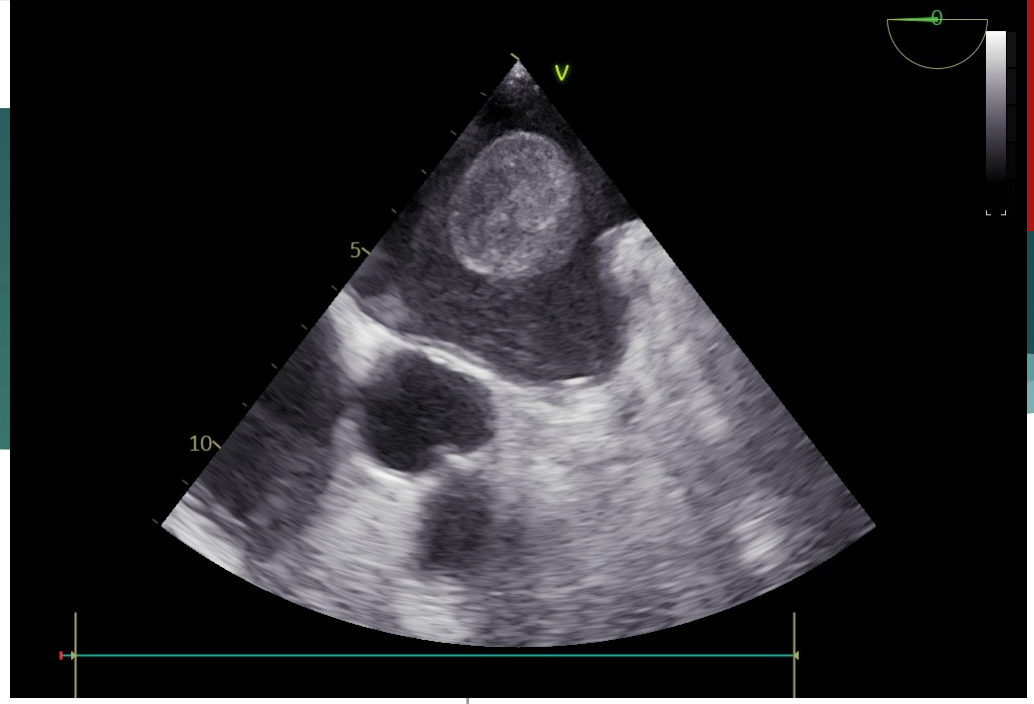
Table 10 Updated definitions for the CHA_2DS_2-VA score

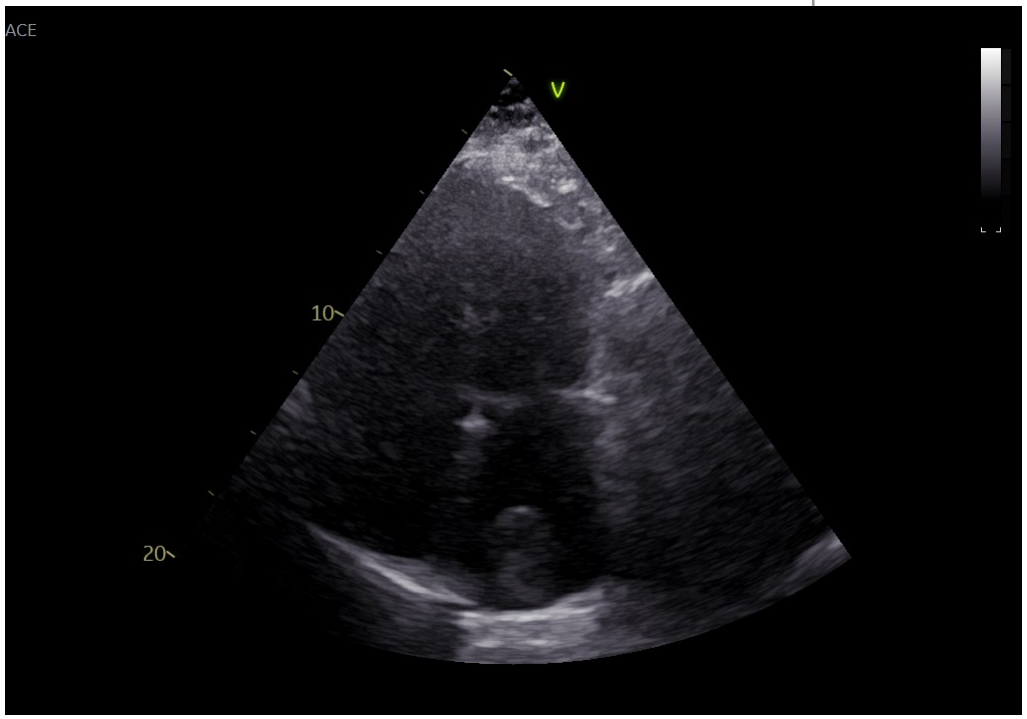
CHA_2DS_2-VA component		Definition and comments	Points awarded[a]
C	Chronic heart failure	Symptoms and signs of heart failure (irrespective of LVEF, thus including HFpEF, HFmrEF, and HFrEF), or the presence of asymptomatic LVEF ≤40%.[261–263]	1
H	Hypertension	Resting blood pressure >140/90 mmHg on at least two occasions, or current antihypertensive treatment. The optimal BP target associated with lowest risk of major cardiovascular events is 120–129/70–79 mmHg (or keep as low as reasonably achievable).[162,264]	1
A	Age 75 years or above	Age is an independent determinant of ischaemic stroke risk.[265] Age-related risk is a continuum, but for reasons of practicality, two points are given for age ≥75 years.	2
D	Diabetes mellitus	Diabetes mellitus (type 1 or type 2), as defined by currently accepted criteria,[266] or treatment with glucose lowering therapy.	1
S	Prior stroke, TIA, or arterial thromboembolism	Previous thromboembolism is associated with highly elevated risk of recurrence and therefore weighted 2 points.	2
V	Vascular disease	Coronary artery disease, including prior myocardial infarction, angina, history of coronary revascularization (surgical or percutaneous), and significant CAD on angiography or cardiac imaging.[267] OR Peripheral vascular disease, including: intermittent claudication, previous revascularization for PVD, percutaneous or surgical intervention on the abdominal aorta, and complex aortic plaque on imaging (defined as features of mobility, ulceration, pedunculation, or thickness ≥4 mm).[268,269]	1
A	Age 65–74 years	1 point is given for age between 65 and 74 years.	1

BP, blood pressure; CAD, coronary artery disease; CHA_2DS_2-VA, chronic heart failure, hypertension, age ≥75 years (2 points), diabetes mellitus, prior stroke/transient ischaemic attack/arterial thromboembolism (2 points), vascular disease, age 65–74 years; HFmrEF, heart failure with mildly reduced ejection fraction; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; LVEF, left ventricular ejection fraction; PVD, peripheral vascular disease.

[a]In addition to these factors, other markers that modify an individual's risk for stroke and thromboembolism should be considered, including cancer, chronic kidney disease, ethnicity (black, Hispanic, Asian), biomarkers (troponin and BNP), and in specific groups, atrial enlargement, hyperlipidaemia, smoking, and obesity.

Ospiti non graditi





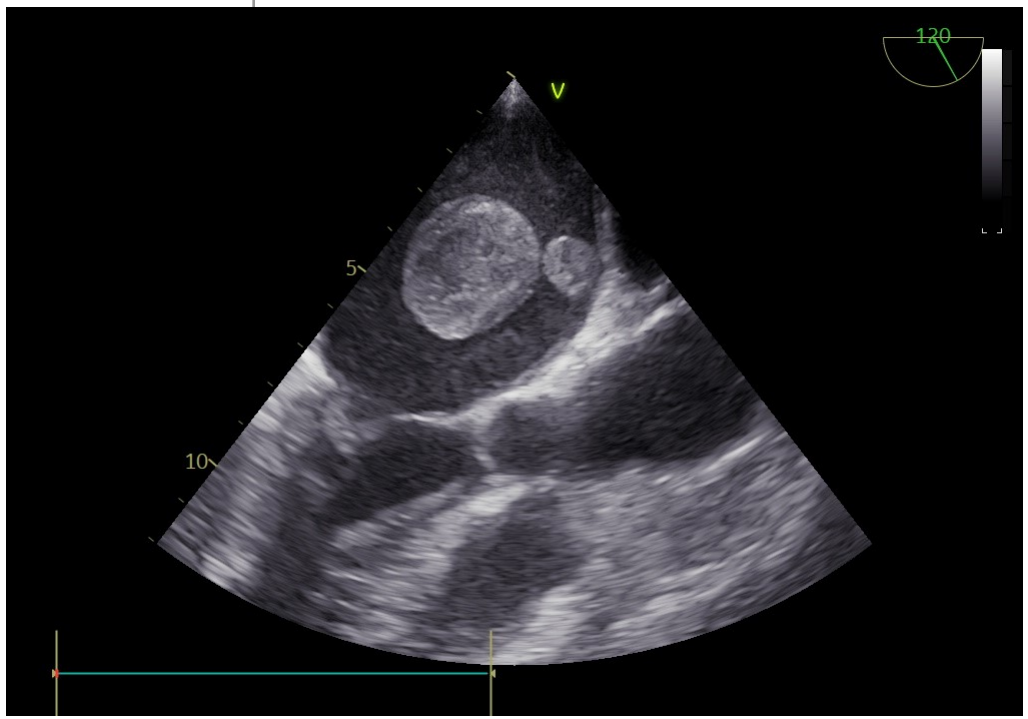
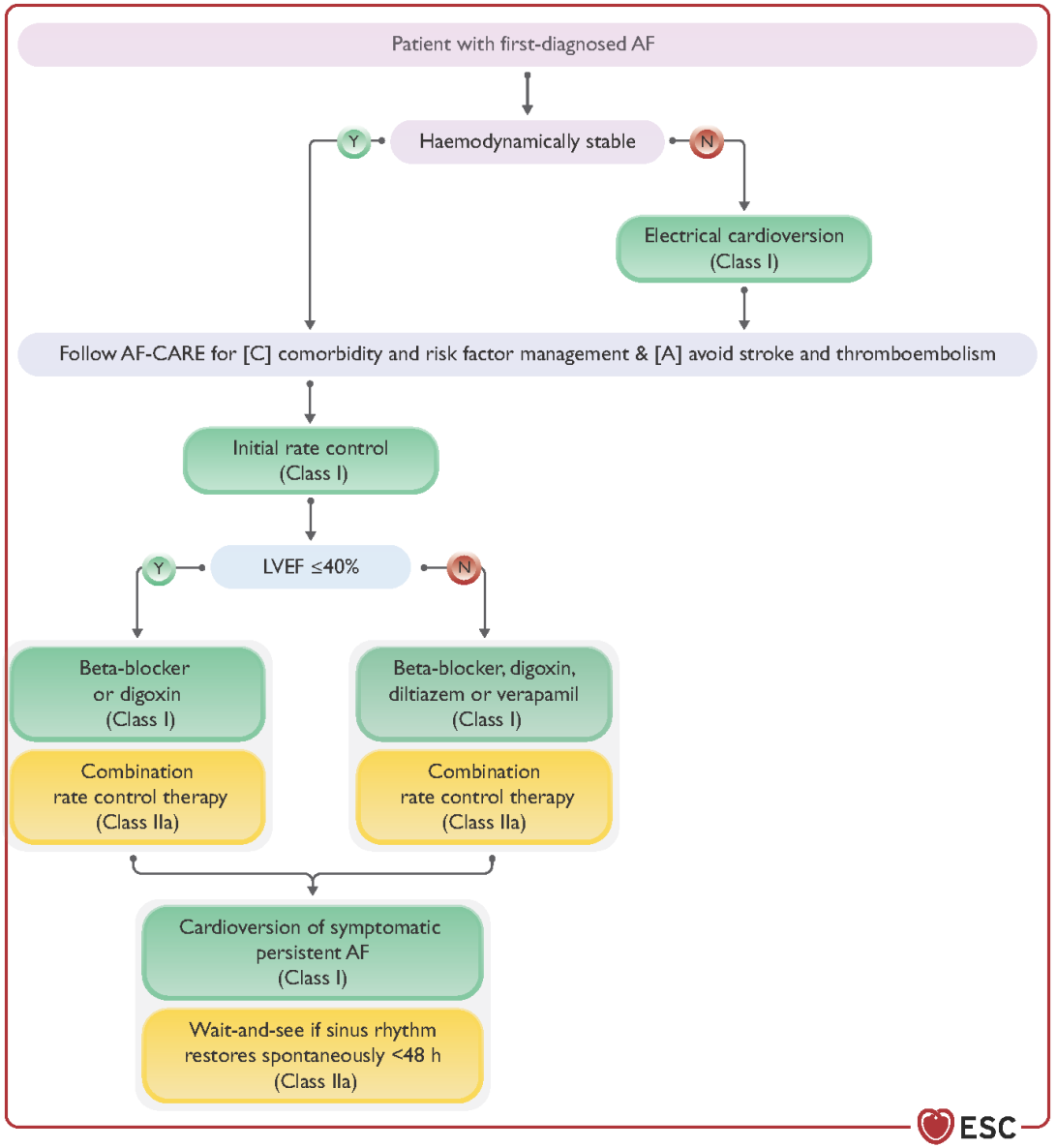


Figure 4

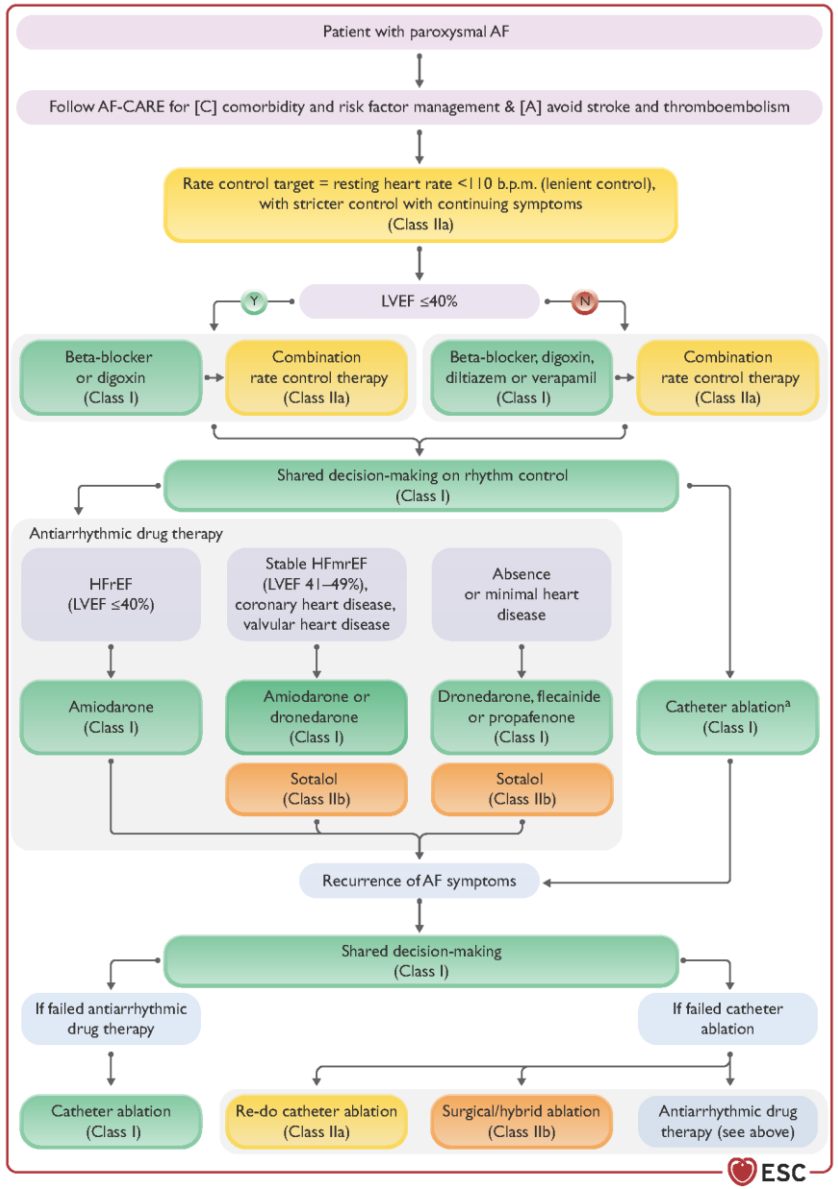
[R] Pathway for patients with first-diagnosed atrial fibrillation



2024 ESC Guidelines for the management of atrial fibrillation
(European Heart Journal; 2024 – doi: 10.1093/eurheartj/ehae176)

Figure 5

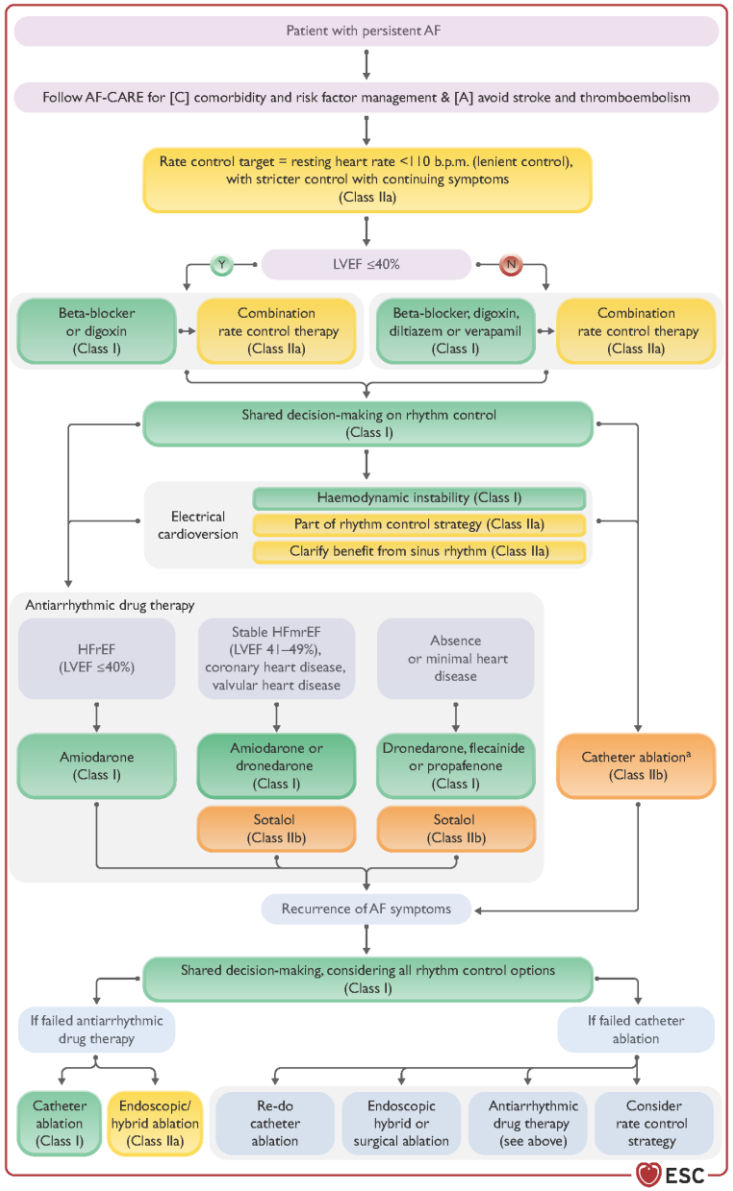
[R] Pathway for patients with paroxysmal atrial fibrillation



2024 ESC Guidelines for the management of atrial fibrillation
(European Heart Journal; 2024 – doi: 10.1093/eurheartj/ehae176)

Figure 6

[R] Pathway for patients with persistent atrial fibrillation



2024 ESC Guidelines for the management of atrial fibrillation
(European Heart Journal; 2024 – doi: 10.1093/eurheartj/ehae176)

I sintomi possono anche mancare

Magari sono
sempre stata felice
ma asintomatica.

		ENSURE-AF	X-VeRT	EMANATE	Tot
# of patients	DOAC	1095	978	753	2826
	VKA	1104	492	747	2343
All Strokes	DOAC	2	2	0	4
	VKA	3	2	6	11
Major Bleed	DOAC	3	6	3	12
	VKA	5	4	6	15

Edoxaban Rivaroxaban Apixaban

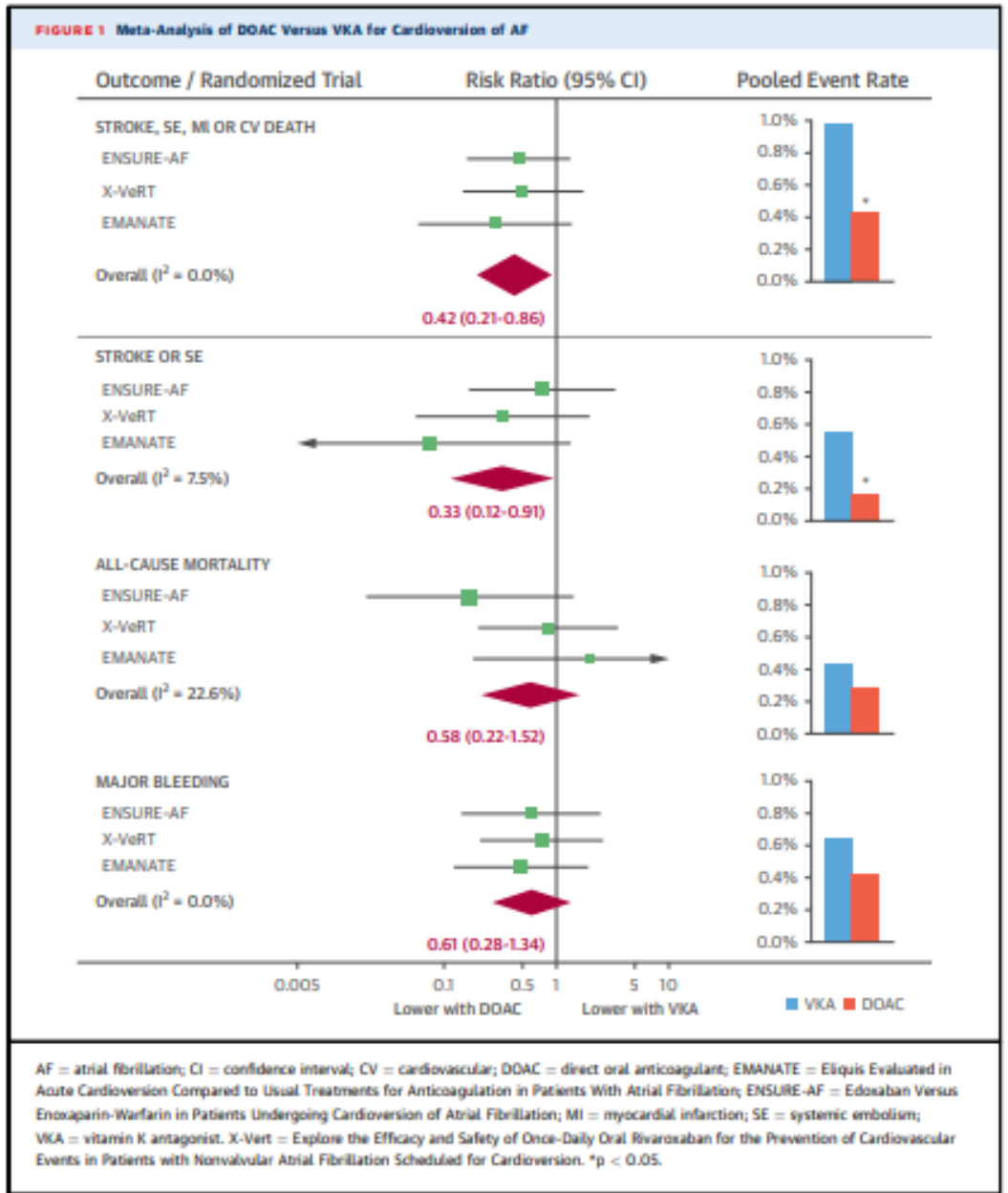


FIGURE 1 Meta-Analysis of DOAC Versus VKA for Cardioversion of AF

AF = atrial fibrillation; CI = confidence interval; CV = cardiovascular; DOAC = direct oral anticoagulant; EMANATE = Eliquis Evaluated in Acute Cardioversion Compared to Usual Treatments for Anticoagulation in Patients With Atrial Fibrillation; ENSURE-AF = Edoxaban Versus Enoxaparin-Warfarin in Patients Undergoing Cardioversion of Atrial Fibrillation; MI = myocardial infarction; SE = systemic embolism; VKA = vitamin K antagonist. X-Vert = Explore the Efficacy and Safety of Once-Daily Oral Rivaroxaban for the Prevention of Cardiovascular Events in Patients with Nonvalvular Atrial Fibrillation Scheduled for Cardioversion. *p < 0.05.

Kotecha D . Direct oral anticoagulants halve thromboembolic events after cardioversion of AF compared with warfarin. J Am Coll Cardiol 2018;72:1984–6.

Ablazione transcatetere

- 3 settimane prima
- 2 mesi dopo a tutti
- A lungo termine dipende da CHAD2SVA2 score

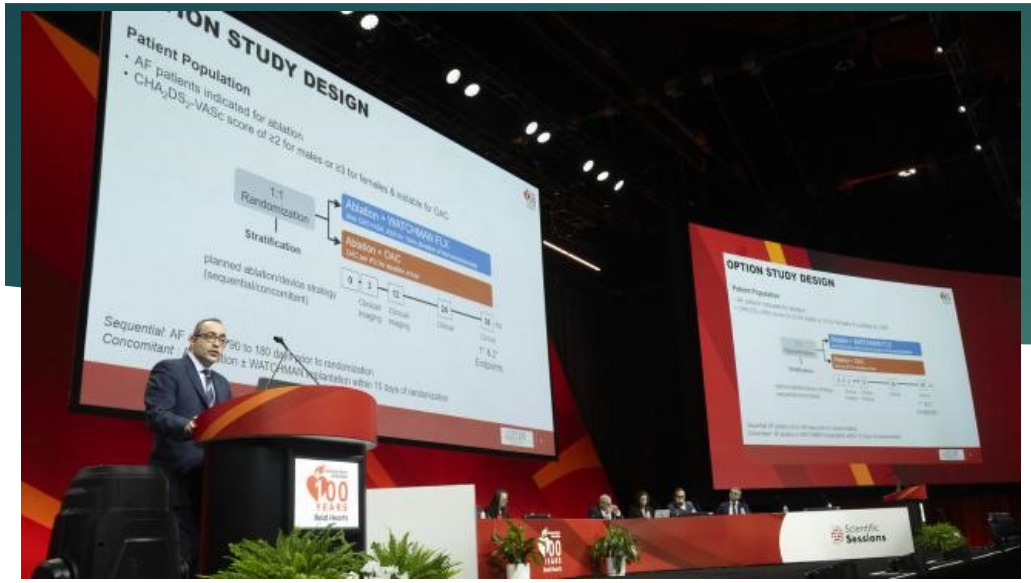
Recommendation Table 20 — Recommendations for anticoagulation in patients undergoing catheter ablation (see also Evidence Table 20)

Recommendations	Class[a]	Level[b]
Initiation of oral anticoagulation is recommended at least 3 weeks prior to catheter-based ablation in AF patients at elevated thromboembolic risk, to prevent peri-procedural ischaemic stroke and thromboembolism.[554,647]	I	C
Uninterrupted oral anticoagulation is recommended in patients undergoing AF catheter ablation to prevent peri-procedural ischaemic stroke and thromboembolism.[664,665]	I	A
Continuation of oral anticoagulation is recommended for at least 2 months after AF ablation in all patients, irrespective of rhythm outcome or CHA_2DS_2-VA score, to reduce the risk of peri-procedural ischaemic stroke and thromboembolism.[554,663]	I	C
Continuation of oral anticoagulation is recommended after AF ablation according to the patient's CHA_2DS_2-VA score, and not the perceived success of the ablation procedure, to prevent ischaemic stroke and thromboembolism.[554]	I	C
Cardiac imaging should be considered prior to catheter ablation of AF in patients at high risk of ischaemic stroke and thromboembolism despite taking oral anticoagulation to exclude thrombus.[649,650]	IIa	B

AF, atrial fibrillation; CHA_2DS_2-VA, congestive heart failure, hypertension, age ≥75 years (2 points), diabetes mellitus, prior stroke/transient ischaemic attack/arterial

Anticoagulation in patients undergoing catheter ablation—*Section 7.2.6*		
Uninterrupted oral anticoagulation is recommended in patients undergoing AF catheter ablation to prevent peri-procedural ischaemic stroke and thromboembolism.	I	A

Endoscopic and hybrid AF ablation—*Section 7.2.7*		
Continuation of oral anticoagulation is recommended in patients with AF at elevated thromboembolic risk after concomitant, endoscopic, or hybrid AF ablation, independent of rhythm outcome or LAA exclusion, to prevent ischaemic stroke and thromboembolism.	I	C
Endoscopic and hybrid ablation procedures should be considered in patients with symptomatic persistent AF refractory to AAD therapy to prevent symptoms, recurrence, and progression of AF, within a shared decision-making rhythm control team of electrophysiologists and surgeons.	IIa	A



L’ occlusione dell'auricola sinistra (LAAO) sembra essere una valida alternativa all'anticoagulazione orale per la prevenzione dell'ictus in pazienti selezionati sottoposti ad ablazione transcatetere per fibrillazione atriale (FA), come dimostra lo studio OPTION.

ridotto il rischio di emorragia, garantendo al contempo un'efficacia non inferiore in termini di rischio di morte per tutte le cause, ictus o embolia sistemica in 3 anni di follow-up

Arruolando una popolazione a basso rischio con bassi tassi di eventi, "probabilmente si troverà la non inferiorità

"in una popolazione sottoposta ad ablazione con un punteggio CHA_2DS_2-VASc di almeno 2 negli uomini e di almeno 3 nelle donne, è ragionevole prendere in considerazione la chiusura dell'auricola sinistra", ha detto Wazni a TCTMD, "invece di continuare l'anticoagulazione orale".

Grazie per l'attenzione