

Innovaties bij de ambulante detectie van voorkamerfibrillatie

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2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS

The Task Force for the 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

Endorsed by the European Stroke Organisation (ESO)



❖ By 2030, 14 – 17 million AF patients are anticipated in the European Union, with 120 000 – 215 000 newly diagnosed patients per year

❖ AF is independently associated with a two-fold increased risk of all- cause mortality in women and a 1.5- fold increase in men

Table 3 Cardiovascular morbidity and mortality associated with atrial fibrillation

Event	Association with AF
Death	Increased mortality, especially cardiovascular mortality due to sudden death, heart failure or stroke.
Stroke	20–30% of all strokes are due to AF. A growing number of patients with stroke are diagnosed with 'silent', paroxysmal AF.
Hospitalizations	10–40% of AF patients are hospitalized every year.
Quality of life	Quality of life is impaired in AF patients independent of other cardiovascular conditions.
Left ventricular dysfunction and heart failure	Left ventricular dysfunction is found in 20–30% of all AF patients. AF causes or aggravates LV dysfunction in many AF patients, while others have completely preserved LV function despite long-standing AF.
Cognitive decline and vascular dementia	Cognitive decline and vascular dementia can develop even in anticoagulated AF patients. Brain white matter lesions are more common in AF patients than in patients without AF.

Types of atrial fibrillation

Table 5 Patterns of atrial fibrillation

AF pattern	Definition
First diagnosed AF	AF that has not been diagnosed before, irrespective of the duration of the arrhythmia or the presence and severity of AF-related symptoms.
Paroxysmal AF	Self-terminating, in most cases within 48 hours. Some AF paroxysms may continue for up to 7 days. ¹ AF episodes that are cardioverted within 7 days should be considered paroxysmal. ¹
Persistent AF	AF that lasts longer than 7 days, including episodes that are terminated by cardioversion, either with drugs or by direct current cardioversion, after 7 days or more.
Long-standing persistent AF	Continuous AF lasting for ≥ 1 year when it is decided to adopt a rhythm control strategy.
Permanent AF	AF that is accepted by the patient (and physician). Hence, rhythm control interventions are, by definition, not pursued in patients with permanent AF. Should a rhythm control strategy be adopted, the arrhythmia would be re-classified as 'long-standing persistent AF'.

Symptoms and AF

Table 7 Modified European Heart Rhythm Association symptom scale (modified from Wynn et al.¹⁹⁹)

Modified EHRA score	Symptoms	Description
1	None	AF does not cause any symptoms
2a	Mild	Normal daily activity not affected by symptoms related to AF ^a
2b	Moderate	Normal daily activity not affected by symptoms related to AF, but patient troubled by symptoms ^a
3	Severe	Normal daily activity affected by symptoms related to AF
4	Disabling	Normal daily activity discontinued

AF = atrial fibrillation; EHRA = European Heart Rhythm Association.

^aEHRA class 2a and 2b can be differentiated by evaluating whether patients are functionally affected by their AF symptoms. AF-related symptoms are most commonly fatigue/tiredness and exertional shortness of breath, or less frequently palpitations and chest pain.^{42,194,200–202}

