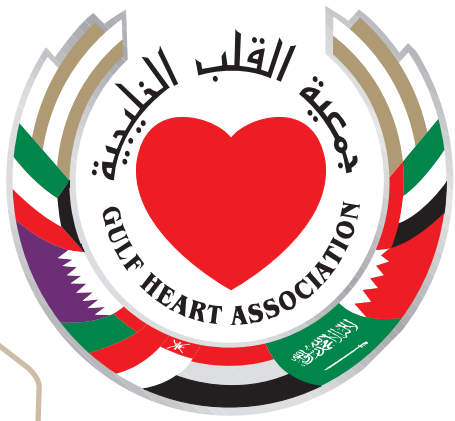

G.H.A Pocket Guidelines

Committee for practice Guidelines
to improve the quality of clinical practice
and patient care in GCC countries

Management of Patients with

Atrial Fibrillation

2009

GHA writing Committee

Management of Patients with Atrial Fibrillation (AF)

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Gulf Heart Association Guidelines, 2009

The following material is adapted from the ACC/AHA/ESC Guidelines for the management of patients with Atrial Fibrillation: Executive Summary (Journal of the American College of Cardiology 2006; 48:854–906; Circulation 2006; 114:700–52; and European Heart Journal 2006; 27:1979–2030).

The GHA AF Advisory Board acknowledges the effort and positive contribution of Dr. Alawi ALSHEIKH-ALI (MD, MSc, FACC) in the development of these guidelines.

Contents

I. Introduction

AF is a supraventricular tachyarrhythmia characterized by uncoordinated atrial activation with consequent deterioration of its mechanical function. AF is the most common sustained cardiac rhythm disturbance encountered in clinical practice, increasing in prevalence with age. AF is often associated with structural heart disease although a substantial proportion of patients with AF have no detectable heart disease. Hemodynamic impairment and thromboembolic events related to AF result in significant morbidity, mortality, and cost.
Accordingly, the Gulf Heart Association (GHA) has assigned a working group to develop an up-to-date guidelines for optimum management of AF. These guidelines are adopted from the latest update from the ACC/AHA/ESC guidelines for the management of patients with AF.

Objective

These guidelines are not intended to replace nor to add new management strategies. The main objective is to provide a quick summary for the physicians on how to deal with AF based on the most current guidelines published by the ACC/AHA/ESC.

Scope of the Pocket Guide

This pocket guide is primarily developed in order to assist physicians in managing patients with AF. These guidelines reply to the majority of cases, however, it should be kept in mind that specific findings in individual patients may result in deviation from the proposed strategy.

Framingham risk score[1] for prediction of the 5-year risk of stroke in patients with non valvular AF

Step-1

Age,y	Pts
55-59	0
60-62	1
63-66	2
67-71	3
72-74	4
75-77	5
78-81	6
82-85	7
86-90	8
91-93	9
>93	10

Step-2

Sex	Pts
Man	0
Woman	6

Step-3

Systolic blood pressure, mm Hg	Pts
<120	0
120-139	1
140-159	2
160-179	3
>179	4

Step-4

Diabetes	Pts
No	0
Yes	5

Step-5

Prior stroke or TIA	Pts
No	0
Yes	6

Add up points from steps 1 through 5

Look up predicted 5-year-risk of stroke in the right side table

Pts	5-y risk, %
0-1	5
2-3	6
4	7
5	8
6-7	9
8	11
9	12
10	13
11	14
12	16
13	18
14	19
15	21
16	24
17	26
18	28
19	31
20	34
21	37
22	41
23	44
24	48
25	51
26	55
27	59
28	63
29	67
30	71
31	75

(1) Wang TJ et al. JAMA. 2003, 290(8): 1049-1056

II. Classification of AF

The classification scheme recommended here represents a consensus driven by a desire for simplicity and clinical relevance. The clinician should distinguish the first-detected episode of AF, whether or not symptomatic or self-limited, recognizing the uncertainty about the actual duration of the episode and about previous undetected episodes (Table 1).

Table 1. Patterns of Atrial Fibrillation

AF Category	Defining Characteristics
First detected	only one diagnosed episode
Paroxysmal[1]	recurrent episodes that self-terminate in less than 7 days
Persistent[2]	recurrent episodes that last more than 7 days
Permanent[3]	an ongoing long-term episode

1 episodes that generally last less than or equal to 7 days (most less than 24 h)
2 usually physician-terminated
3 cardioversion failed or not attempted

Table 2. Clinical Evaluation in patients with AF

Minimum evaluation	Additional testing One or several tests may be necessary
1. History and physical examination, to define ♥ Presence and nature of symptoms associated with AF ♥ Clinical type of AF (first episode, paroxysmal,persistent, or permanent) ♥ Onset of the first symptomatic attack or date of discovery of AF ♥ Frequency, duration, precipitating factors, and modes of termination of AF ♥ Response to any pharmacological agents that have been administered ♥ Presence of any underlying heart disease or other reversible conditions (e.g., hyperthyroidism or alcohol consumption)	**1. Six-minute walk test** ♥ If the adequacy of rate control is in question

Minimum evaluation	Additional testing One or several tests may be necessary
2. Electrocardiogram, to identify ♥ Rhythm (verify AF) ♥ LV hypertrophy ♥ P-wave duration and morphology or fibrillatory waves ♥ Preexcitation ♥ Bundle-branch block ♥ Prior MI ♥ Other atrial arrhythmias ♥ To measure and follow the R-R, QRS, and QT intervals in conjunction with antiarrhythmic drug therapy	**2. Exercise testing** ♥ If the adequacy of rate control is in question (permanent AF) ♥ To reproduce exercise-induced AF ♥ To exclude ischemia before treatment of selected patients with type Ic antiarrhythmic drug
3. Chest radiograph, to evaluate ♥ Lung parenchyma, when clinical findings suggest an abnormality ♥ Pulmonary vasculature, when clinical findings suggest an abnormality	**3. Holter monitoring or event recording** ♥ If diagnosis of the type of arrhythmia is in question ♥ As a mean of evaluating rate control

Minimum evaluation	Additional testing One or several tests may be necessary
4. Transthoracic echocardiogram, to identify ♥ Valvular heart disease ♥ LA and RA size ♥ LV size and function ♥ Peak RV pressure (pulmonary hypertension) ♥ LV hypertrophy ♥ LA thrombus (low sensitivity) ♥ Pericardial disease	
5. Blood tests of thyroid, renal, and hepatic function ♥ For a first episode of AF, when the ventricular rate is difficult to control	**5. Transesophageal echocardiography** ♥ To identify LA thrombus (in the LA appendage) ♥ To guide cardioversion
	6. Electrophysiological study ♥ To clarify the mechanism of wide-QRS-complex tachycardia ♥ To identify a predisposing arrhythmia such as atrial flutter or paroxysmal supraventricular tachycardia ♥ To seek sites for curative ablation or AV conduction block/modification

type Ic refers to the Vaughan Williams classification of antiarrhythmic drugs

AF indicates atrial fibrillation; **AV**, atrioventricular; **LA**, left atrial; **LV**, left ventricular; **MI**, myocardial infarction; **RA**, right atrial; and **RV**, right ventricular.

III. Proposed Management Strategies

A. Strategic Objectives

- Rate control
- Prevention of thromboembolism
- Correction of rhythm disturbance

B. Algorithms for management of patients with non valvular AF

Management of patients with AF requires knowledge of its pattern of presentation (paroxysmal, persistent, or permanent) “Table 1” underlying conditions and decisions about restoration and maintenance of sinus rhythm, control of the ventricular rate, and antithrombotic therapy.

These issues are addressed in the various management algorithms for each presentation of AF see “Figures 2, 3, 4 and 5”.

Due to scarcity of data from randomized trials of antiarrhythmic medications for treatment of patients with AF, the drug-selection algorithms was developed by consensus and is subject to revision as additional evidence emerges.

Figure 1: General Approach of AF Management

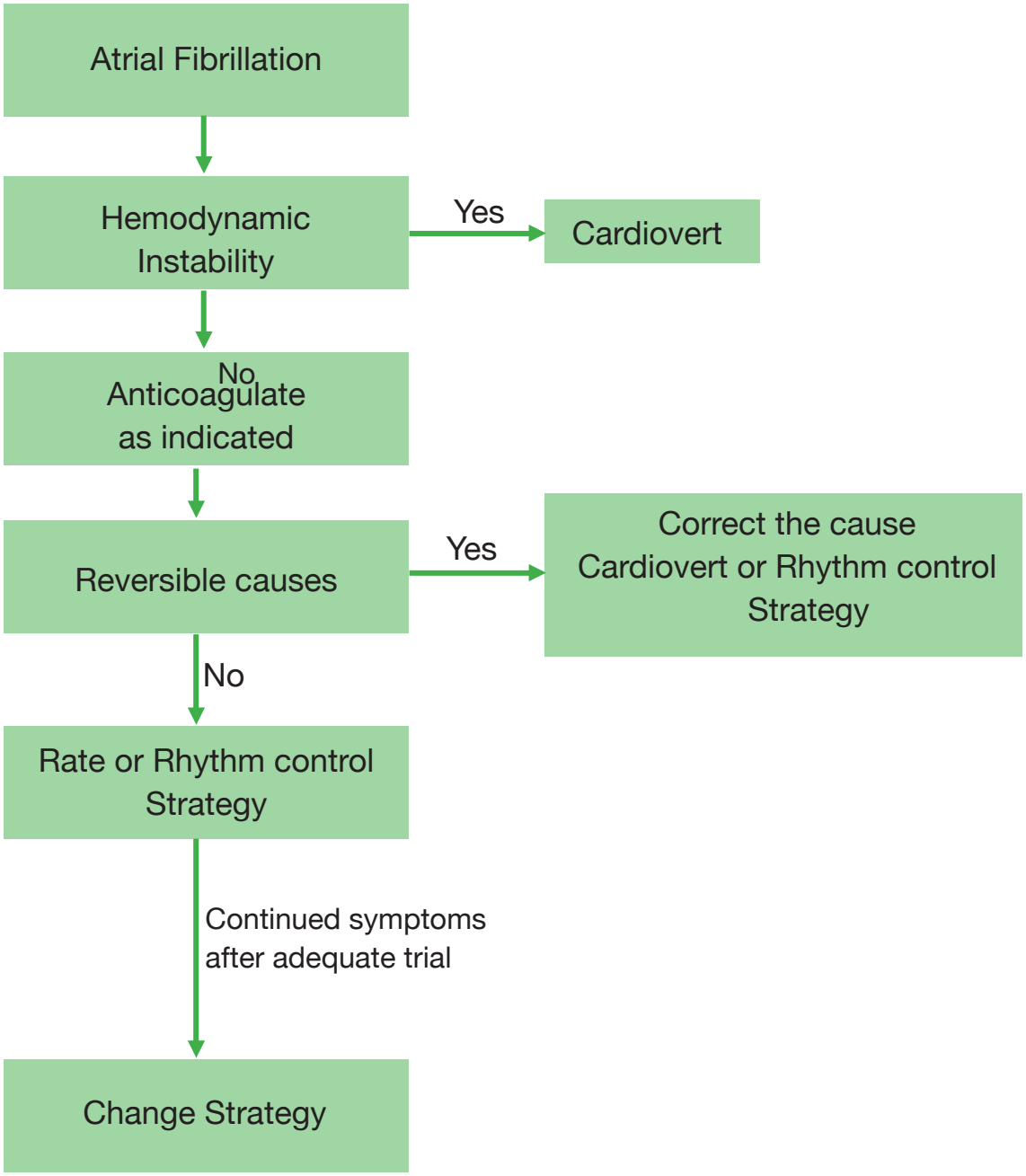
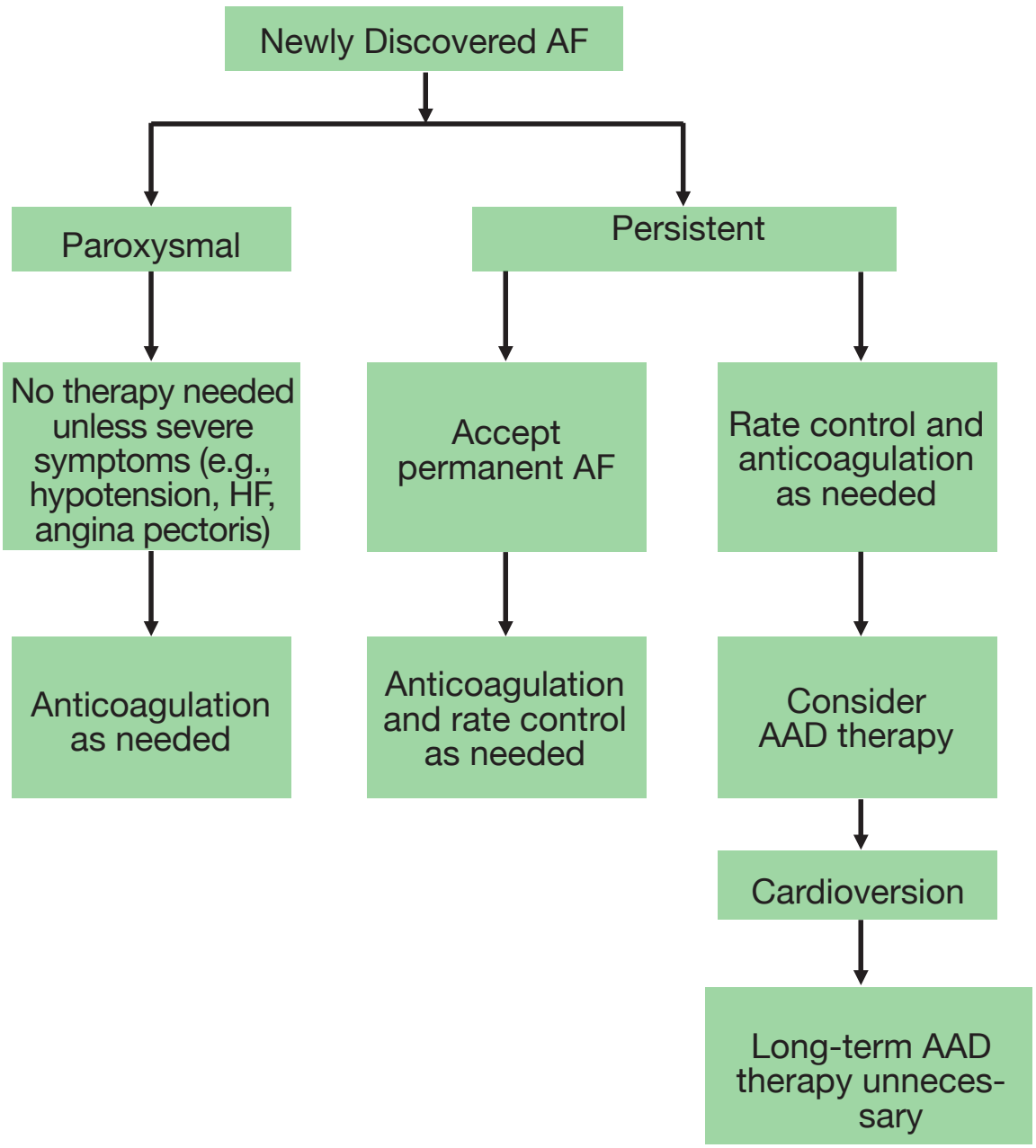
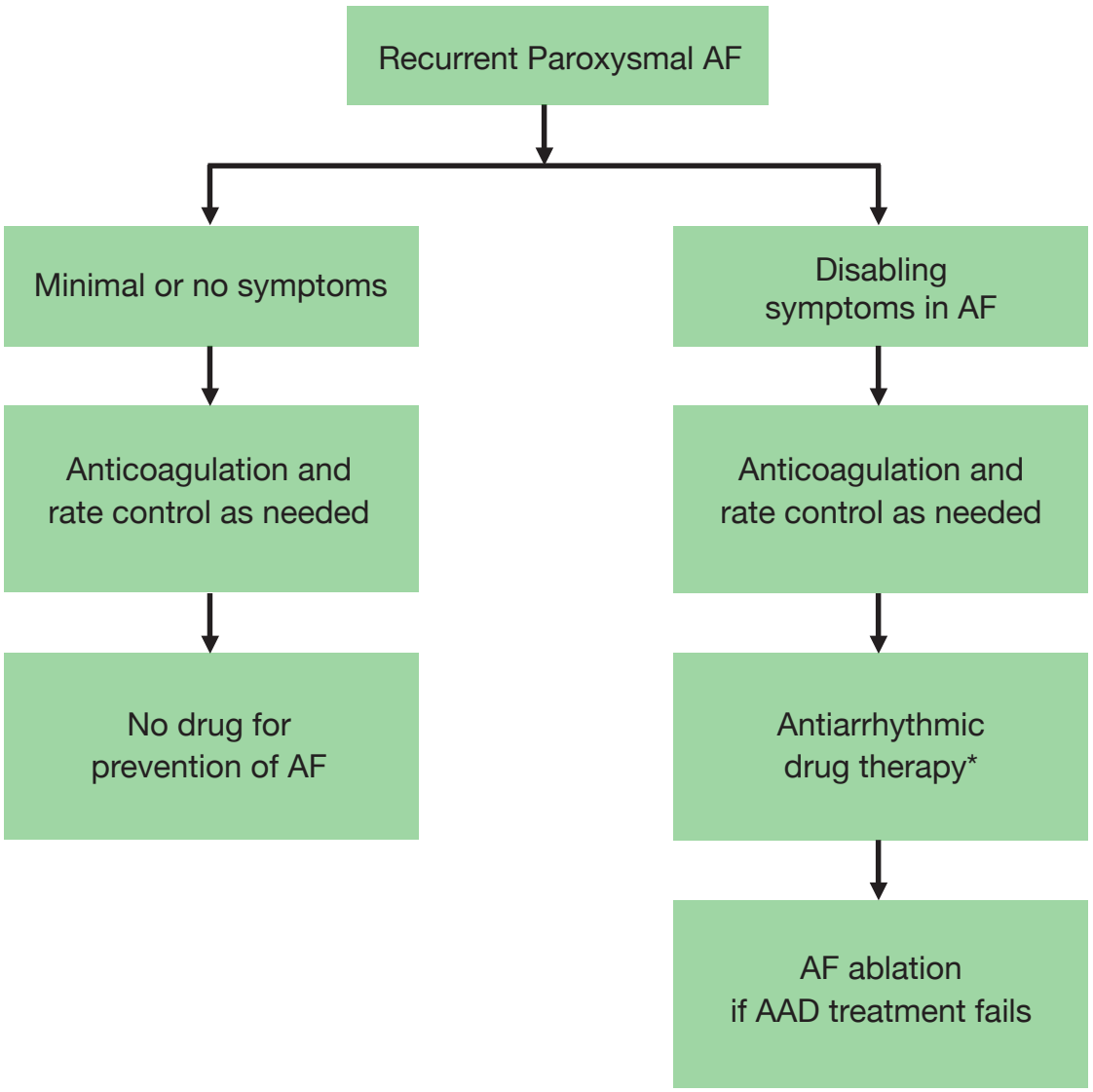


Figure 2. Pharmacological Management of newly discovered AF



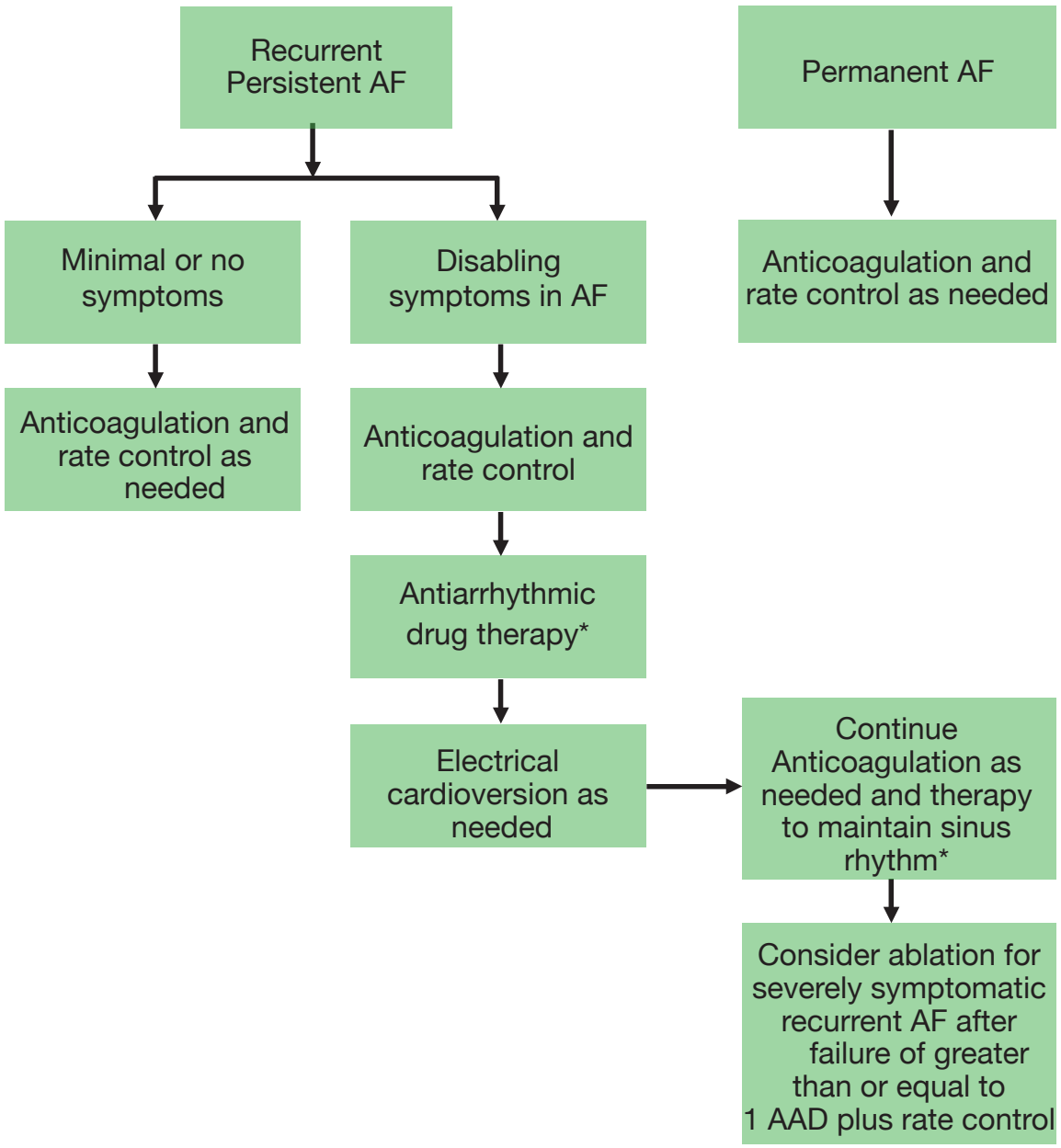
AAD indicates antiarrhythmic drugs;
AF indicates atrial fibrillation; **HF**, heart failure.

Figure 3. Pharmacological Management of Patients With Recurrent Paroxysmal AF



AAD indicates antiarrhythmic drugs; **AF** indicates atrial fibrillation.
*See Figure 5

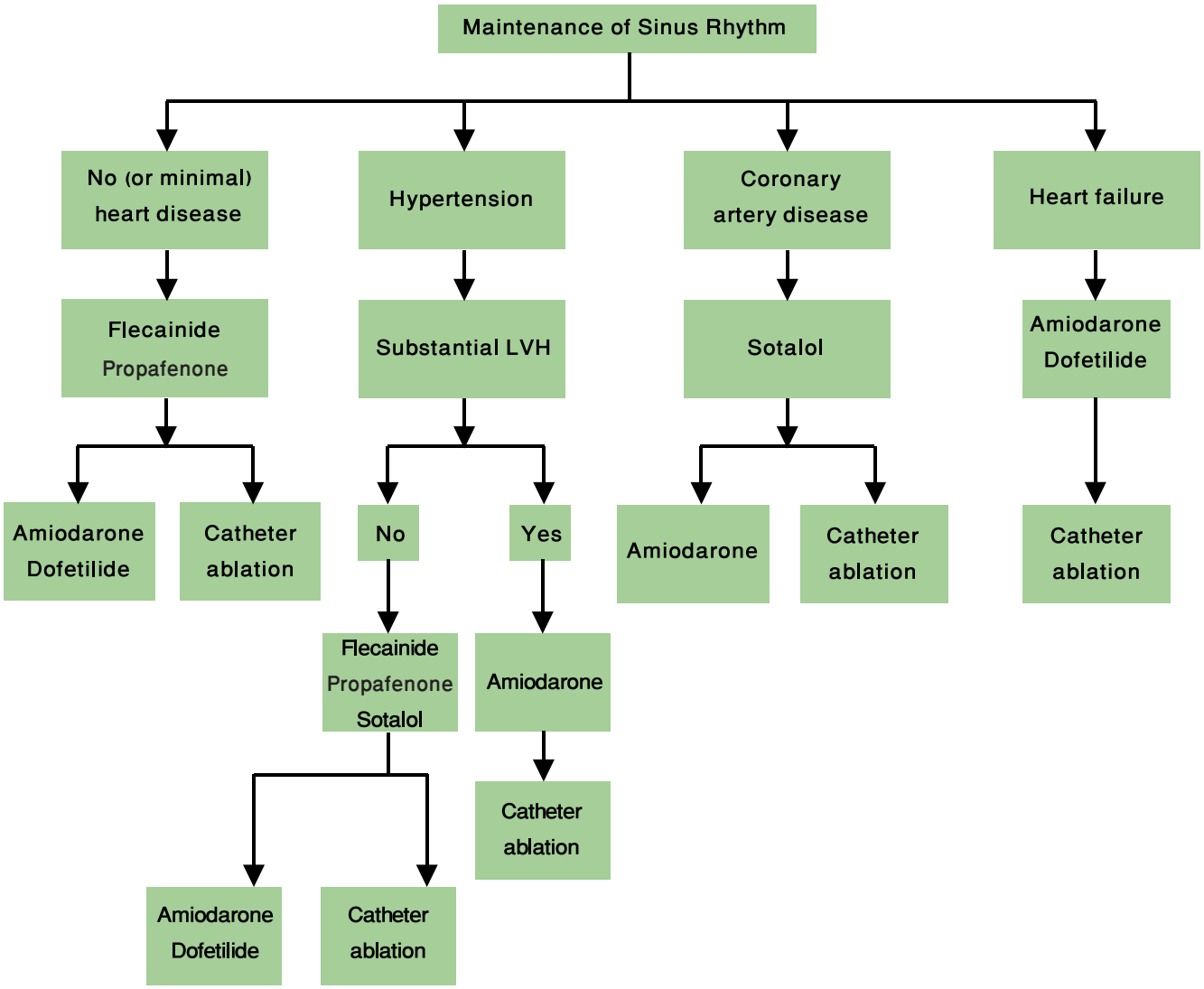
Figure 4. Pharmacological Management of Patients With Recurrent Persistent or Permanent AF



AAD indicates antiarrhythmic drugs; **AF** indicates atrial fibrillation.

*See Figure 5. Initiate drug therapy before cardioversion to reduce the likelihood of early recurrence of AF.

Figure 5. Antiarrhythmic Drug Therapy to Maintain Sinus Rhythm in Patients With Recurrent Paroxysmal or Persistent AF



Recently **ATHENA trial** was published in the New England Journal of Medicine. The trial showed that **Dronedarone** in addition to standard therapy, significantly reduced the risk of first cardiovascular hospitalization or death by 24 percent (31.9% vs. 39.4%, p<0.001) in patients with atrial fibrillation (AF)/atrial flutter (AFL) or a recent history of these conditions. Dronedarone showed a significant decrease in the risk of cardiovascular death by 29 per cent (p=0.03) in patients with AF.

LVH indicates Left Ventricular Hypertrophy

C. Rate control in patients with AF

A summary of recommandations regarding the use of pharmacological agents for rate control of AF is presented in "Table 3".

Optimal heart rate target is less than 80 beats per minute at rest and less than 115 beats per minute during moderate exercise.

Table 3. Intravenous and Orally Administered Pharmacological Agents for Heart Rate Control in Patients With AF

Drug	Loading Dose	Maintenance dose
Acute Setting		
Heart Rate Control in patients without accessory pathway		
Esmolol	500 mcg/kg IV over 1 min	60 to 200 mcg/kg/min IV
Metoprolol	2.5 to 5 mg IV bolus over 2 min; up to 3 doses	NA
Propranolol	0.15 mg/kg IV	NA
Diltiazem	0.25 mg/kg IV over 2 min	5 to 15 mg/h IV
Verapamil	0.075 to 0.15 mg/kg IV over 2 min	NA

Heart Rate Control in patients with accessory pathway		
Amiodarone	150 mg over 10 min	0.5 to 1 mg/min IV
Heart Rate Control in patients with heart failure and without accessory pathway		
Digoxin	0.25 mg IV each 2 h, up to 1.5 mg	0.125 to 0.375 mg daily IV or orally
Amiodarone	150 mg over 10 min	0.5 to 1 mg/min IV

Non-Acute Setting And Chronic Maintenance Therapy

Heart Rate Control		
Metoprolol	Same as maintenance dose	25 to 100 mg twice a day, orally
Propranolol	Same as maintenance dose	80 to 240 mg daily in divided doses, orally
Diltiazem	Same as maintenance dose	120 to 360 mg daily in divided doses; slow release available, orally
Verapamil	Same as maintenance dose	120 to 360 mg daily in divided doses; slow release available, orally

Heart Rate Control in patients with heart failure and without accessory pathway		
Digoxin	0.5 mg daily, orally	0.125 to 0.375 mg daily, orally
Amiodarone	800 mg daily for 1 wk, orally 600 mg daily for 1 wk, orally 400 mg daily for 4 to 6 wk, orally	200 mg daily, orally

NA, not applicable.

D. Pharmacological Cardioversion

A summary of recommendations concerning the use of pharmacological agents for cardioversion of AF is presented in "Tables 3, 4, 5 and 6". "Table 6" lists dosages and adverse effects. Algorithms for pharmacological management of AF are given in "Figures 2, 3, 4 and 5". Throughout this document, reference is made to the Vaughan Williams classification of antiarrhythmic drugs, modified to include drugs that became available after the original classification was developed.

When rapid control of the ventricular response of AF is required or oral administration is not feasible, medication may be administered parenterally. In hemodynamically stable patients negative chronotropic medication may be administered orally. See "Table 3".

Table 4. Recommendations for Pharmacological Cardioversion of AF of up to 7 Days Duration

Drug	Route of administration
Agents with proven efficacy	
Amiodarone	Oral or intravenous
Ibutilide	Intravenous
Dofetilide	Oral
Flecainide	Oral or intravenous
Propafenone	Oral or intravenous
Should not be administered	
Digoxin	Oral or intravenous
Sotalol	Oral or intravenous

Table 5. Recommendations for Pharmacological Cardioversion of AF Present for More Than 7 Days Duration

Drug	Route of administration
Agents with proven efficacy	
Amiodarone	Oral or intravenous
Ibutilide	Intravenous
Dofetilide	Oral
Should not be administered	
Digoxin	Oral or intravenous
Sotalol	Oral or intravenous

Table 6. Recommended Doses of Drugs Proven Effective for Pharmacological Cardioversion of AF

Drug*	Route of Administration	Dosage**	Potential Adverse Effects
Amiodarone	Oral	Inpatient: 1.2 to 1.8 g per day in divided dose until 10 g total, then 200 to 400 mg per day maintenance or 30 mg/kg as single dose Outpatient: 600 to 800 mg per day in divided dose until 10 g total, then 200 to 400 mg per day maintenance	Hypotension, bradycardia, QT prolongation, torsades de pointes (rare), GI upset, constipation, phlebitis (IV)
	Intravenous/ oral	5 to 7 mg/kg over 30 to 60 min, then 1.2 to 1.8 g per day continuous IV or in divided oral doses until 10 g total, then 200 to 400 mg per day maintenance	
Dofetilide	Oral	Creatinine clearance (mL/min) — Dose (mcg BID) >60 — 500 40 to 60 — 250 20 to 40 — 125 <20 — Contraindicated	QT prolongation, torsades de pointes; adjust dose for renal function, body size and age

Flecainide***	Oral	200 to 300 mg∇	Hypotension, atrial flutter with high ventricular rate
	Intravenous	1.5 to 3.0 mg/kg over 10 to 20 min∇	
Ibutilide	Intravenous	1 mg over 10 min; repeat 1 mg when necessary	QT prolongation, torsades de pointes
Propafenone***	Oral	600 mg	Hypotension, atrial flutter with high ventricular rate
	Intravenous	1.5 to 2.0 mg/kg over 10 to 20 min∇	

GI indicates gastrointestinal; **IV**, intravenous; **BID**, twice a day.

* Drugs are listed alphabetically

** Dosages given in the table may differ from those recommended by the manufacturers.

*** AV blocking agents should be co administred

∇ Insufficient data are available on which to base specific recommendations for the use of one loading regimen over another for patients with ischemic heart disease or impaired left ventricular function, and these drugs should be used cautiously or not at all in such patients.

Table 7. Typical Doses of Drugs Used to Maintain Sinus Rhythm in Patients With AF*

Drug	Daily Dosage	Potential Adverse Effects
Amiodarone∇	100 to 400 mg	Photosensitivity, pulmonary toxicity, polyneuropathy, GI upset, bradycardia, torsades de pointes (rare), hepatic toxicity, thyroid dysfunction, eye complications
Sotalol‡	160 to 320 mg	Torsades de pointes, HF, bradycardia, exacerbation of chronic obstructive or bronchospastic lung disease
Flecainide***	200 to 300 mg	Ventricular tachycardia, HF, conversion to atrial flutter with rapid conduction through the AV node***
Propafenone***	450 to 900 mg	Ventricular tachycardia, HF, conversion to atrial flutter with rapid conduction through the AV node***
Dofetilide‡	500 to 1000 mcg	Torsades de pointes
Dronedarone	800 mg	Diarrhea , nausea , bradycardia , skin rash, QT prolongation and an increase in blood creatinine

GI indicates gastrointestinal; **AV**, atrioventricular; **HF**, heart failure.

* The drugs and doses given here have been determined by consensus based on published studies.

*** AV blocking agents should be co administred

∇ A loading dose of 600 mg per day is usually given for one to two weeks.

‡ Dose should be adjusted for renal function and QT-interval response during in-hospital initiation phase.

E. Pharmacological Enhancement of Direct-Current Cardioversion

When given in conjunction with direct-current cardioversion, the primary aims of antiarrhythmic medications are to increase the likelihood of success and prevent early recurrence of AF.

The risks of pharmacological treatment include the possibility of inducing ventricular arrhythmias.

Pretreatment with amiodarone, flecainide, ibutilide, propafenone, or sotalol can be useful to enhance direct-current cardioversion and prevent recurrent AF. