Review Article

Contemporary use of antiarrhythmic drugs: practical messages for clinical cardiologists from the EHRA compendium

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ABSTRACT

Antiarrhythmic drugs remain a cornerstone of rhythm and rate control in patients with cardiac arrhythmias, despite major advances in catheter ablation and device therapy. The EHRA Practical Compendium of Antiarrhythmic Drugs and its *European Heart Journal* editorial summarize 10 key messages that help clinicians use these agents more safely and effectively. The ABC indications framework (Appropriate, Back-up, Complementary) positions antiarrhythmic drugs alongside ablation and devices. A practical update of the Vaughan–Williams classification, understanding electrophysiological dynamics and pharmacokinetics, arrhythmia-specific drug selection, systematic proarrhythmic risk assessment, and careful use in comorbidities and special populations are the core themes. This article summarizes these messages with a clinical focus, supports scenario-based decision-making, and provides adapted tables and figure references to facilitate implementation in daily practice.

INTRODUCTION: WHY ANTIARRHYTHMICS STILL MATTER

The emergence of catheter ablation and therapy with devices has partially moved attention away from antiarrhythmic drugs (AADs). However, most patients with atrial fibrillation (AF) or other arrhythmias do not have access to invasive therapies, or else do not benefit from them fully, so AADs are still essential.[1]

In Europe, only a minority of patients with AF undergo ablation, and around half are still in treatment with AADs after the procedure. Furthermore, AADs cannot be replaced in scenarios such as channelopathies, many ventricular tachycardias associated to structural heart disease, prevention of ICDs shocks and acute treatment in emergencies.[2]

The consensus document from the *European Heart Rhythm Association* (EHRA), published in Europace 2025, offers a practical summary of 91 pages and a supplement on the contemporary use of AADs, complemented by an editorial in the *European Heart Journal*, summarizing 10 key messages for clinicians.[1,3] The goal of this article is moving these messages to the context of clinical cardiologists, emphasizing the practical aspects, and supporting on the editorial figures and selected tables from the summary.

1. ABC MODEL OF INDICATION FOR A CONTEMPORARY USE OF AADS

The first key message is conceptual: to arrange indications of use of AADs by the ABC model *(Figure 1).*

- **A – Appropriate therapy:** AADs are the main or preferred treatment. They include rhythm control in AF not candidate or not a priority for ablation, pharmacological termination of AF/atrial flutter or well tolerated ventricular tachycardias (VT), and prevention of recurrence in patients who respond well and prefer pharmacological treatment.
- **B – Back-up therapy:** AADs are added when ablation, devices or other treatments are inefficient, inaccessible, contraindicated or not accepted by the patient. For instance, reduction of AF recurrence after a first failed ablation.
- **C – Complementary therapy:** AADs are integrated to invasive therapy to enhance its efficacy or cover vulnerable phases (blanking period after AF ablation, prevention of VT in carriers of ICDs, association to resynchronization, etc.). [3]

For clinical cardiologists, this outline helps to position each prescription: are AADs the best available option for

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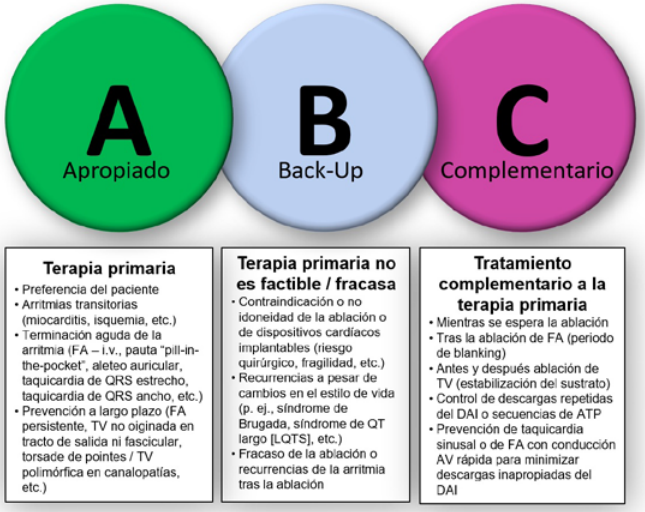

FIGURE 1A.
Indications of use of antiarrhythmic drugs by the ABC model

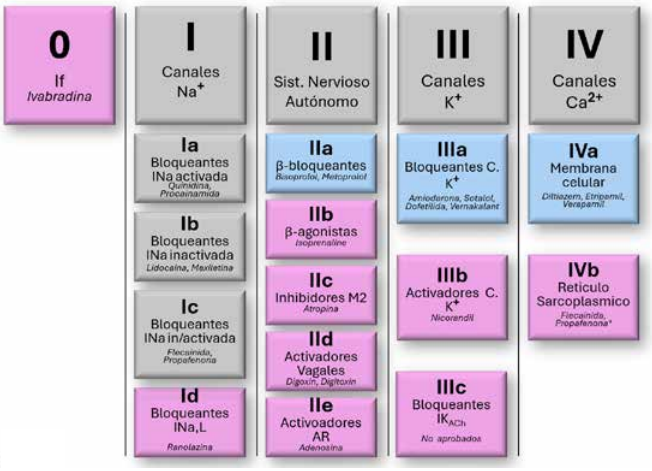

FIGURE 1B.
Simplified version of the classical Vaughan-Williams classification 2018 update

this patient? (A); do I use them as a "safety net" after the main therapy? (B); do I use them to complement or enhance another therapy? (C).

2. UPDATED AND PRACTICAL CLASSIFICATION OF AADS

The second key message is that the classical classification by Vaughan-Williams, although useful, is incomplete for current practice. The EHRA summary adopts a simplified version of the 2018 update, including new drugs (ivabradine, ranolazine, vernakalant, etc.) and reorganizes classes so that they are more useful for decision-making *(Figure 1B, Table 1)*. [4]

In *Table 1,* the updated classification is outlined:

- **Class 0:** ivabradine (sinus node modulation)
- **Class I** (sodium blockers), with subclasses Ia, Ib, Ic and Id according to kinetics and effect on action potential duration
- **Class II** (adrenergic drugs), subdivided into beta blockers and sympathomimetic agents
- **Class III** (potassium channel blockers), with drugs of very varied use (amiodarone, dronedarone, sotalol, dofetilide, etc.)
- **Class IV** (non-dihydropyridine calcium channel blockers).

This classification is not just academic: it helps to anticipate effects (for instance, QT prolongation with many class III drugs), and to integrate pharmacology with the mechanism of the arrhythmia. The EHJ editorial underscores that even within a single class, there are relevant differences between drugs, which condition their efficacy and safety.

3. ELECTROPHYSIOLOGICAL AND PHARMACOKINETIC DYNAMICS: WHAT IS ACCURATE TO CHOOSE PROPERLY.

The third message approaches the *"physiological layer"*, explaining why a single AAD can be better to prevent rather than to end an arrhythmia, or vice versa.

3.1. Dependency on rate and binding kinetics

- Direct dependency on use: effect is increased at high rates. This is the case of flecainide or propafenone, which displays a more intense block at a faster rate, favoring tachycardia termination.
- Reverse dependency on use: the effect is emphasized in bradycardia. Sotalol extends QT more markedly at lower rates, which makes it useful to prevent AF, but increases the risk of torsades de pointes when rate decreases abruptly after tachycardia.

3.2. Pharmacokinetics and metabolism

The summary reviews absorption, liver metabolism, distribution and excretion of the main AADs, offering specific recommendations in chronic kidney disease and liver failure. Drugs such as amiodarone, dronedarone, verapamil or propranolol have a significant liver metabolism, and multiple interactions via CYP3A4 and P-gp, demanding caution when associating them with direct anticoagulants, antiplatelet drugs and other cardiovascular drugs. In clinical practice, this is translated into three simple rules:

1. Systematically review concomitant medication before starting AADs;
2. Adjusting doses in chronic kidney disease and liver failure and in fragile elderly patients;
3. Preventing combinations of QT-prolonging drugs (antiarrhythmics, macrolides or quinolones, antipsychotic drugs, etc.)

TABLE 1.
Simplified update of the Vaughan-Williams classification of antiarrhythmic drugs (AADs)

Class	Subclass	Main pharmacological target/action	Examples of drugs
HCN channel blockers			
0		Pacemaker current mediated by HCN channel (If)	Ivabradine
Na+ channel blockers			
Iº	Ia	Nav1.5 (INa) in open state (intermediate dissociation)	Ajmaline, disopyramide[b], procainamide[b], quinidine/hydroquinidine[b,c,d]
Iº	Ib	Nav1.5 (INa) in inactivate state (rapid dissociation)	Lidocaine, mexiletine[c], phenytoin
Iº	Ic	Nav1.5 in open/inactivate state (slow dissociation)	Antazoline[c], cibenzoline, flecainide[f], pilsicainide, propafenone[f]
Iº	Id	Late Na+ current	Ranolazine
Autonomous nervous system inhibitors and activators			
II	IIa	β-blockers	β1 blockers: atenolol, bisoprolol, esmolol, landiolol, metoprolol, nebivolol; β1 and β2 blockers: nadolol, propranolol; β1, β2 and α1 blockers: carvedilol, labetalol
II	IIb	β-blockers	Isoprenaline
II	IIc	Muscarinic receptor M2 inhibitors	Atropine
II	IId	Vagus nerve activators/ACh release	Digoxin, digitoxin
II	IIe	Adenosine A1 receptor activators	Adenosine
K+ channel blockers and activators			
III	IIIa	Unspecific K+ channel blockers	Amiodarone[g], dronedarone[g], sotalol[h], bretylium
III	IIIa	K+ Kv11.1 (hERG) channel blockers	Dofetilide[i], ibutilide[j], nifekalant
III	IIIa	K+ Kv1.5 (IKur) channel blockers	Vernakalant[k]
III	IIIb	K+ Kir6.2 (KATP) channel activators	Nicorandil[l]
III	IIIc	GIRK1 and GIRK4 (IKACh) blockers	No approved medication
Ca2+ channel modulators			
IV	Iva	Bloqueadores no selectivos de membrana de superficie y de la corriente de Ca2+ tipo L (ICaL) mediada por los canales Cav1.2 y Cav1.3	Bepridil, diltiazem, etripamil, verapamil
IV	IVb	Bloqueadores de canales de Ca2+ del receptor de rianodina 2 (RyR2) del retículo sarcoplásmico intracelular	No approved medication
Mechanosensitive channel blockers			
V		Bloqueadores del canal del receptor potencial transitorio (TRPC3/TRPC6)	No approved medication
Gap junction channel blockers			
VI		Bloqueadores de conexinas Cx (Cx40, Cx43, Cx45)	No approved medication
«Upstream» target modulators			
VII		IECA, ARNI, antagonistas del receptor de mineralocorticoides, inhibidores de SGLT2, estatinas	Atorvastatin, enalapril, lisinopril, losartan, candesartan, sacubitril, spironolactone, etc.

AADs, antiarrhythmic drugs; **ACEIs,** angiotensin-converting enzyme inhibitors; **ACh,** acetylcholine; **ARNI,** angiotensin receptor-neprilysin inhibitor; **Cav,** calcium channels; **HCN,** hyperpolarization-activated cyclic-nucleotide-gated channels; **Nav,** sodium channels; **Kv,** potassium channel; **TdP,** torsades de pointes. **a** Beta blockers of Nav1.5/Na+ differ according to their binding state and their dissociation kinetics, conditioning its therapeutic role and its effects on cardiac action potential. Open/inactivate state blockers (slow dissociation kinetics) such as flecainide and propafenone, bind preferentially with open and inactivate Na+ channels, and dissociate slowly. They significantly reduce conduction velocity, particularly during tachycardia, which makes them efficient in atrial and ventricular arrhythmias (class Ic). Open state blockers (rapid dissociation), such as lidocaine and mexiletine, bind with open channels but dissociate fast, allowing a selective action in ischemic or depolarized tissue, not affecting normal conduction (class Ib). Inactivate state blockers (intermediate dissociation kinetics), such as quinidine and amiodarone, firmly bind to the resting state of Na+ channels, prolonging the refractory period and reducing reentrant arrhythmias (class Ia, with multiclass effects in the case of amiodarone). Na+ late current inhibitors, such as ranolazine, act on the persistent inflow of Na+ ions during the plateau phase, reducing Ca2+ overload and afterdepolarizations. This mechanism is particularly beneficial in ischemic conditions and to prevent arrhythmias such as TdP. **b** Class Ia AADs present secondary anticholinergic activity (class IIc), which is important for disopyramide, moderated for quinidine and mild for procainamide. This anticholinergic effect may produce sinus rate acceleration by reducing parasympathetic influence on the heart. **c** Quinidine and mexiletine also present a secondary effect of K+ channel block (class III), contributing to their capacity to extend repolarization and modulating action potential duration, increasing antiarrhythmic efficacy in specific conditions. **d** Catheter ablation is recommended as first-line option. **e** Beta blockers are recommended as first-line treatment for heart failure, but have a low efficacy to prevent sustained episodes of ventricular tachycardia in this scenario. **f** Vernakalant can be administered to patients with structural heart disease, as long as they do not present severe aortic stenosis, recent acute coronary syndrome or moderate to severe heart failure. **g** In regions where there is no vernakalant available, as well as IV class Ic drugs recommended by the AHA/ACC/HRS 2023 AF guidelines. **h** They may present limited efficacy if there is elevated adrenergic tone. **i** Vagal maneuvers are first-line option. **j** Electrical cardioversion is the first-line choice.

4. SAFE PRESCRIPTION: BASAL EVALUATION, START AND FOLLOW-UP

The summary emphasizes on safety not depending only on the drug, but also on the scenario where it is started.

4.1. Basal evaluation before starting AADs

Before prescribing an AAD that could extend QRS or QT, it is advisable:

- 12-lead ECG (QRS, QTc, U waves, previous bradyarrhythmias or tachyarrhythmias)
- Echocardiogram to document systolic function, hypertrophy and valvulopathy
- Renal and liver function, electrolytes (K+, Mg2+)
- In amiodarone, thyroid, lung and basal ophthalmological evaluation.[3]

4.2. Starting in the hospital or as outpatient treatment?

EHRA proposes a pragmatic strategy:

- Admission recommended for class Ia and some class III drugs (dofetilide, ibutilide) due to risk of early proarrhythmia
- Ambulatory start with adequate monitoring in patients with no structural heart disease for class Ic, amiodarone (oral), dronaderone or ranolazine, with serial ECGs within the first 24-72 h or in early visits
- Reinforcing patients' education on warning symptoms (dizziness, syncope, more intense or prolonged palpitations, heart failure worsening).

4.3. Structured follow-up

Once maintenance dose has been established, follow-up should include:

- Periodical ECG (at least once a year, and before if there are modifications made on doses or concomitant medications)
- Specific monitoring according to drug (for instance, thyroid testing, liver function and serial chest X-rays or CT in prolonged treatment with amiodarone).

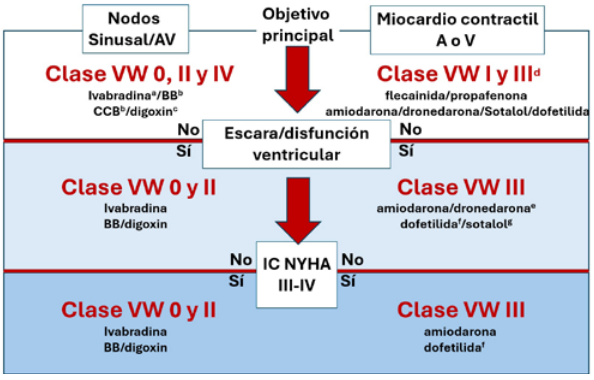

FIGURE 2.
Recommendations from the clinical guidelines of the European Society of Cardiology according to the type of arrhythmia, indication of prevention or termination and presence of structural heart disease.

5. SELECTION OF AADS ACCORDING TO TYPE OF ARRHYTHMIA

Table 2 (adapted from Table 3 from the EHRA summary) outlines the AADs recommended by the clinical guidelines of the European Society of Cardiology according to the type of arrhythmia, differentiating prevention and termination, and taking into account the presence or not of structural heart disease *(Figure 2)*.[5,6,7]

5.1. Atrial fibrillation (AF) and atrial flutter *(Figure 3)*

- In patients with no significant structural heart disease, the first-line options for rhythm control include flecainide, propafenone, dronaderone and sotalol, saving amiodarone for selected cases
- In the presence of relevant structural heart disease (ventricular dysfunction, severe hypertrophy, extensive CAD) amiodarone is prioritized, and in specific scenarios, sotalol as well, avoiding class Ic
- The pill-in-the-pocket approach with flecainide or propafenone in selected paroxysmal AF is still a useful strategy when its safety has been proven in a monitored environment *(Figure 4)*

5.2. Supraventricular tachycardias (SVT) with no AF

In atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reentry tachycardias (WPW) and focal atrial tachycardias, ablation is frequently the preferred option, but AADs are still an alternative or bridge.

- Beta blockers and verapamil/diltiazem are the first choice for most SVT with no manifest accessory pathway
- Flecainide and propafenone are saved for patients with no structural heart disease, who are not candidates for ablation or who refuse it.

5.3. Premature ventricular contractions and ventricular tachycardias

The choice depends on the presence of structural heart disease and the clinical context (idiopathic vs scar) *(Figure 5)*.

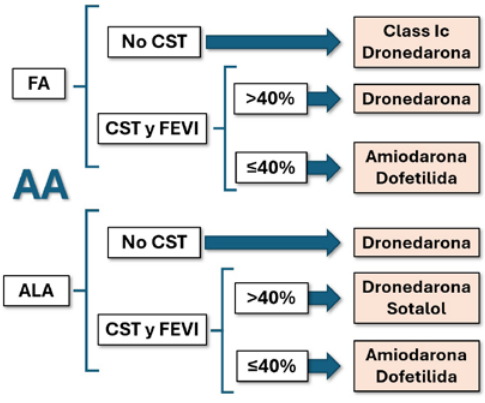

FIGURE 3.
Selection of antiarrhythmic drugs in atrial fibrillation and atrial flutter

TABLE 2.

Antiarrhythmic drugs and other recommended agents for different heart rhythm disorders according to clinical practice guidelines.

When two options are offered, it is advised to use the second alternative AAD as substitute option. The cells in green show high evidence/recommendation, those in yellow medium, and those in orange weak.

Tachycardia prevention					
Rhythm disorder	**First choice AADs**	**Strength of recommendation**	**Second choice AADs**	**Strength of recommendation**	**ESC guideline (year/topic)**
Sinus tachycardia[a]	Ivabradine, beta blockers	Medium	Alternative or combination	Medium	2019 SVT
Focal atrial tachycardia (focal AT)	Beta blockers, calcium antagonists (CCB) or class Ic drugs	Medium	Alternative		2019 SVT
Atrial flutter (AFL)	Beta blockers or CCB[b]	Medium	Amiodarone[c]	Low	2019 SVT
Atrial fibrillation (AF) – no structural heart disease (SHD) or heart failure (HF)	Class Ic drugs or dronaderone	High	Alternative		2024 AF
AF – with SHD or HFpEF/HFmrEF	Dronedarone	High	Alternative		2024 AF
AF – HFrEF	Amiodarone	High			2024 AF
Non-preexcited paroxysmal supraventricular tachycardia (SVT)	Beta blockers or CCB[e]	Medium[e]	Alternative	Medium	2019 SVT
Polymorphic ventricular tachycardia/ventricular fibrillation (PVT/VF) with SHD or ischemia	Beta blockers and K^+/Mg^{2+} replenishment	High	Amiodarone	Medium	2022 VA
Premature ventricular contractions (PVC) / idiopathic VT in outflow tract or fascicular	Beta blockers or CCB or class Ic drugs[e]	Medium[e]	Alternative		2022 VA
Idiopathic PVC/VT of another origin	Beta blockers or CCB	High	Alternative or ablation		2022 VA
VT with SHD	Beta blockers	High[i]	Amiodarone or sotalol	Medium	2022 VA
Torsades de pointes (TdP)/VF without SHD	Nadolol/propranolol (LQTS 1 and 2, CPVT). Mexiletine (LQT3). Quinidine (LQTS, idiopathic VF, ERS, Brugada)	High and Medium	Flecainide (CPVT)	Medium	2022 VA

Tachycardia termination/control					
Rhythm disorder	**First choice AADs**	**Strength of recommendation**	**Second choice AADs**	**Strength of recommendation**	**ESC guidelines (year/topic)**
Focal AT	IV adenosine	Medium	IV CCB, IV beta blockers	Medium	2019 SVT
AFL	IV ibutilide/dofetilide	High	Amiodarone	Low	2019 SVT
AFL	Beta blockers or CCB[b]	Medium	Amiodarone[c]	Low	2019 SVT
AF – with no SHD or HF	IV vernakalant[f]; IV flecainide / propafenone or «pill-in-the-pocket»	High	Alternative: ibutilide[k]		2024 AF
AF – with SHD/HF	IV vernakalant[f]; IV amiodarone	High	Alternative		2024 AF
AF – without SHD or HF (HR control)	Beta blockers, CCB or digoxin[d]	High	Alternative		2024 AF
AF – with SHD or HF (HR control)	Beta blockers or digoxin	High	Alternative		2024 AF
Narrow QRS complex tachycardia	IV adenosine	High	IV CCB, IV beta blockers	Medium	2019 SVT
Wide QRS complex tachycardia	IV adenosine	High	IV procainamide	Medium	2019 SVT
Preexcited SVT	Class Ic drugs or ibutilide or IV procainamide	Medium[g]	Alternative		2019 SVT
Preexcited AF	Ibutilide or IV procainamide	Medium	Class Ic drugs	Low	2019 SVT
PVC/idiopathic VT of outflow tract or fascicular	Beta blockers (outflow tract) or IV CCB (fascicular)	High	Alternative		2022 VA
VT with SHD or of unknown origin[h]	IV procainamide	Medium[i]	Amiodarone	Low	2022 VA
TdP/VF with no SHD	Mg^{2+}, K^+, beta blockers (congenital LQTS). Isoprenaline (acquired LQTS, idiopathic VF, ERS, Brugada). Verapamil, quinidine (idiopathic VF)	High / Medium			2022 VA
PVT/VT with SHD or ischemia	Beta blockers and K^+/Mg^{2+} replenishment	High	Amiodarone	Medium	2022 VA

ADD, antiarrhythmic drugs; **AF,** atrial fibrillation; **AFL,** atrial flutter; **AT,** atrial tachycardia; **CCB,** calcium channel blockers; **CPVT,** catecholaminergic polymorphic ventricular tachycardia; **ERS,** early repolarization syndrome; **ESC,** European Society of Cardiology; **HF,** heart failure; **HFpEF/HFmrEF/HFrEF,** heart failure with preserved/mildly reduced/reduced ejection fraction; **HR,** heart rate; **LQTS,** long QT syndrome; **PITP**, pill-in-the-pocket; **PVCs,** premature ventricular contractions; **PVT,** polymorphic ventricular tachycardia; **SHD,** structural heart disease; **SVT,** supraventricular tachycardia; **TdP,** torsades de pointes; **VA,** ventricular arrhythmias; **VF,** ventricular fibrillation; **VT,** ventricular tachycardia. **a** Management of reversible causes is the first-line option. **b** Used for heart rate control with scarce effect on atrial flutter prevention. **c** Sotalol and dofetilide are also recommended in the AHA/ACC/HRS 2023 AF guidelines, and in this consensus, dronaderone is identified as another reasonable alternative to amiodarone. **d** Catheter ablation is advised as first-line option. **e** Beta blockers are recommended as first-line choice to treat heart failure, but present a low efficacy to prevent sustained episodes of VT in this scenario. **f** Vernakalant can be administered to patients with SHD but no severe aortic stenosis, recent acute coronary syndrome or moderate to severe heart failure. **g** In areas where there is no vernakalant available, as well as IV class Ic drugs recommended by the AHA/ACC/HRS 2023 AF guidelines. **h** They may have a limited efficacy if there is elevated adrenergic tone. **i** Vagal maneuvers are the first-line option. **j** Electrical cardioversion is the first-line choice.

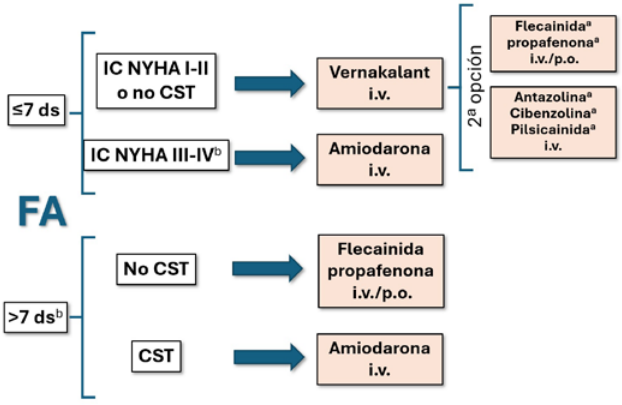

FIGURE 4.
Pill-in-the-pocket approach with flecainide or propafenone in paroxysmal AF

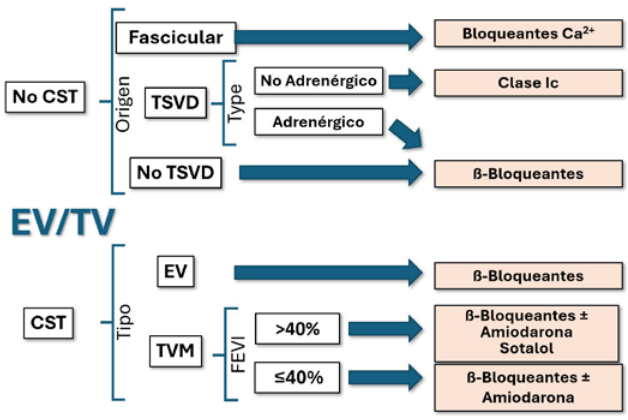

FIGURE 5.
Selection of antiarrhythmic drugs in premature contractions and ventricular tachycardias

- In well tolerated idiopathic ventricular arrhythmias, beta blockers and verapamil are usually the first line; flecainide, propafenone or sotalol are considered in absence of structural heart disease
- In structural heart disease, amiodarone and sotalol are the reference drugs, in combination with beta blockers and devices (ICD).

Table 3 (adapted from Table 4) lists the typical indications and the scenarios where AADs should not be used, per drug, providing a quick view on "when yes and when no" for each AAD.

6. INTEGRATION WITH ABLATION, DEVICES AND OTHER THERAPIES

One of the differential messages of the summary is the integrating view of AAD with other rhythm control strategies:

- In AF, many patients benefit from a combined approach: AAD to reduce the arrhythmic load, facilitate cardioversion or manage recurrence, along with ablation when indicated
- In carriers of ICD, AADs (amiodarone, sotalol, beta blockers) reduce the incidence of ventricular tachycardias, and therefore, of appropriate and inappropriate shocks
- In channelopathies (LQTS, Brugada, catecholaminergic polymorphic VT), quinidine, mexiletine, or specific beta blockers are integrated with non-pharmacological strategies (sympathetic denervation, ICD, avoidance of triggering drugs).

This integration is reflected in several of the figures of the EHJ editorial *(Figures 4, 6, 7 and 8)*, illustrating the position of AADs within practical clinical decision-making circuits.

7. RISK OF PROARRHYTHMIA: IDENTIFICATION, PREVENTION AND MONITORING

Proarrhythmia is the main weakness of AADs. The summary devotes an extensive section to this problem, and offers both a risk table per drug, and a list of predisposing factors *(Tables 4 and 5)*.

7.1. Risk according to drug

Table 4 (Table 10 of Europace) classifies the risk of proarrhythmia (low, intermediate and high) and the typical type of induced arrhythmia (torsades de pointes, monomorphic VT, bradyarrhythmias, etc.) for the main AADs of classes I through IV and other agents.[3]

Some practical aspects:

- Torsades de pointes is associated mainly with many class III drugs (sotalol, dofetilide, ibutilide) and certain class Ia drugs (quinidine, disopyramide), particularly in combination with additional risk factors
- QRS prolongation with class Ic may precipitate monomorphic VT or VF in ischemic structural heart disease or cardiomyopathy
- Beta blockers and non-dihydropyridine calcium channel blockers usually present a low risk of torsades-like proarrhythmia, but may induce significant bradyarrhythmias in specific patients.

7.2. Predisposing factors

Box 12 of the summary (*Table 5* in this article) details the factors increasing the risk of torsades de pointes: female gender, advanced age, prolonged basal QTc, bradycardia, hypopotassemia, hypomagnesemia, heart failure and renal or liver insufficiency, among others.

In practice, clinical cardiologists should:

1. Adjust electrolytes before and during treatment with QT-prolonging AADs
2. Avoid combinations of QT-prolonging drugs, except under a very justified indication
3. Reassess QTc periodically after dose modifications, introduction of new drugs or appearance of symptoms.

TABLE 3.
Typical indications and contraindications of the main antiarrhythmic drugs (AADs)
The conditions for the indications and contraindications are expressed between brackets.

Modified VW class	AAD	Main indications	It should not be used/main contraindication
IIB	Ivabradine	Inappropriate sinus tachycardia	Cardioversion of atrial fibrillation
IA	Ajmaline	AF termination (with preexcitation); termination of monomorphic VT (MVT) with no significant structural heart disease	Brugada syndrome (BrS); heart failure with reduced ejection fraction (HFrEF)
IA	Quinidine	Prevention of polymorphic VT (PVT) in channelopathies	Long QT interval
IA	Procainamide	Termination of MVT with structural heart disease (SHD)	HFrEF
IA	Disopyramide	Prevention of vagotonic AF	HFrEF
IB	Lidocaine	Termination of PVT/ischemic VF	Bradycardia
IB	Mexiletine	Prevention of TdP in LQT3	Bradycardia
IB	Phenytoin	Termination of junctional ectopic tachycardia (JET) by digitalis toxicity	Bradycardia
IC	Flecainide / Propafenone	Prevention/termination of idiopathic AF; WPW syndrome	BrS; SHD
ID	Antazoline	Termination of idiopathic AF	Bradycardia; SHD
ID	Ranolazine	Prevention/termination of AF	Long QT interval
IIA	Beta blockers β1 (e.g., bisoprolol, metoprolol)	Rate control in AFL/AF; idiopathic VT/PVC	Bradycardia
IIA	Beta blockers β1+β2 (e.g., nadolol, propranolol)	Prevention of TdP in LQT1 and LQT2; catecholaminergic polymorphic VT (CPVT)	Bradycardia
IIB	Isoprenaline	TdP in acquired LQTS; PVT in BrS	CPVT
IIC	Atropine	Sinus bradycardia	Inappropriate sinus tachycardia
IID	Digoxin	Rate control in AF/AFL	Amyloidosis
IIE	Adenosine	Termination of paroxysmal supraventricular tachycardia (PSVT)	Asthma/COPD
Modified VW class	**AAD**	**Main indications**	**Should not be used/main contraindication**
III	Amiodarone	Prevention/termination of AF/AFL in HFrEF; prevention/termination of MVT with SHD	Bradycardia
III	Dronedarone	Prevention of AF/AFL in SHD	Permanent AF; HFrEF
III	Dofetilide	Prevention of AF/AFL in HFrEF	Long QT interval
III	Ibutilide	Termination of AFL	Long QT interval
III	Sotalol	Prevention of MVT with SHD	Chronic kidney disease (CKD)
III	Vernakalant	Termination of AF ≤7 days of evolution	Aortic stenosis; NYHA III/IV
IV	Verapamil / Diltiazem	Rate control in AF/AFL; prevention/termination of fascicular VT	MVT with SHD; HFrEF

ADD, antiarrhythmic drugs; **AF,** atrial fibrillation; **AFL,** atrial flutter; **BrS,** Brugada syndrome; **CKD,** chronic kidney disease; **COPD,** chronic obstructive pulmonary disease; **CPVT,** catecholaminergic polymorphic ventricular tachycardia; **HFrEF.** Heart failure with reduced ejection fraction; **JET,** junctional ectopic tachycardia; **LQTS,** long QT syndrome; **LVEF,** left ventricular ejection fraction; **MVT,** monomorphic ventricular tachycardia; **PVCs,** premature ventricular contractions; **PVT,** polymorphic ventricular tachycardia; **RVOT,** right ventricular outflow tract; **SHD,** structural heart disease; **TdP,** torsades de pointes; **VA,** ventricular arrhythmia; **VF,** ventricular fibrillation; **VT,** ventricular tachycardia; **WPW,** Wolff-Parkinson-White.

8. SPECIAL POPULATIONS AND SITUATIONS

The summary devotes a chapter to situations in which physiology or comorbidities substantially modify the benefit-risk profile of AADs:

- Pregnancy: beta blockers are preferred (with specific caution), avoiding amiodarone and dronaderone due to their potential fetal toxicity
- Children and fetuses: they require specific experience, and often, referral to reference centers
- Elderly patients: greater risk of adverse effects, interactions and accumulation of drugs; it is advised to start with low doses, monitor closely and frequently review concomitant medication
- Heart failure: the choice of AADs in LVEF reduction is particularly delicate; amiodarone is prioritized in many situations and class Ic is avoided
- Renal or liver insufficiency: they require dose adjustment, and in some drugs, they should be avoided completely

TABLE 4.
Risk of proarrhythmia and typical forms of proarrhythmia of different antiarrhythmic drugs (AADs).
The background is shown in black, beige or white to indicate high, moderate or low risk of proarrhythmia, respectively.

Class	Drug	Risk	Type of proarrhythmia
0	Ivabradine	Low	Bradycardia, AV block, AF
Ia	Quinidine	High	TdP
Ia	Procainamide	Moderate	AV block, monomorphic VT[b], TdP
Ia	Disopyramide	Low	Bradycardia
Ib	Mexiletine / Lidocaine	Low	Bradycardia, AV block
Ic	Flecainide	Moderate	AFL[a], monomorphic VT[b], bradycardia
Ic	Propafenone	Moderate	AFL[a], monomorphic VT[b], bradycardia
Id	Ranolazine	Low	QT prolongation
IIa	Beta blockers	Low	Bradycardia, AV block
IIb	Isoprenaline	Low	Sinus tachycardia, PAC, PVC, VT
IIc	Atropine	Low	Sinus tachycardia, paradoxical AV block[d]
IId	Digoxin / Digitoxin	Moderate	AV block, junctional tachycardia, polymorphic VT, AT with AV block
IIe	Adenosine	Moderate	Transient sinus bradycardia and AV block, AF, PAC, PVC
III	Amiodarone	Low	Bradycardia, AFL[a]
III	Dronedarone	Low[e]	Bradycardia
III	Dofetilide	High	TdP
III	Ibutilide	High	TdP
III	Sotalol	High	TdP, bradycardia
III	Vernakalant	Low	Sinus bradycardia, non-sustained VT (NSVT)
IV	Verapamil	Low	Bradycardia, AV block
IV	Diltiazem	Low	Bradycardia, AV block

FA, fibrilación **AF,** atrial fibrillation; **AFL,** atrial flutter; **AT,** atrial tachycardia; **AV,** atrioventricular; **NSVT,** non-sustained ventricular tachycardia; **PAC,** premature atrial contractions; **PVC,** premature ventricular contractions; **TdP,** torsades de pointes; **VT,** ventricular tachycardia. **a** In patients with AF. **b** In patients with structural heart disease. **c** In patients with sinus node dysfunction or AV conduction disorders. **d** AV block worsening in ECG, like AV block progression from second degree to complete block when atropine increases sinus rate. **e** High risk when combined with digitalis, as dronaderone reduces renal excretion of digitalis agents, enhancing associated risks. The combination may also increase the probability of AV block and other proarrhythmic effects.

- Channelopathies and familial heart diseases: the summary offers specific recommendations (for instance, use of quinidine in Brugada, mexiletine in LQTS3, etc.), integrating evidence and clinical experience.

9. NEW DRUGS AND FORMULATIONS BEING DEVELOPED

Most evidence is still focused on classical antiarrhythmic drugs, but there is a small but active line of development of new drugs and formulations. The most advanced example is etripamil, a short-acting calcium channel blocker administered intranasally, close to being approved for home self-administration to terminate AV nodal-dependent tachycardia.[8] In the same line of management "on demand", an inhaled formulation of flecainide is being evaluated, which may offer a fast cardioversion of AF of recent onset.[9]

In addition, the summary mentions other compounds in earlier stages of research, like budiodarone, HDAC6 inhibitors, and small-conductance potassium channel blockers (SK channels). All of them are considered now experimental strategies, with no role yet in usual critical practice or recommendations from guidelines, but show the possible ways for a future renewal of antiarrhythmic therapy.

10. PRACTICAL IMPLICATIONS FOR CLINICAL CARDIOLOGISTS

From the 10 key messages in the EHJ editorial and the EHRA summary, some operative conclusions are drawn for daily consultation:

1. AADs remain essential: ablation and devices do not substitute the need for an expert use of drugs.
2. The ABC model helps to prioritize: it forces us to question whether AADs is the main therapy (A), back-up (B) or complementary (C), and to document this logic in clinical history.

TABLA 5.
Clinical risk factors and electrocardiographic signs related to torsades de pointes (TdP)

Risk factors of TdP	ECG signs indicating risk of TdP
• Age >65 years[a] • Female gender[a] • Congenital long QT syndrome (clinical or subclinical by incomplete penetrance, mono or polygenic) • Personal history: - History of syncope - History of TdP or significant bradycardia - Nausea, vomit, diarrhea or current use of laxatives • Structural heart disease: - Myocardial ischemia - Heart failure - Left ventricular hypertrophy • Systemic disorders: - Renal or liver insufficiency - Hypothyroidism - Subarachnoid bleeding - Hypothermia • Electrolytic disorders: - Hypopotassemia (<3.5 mmol/L) - Hypocalcemia (<8.5 mmol/L) - Hypomagnesemia (≤0.7 mg/dL) • Drugs: - Medication extending QT - Diuretic treatment - Drug interactions • Signs in ECG	• Bradycardia (<60 bpm), including recent conversion from AF • QTc >500 msec • QT increase >60 ms in regard to baseline • T-wave alternans • T or U wave distortion • Premature ventricular contraction and non-sustained VT triggered after a pause

AF, atrial fibrillation; **ECG,** electrocardiogram; **VT,** ventricular tachycardia.
a Age and gender per se are not enough to contraindicate specific antiarrhythmic drugs, although a closer monitoring and control of other risk factors are recommended.

3. A practical classification and basic understanding of pharmacodynamics allow to anticipate desired and undesired effects, to better choose the drug and to explain patients what is the goal with each treatment.
4. Safety depends on context: thorough basal evaluation, informed decision on in-hospital or outpatient start, and structured monitoring are as important as the drug's choice.
5. Selection should be specific for each arrhythmia, but always integrated with the rest of the strategy (anticoagulation, comorbidities management, ablation, devices).
6. Proarrhythmia can be prevented to a large extent if risk factors are identified, the appropriate drug is chosen, and there is an adequate monitoring.
7. Special populations require caution and adapting more than global prohibitions.

All in all, the EHRA summary provides a "map" for a contemporary use of AADs. This article attempts to translate it to the area of Spanish-speaking clinical cardiologists, integrating conceptual figures and practical tables that may serve as quick support for decision-making.

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