Pathophysiology of Atrial fibrillation

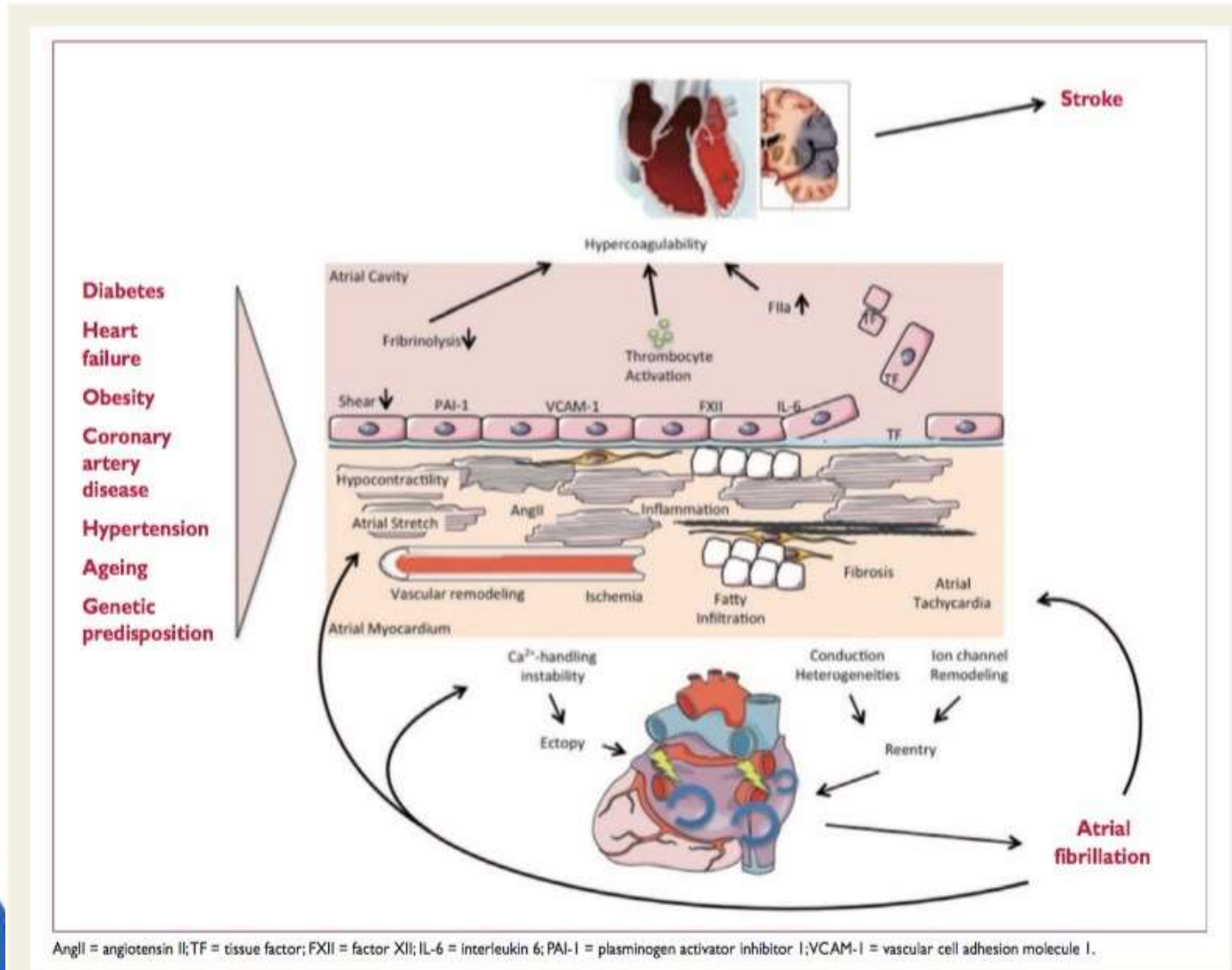


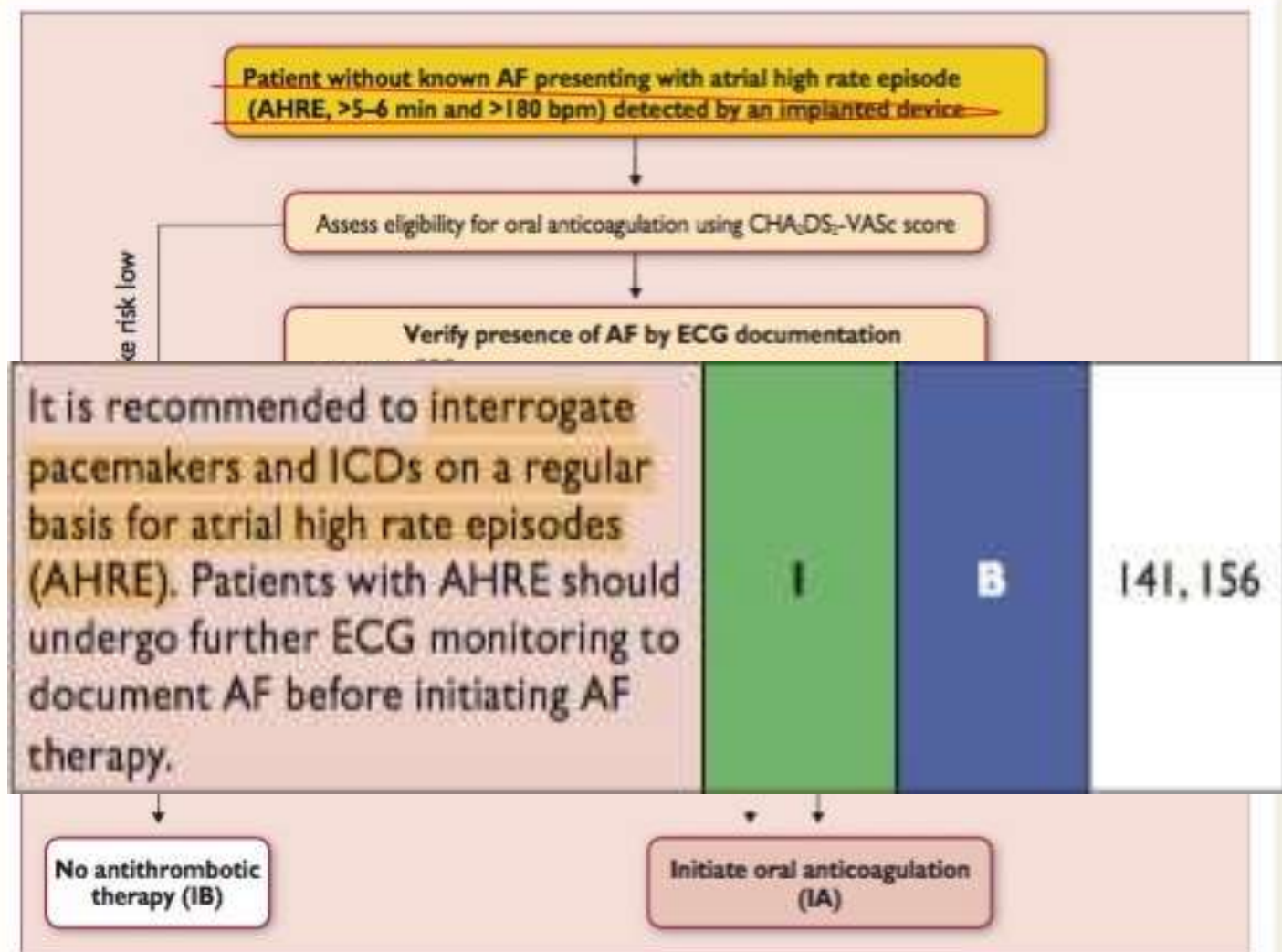
Figure 2 Major mechanisms causing atrial fibrillation that can be considered when choosing therapy. The various aetiological factors (left) cause

Atrial High Rate Episodes (AHRE)- AF-stroke

- ❖ **ASSERT trial** evaluated whether detection of asymptomatic AHRE predicted an increased risk of stroke and systemic embolism in pacemaker patients without a history of AF, as well as whether overdrive atrial pacing would reduce the risk of symptomatic AF.
- ❖ Overdrive atrial pacing failed to reduce the risk of symptomatic AF.
- ❖ Subclinical episodes of AT, defined as atrial rates ≥ 190 beats/min lasting >6 min, were associated with an increased risk of ischemic stroke (HR: 1.76; 95% CI: 0.99 to 3.11; $p = 0.05$).
- ❖ Longer episodes of AT were associated with incremental stroke risk, but AT of 6 to 24 h (HR: 2.00; 95% CI: 1.13 to 3.55; $p = 0.02$) and episodes >24 h (HR: 1.98; 95% CI: 1.11 to 3.51; $p = 0.02$) carried a similar risk.
- ❖ Stroke risk increased with the number of subclinical AT episodes, with annual rates of TE ranging from 1.20 with a single episode to 1.93 with ≥ 4 episodes. *N Engl J Med. 2012;366:120-129.*

Atrial High Rate Episodes (AHRE)- AF-stroke

- ❖ **MOST trial.** Subgroup analysis of 316 patients correlated AHRE with clinical outcomes. The presence of AHRE (atrial rate >220 beats/min for 10 consecutive beats) was an independent predictor of mortality (HR: 2.48), death or nonfatal stroke (HR: 2.79), and AF (HR: 5.93), indicating that pacemaker patients with sinus node dysfunction and AHRE were more than 2.5 times as likely to die or have a stroke, and were 6 times as likely to develop AF than those without AHRE. *Circulation.* 2003;107:1614-1619.



AF = atrial fibrillation; AFNET = German Competence NETWORK on Atrial Fibrillation; AHRE = atrial high rate episodes; bpm = beats per minute; CHA₂DS₂-VASc = Congestive Heart failure, hypertension, Age ≥ 75 (doubled), Diabetes, Stroke (doubled), Vascular disease, Age 65–74, and Sex (female); ECG = electrocardiogram; EHRA = European Heart Rhythm Association.

*In rare individual circumstances, oral anticoagulation may be considered in patients with AHRE, but without diagnosed AF. This clearly needs discussion with the patient and careful evaluation of perceived benefit and risk.

¹Adapted from the report of the 3rd AFNET/EHRA consensus conference.¹⁰

Figure 3 Management of AHRE detected by an implanted device. Adapted from the report of the 3rd AFNET/EHRA consensus conference. 130

Integrated AF management

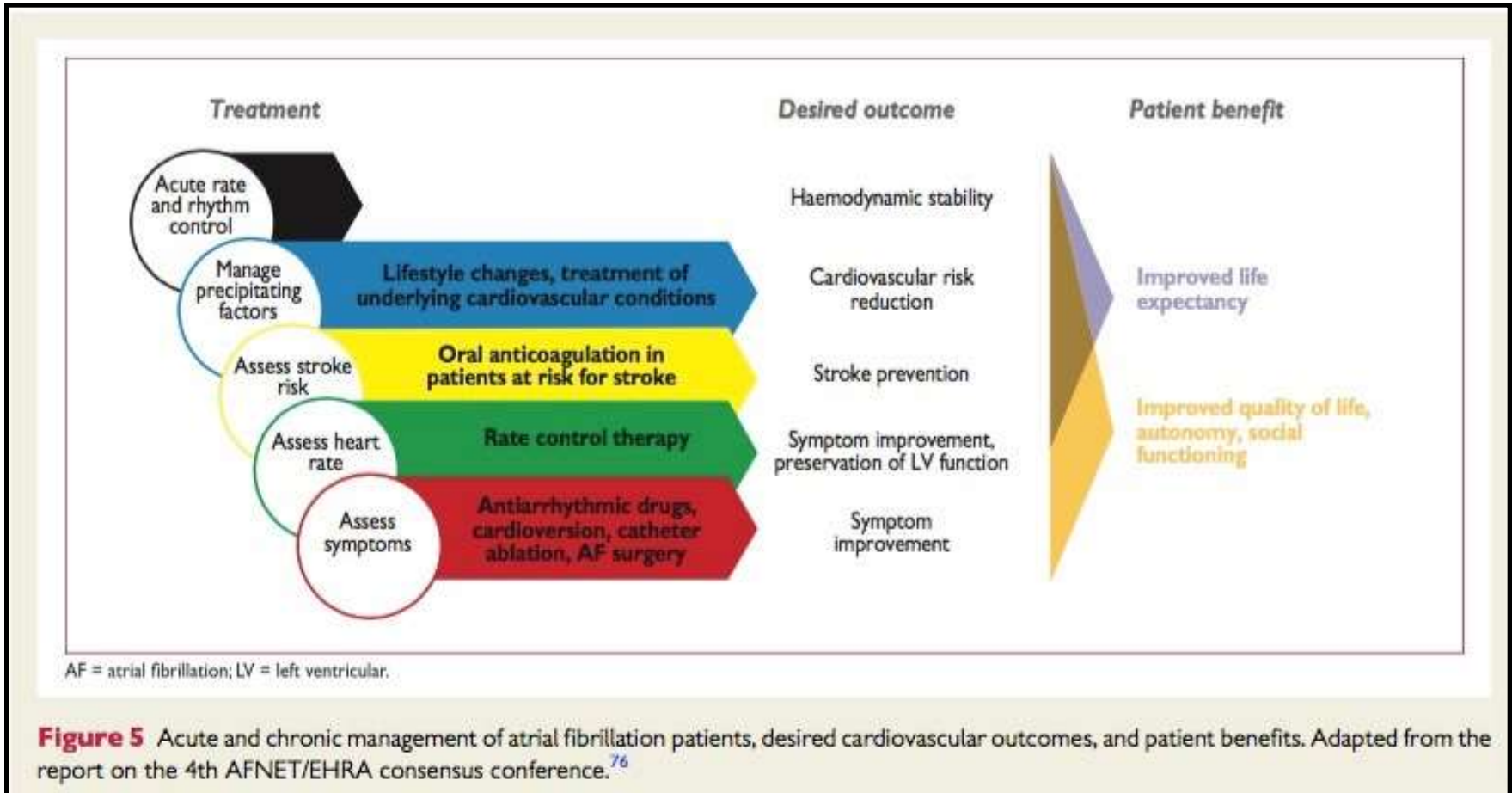
Integrated AF management in an RCT increased the use of evidence-based care, and reduced by approximately one-third the composite outcome of cardiovascular hospitalisation and cardiovascular death over a mean follow-up of 22 months (14.3% vs. 20.9%; HR 0.65; 95% CI 0.45-0.92; P 1/4 0.017)

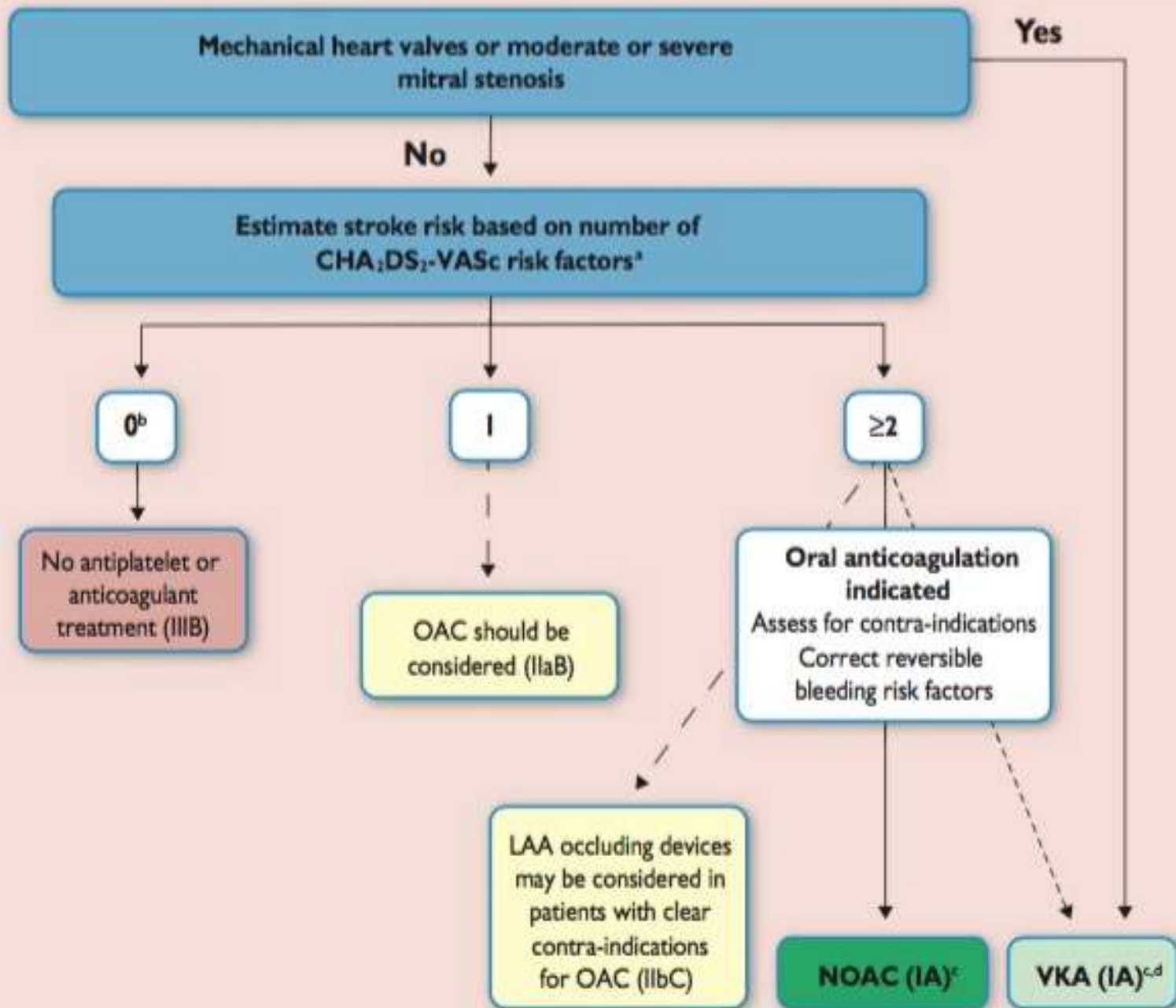
Integrated AF management

Patient involvement	Multidisciplinary teams	Technology tools	Access to all treatment options for AF
<ul style="list-style-type: none"> • Central role in care process • Patient education • Encouragement and empowerment for self-management • Advice and education on lifestyle and risk factor management • Shared decision making <p>• <i>Informed, involved, empowered patient</i></p>	<ul style="list-style-type: none"> • Physicians (general physicians, cardiology and stroke AF specialists, surgeons) and allied health professionals work in a collaborative practice model • Efficient mix of communication skills, education, and experience <p>• <i>Working together in a multidisciplinary chronic AF care team</i></p>	<ul style="list-style-type: none"> • Information on AF • Clinical decision support • Checklist and communication tools • Used by healthcare professionals and patients • Monitoring of therapy adherence and effectiveness <p>• <i>Navigation system to support decision making in treatment team</i></p>	<ul style="list-style-type: none"> • Structured support for lifestyle changes • Anticoagulation • Rate control • Antiarrhythmic drugs • Catheter and surgical interventions (ablation, LAA occluder, AF surgery, etc.) <p>• <i>Complex management decisions underpinned by an AF Heart Team</i></p>

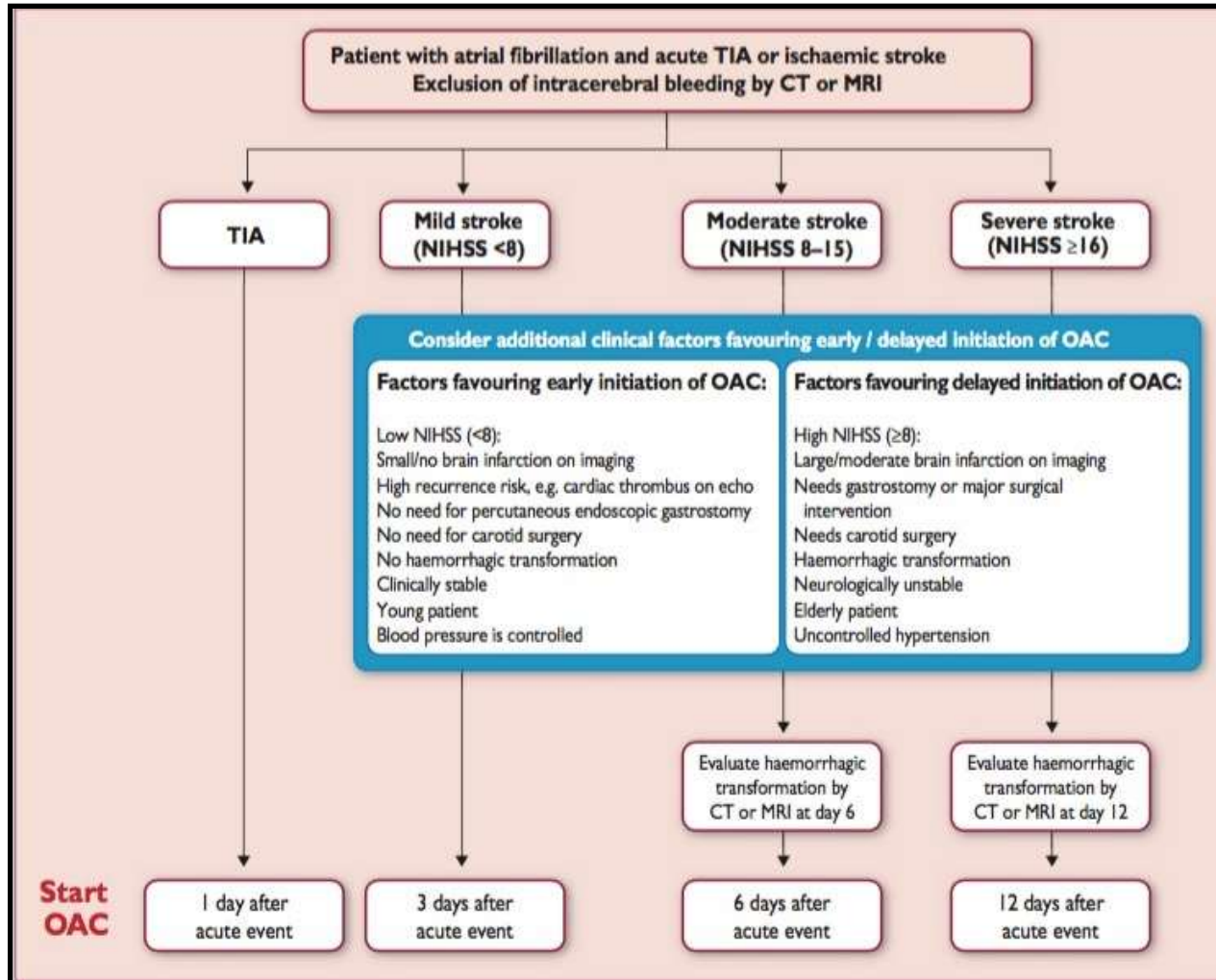
Integrated AF management

Recommendation	Class ^a	Level ^b	Ref ^c
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	204, 288, 296
guidelines adherence and to reduce hospitalizations and mortality.			
Obstructive sleep apnoea treatment should be optimized to reduce AF recurrences and improve AF treatment results.	IIa	B	307–311
long-term therapy.			

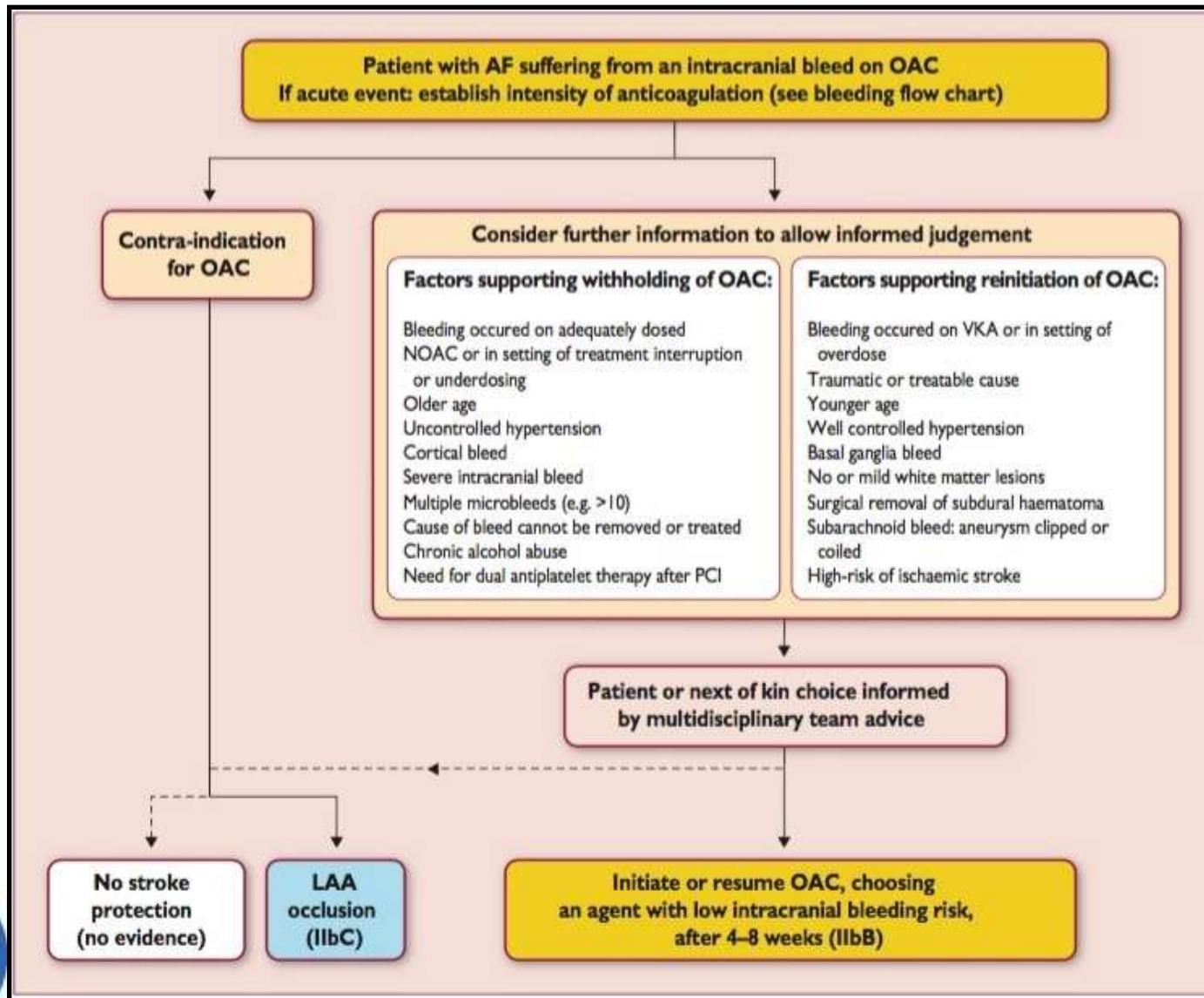




AF- Stroke- OAC



AF-Bleeding-OAC



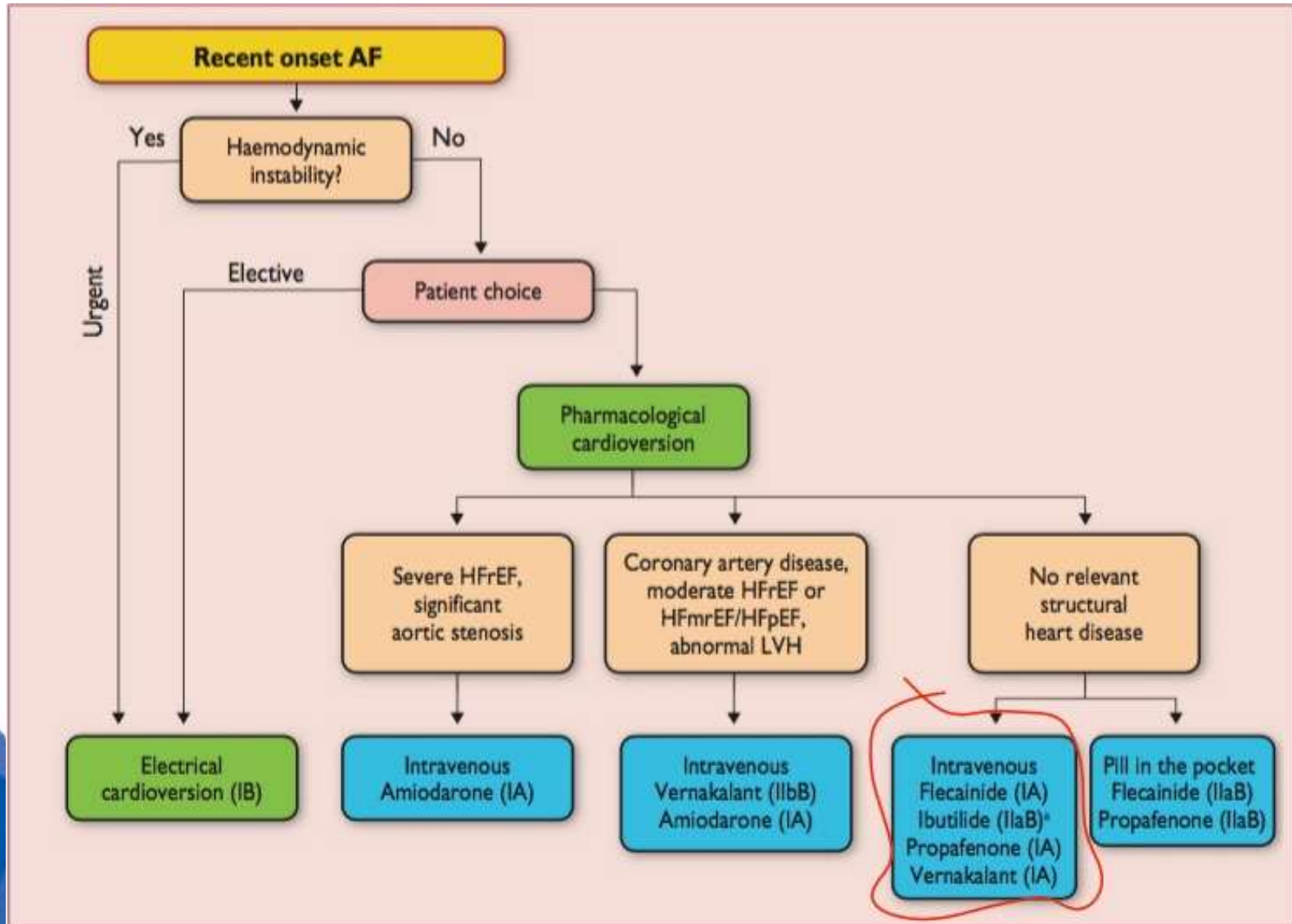
New antidotes

- ❖ **Idarucizumab** (approved in 2015 by the US Food and Drug Administration and the European Medicines Agency) is a clinically available humanized anti- body fragment that binds dabigatran and rapidly and dose-dependently reverses its effects without over-correction or thrombin generation. (*N Engl J Med* 2015;373:511-20)
- ❖ **Andexanet alpha**, a modified recombinant human factor Xa
- ❖ **Sciraparantag** (PER977), an antidote designed to reverse both direct thrombin and factor Xa inhibitors as well as the indirect inhibitor enoxaparin

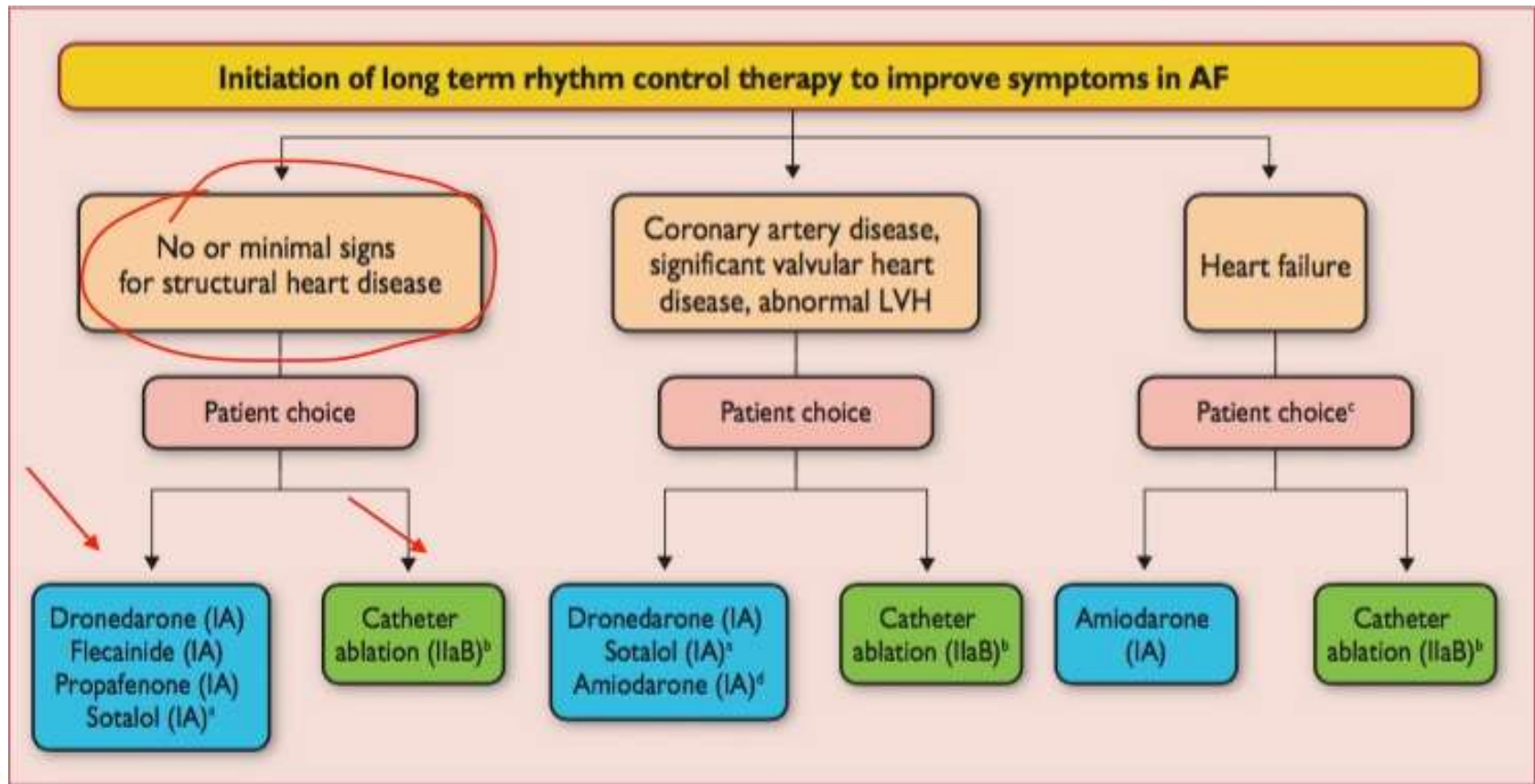
RATE VS RHYTHM CONTROL

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- ❖ **EAST – AFNET 4** (Early treatment of Atrial fibrillation for Stroke prevention Trial)
 - ❖ **CABANA** (Catheter Ablation vs. Anti-arrhythmic Drug Therapy for Atrial Fibrillation Trial).
 - ❖ For now, rhythm control therapy is indicated to improve symptoms in AF patients who remain symptomatic on adequate rate control therapy.
 - ❖ Only anticoagulation has been proved to reduce mortality

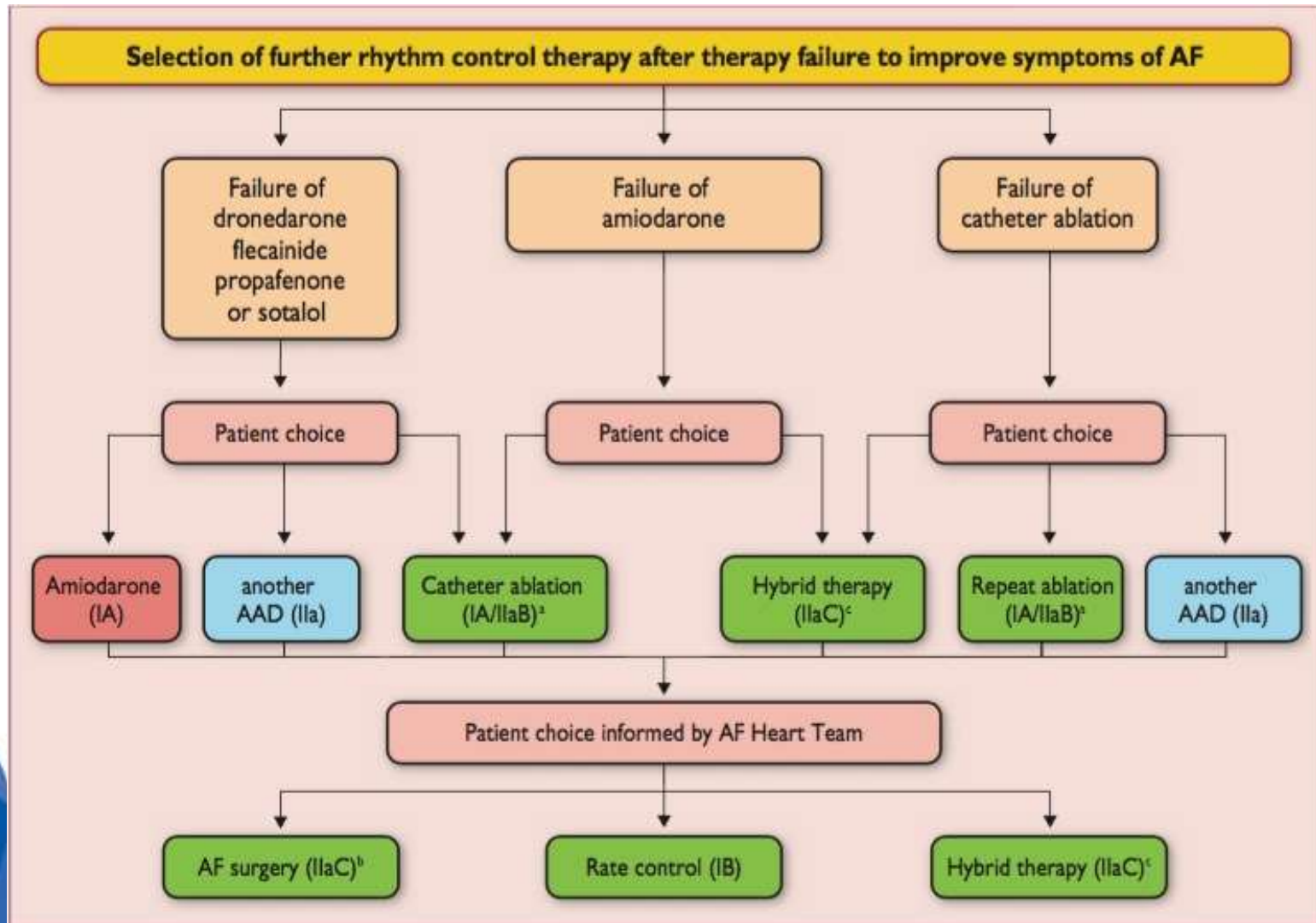
AF- rhythm control



AF rhythm control



AF rhythm control



AF- open heart surgery

AF patient undergoing open heart surgery (e.g. CABG, valve surgery)

Rhythm control therapy desirable to improve AF-related symptoms

Yes

No

Patient choice informed by AF Heart Team

AF surgery (IIaA)^a

No AF surgery

Consider to add surgical LAA exclusion in selected patients (IIbC)^b

Catheter or surgical ablation

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	760,768
Catheter ablation should target isolation of the pulmonary veins using radiofrequency ablation or cryotherapy balloon catheters.	IIa	B		585,715, 716,734, 735

AF ablation should be considered as a strategy to avoid pacemaker implantation in patients with AF-related bradycardia.	IIa	C		829,830
Catheter or surgical ablation should be considered in patients with symptomatic persistent or long-standing persistent AF refractory to AAD therapy to improve symptoms, considering patient choice, benefit and risk, supported by an AF Heart Team.	IIa	C		468,735, 777,831, 832,1040
Minimally invasive surgery with epicardial pulmonary vein isolation should be considered in patients with symptomatic AF when catheter ablation has failed. Decisions on such patients should be supported by an AF Heart Team.	IIa	B		468,812, 819,823
Maze surgery, possibly via a minimally invasive approach, performed by an adequately trained operator in an experienced centre, should be considered by an AF Heart Team as a treatment option for patients with symptomatic refractory persistent AF or post-ablation AF to improve symptoms.	IIa	C		808,832
Maze surgery, preferably biatrial, should be considered in patients undergoing cardiac surgery to improve symptoms attributable to AF, balancing the added risk of the procedure and the benefit of rhythm control therapy.	IIa	A		461,466, 790,791, 796,797

Atrial flutter

Recommendations for management of atrial flutter

Recommendations	Class ^a	Level ^b	Ref ^c
For patients with atrial flutter, antithrombotic therapy is recommended according to the same risk profile used for AF.	I	B	827
Overdrive atrial pacing of atrial flutter should be considered as an alternative to electrical cardioversion, depending on local availability and experience.	IIa	B	1000, 1001
Management of typical atrial flutter with ablation of the cavotricuspid isthmus is recommended for patients failing antiarrhythmic drug therapy or as first-line treatment considering patient preference.	I	B	158
If atrial flutter has been documented before AF ablation, ablation of the cavotricuspid isthmus should be considered as part of the AF ablation procedure.	IIa	C	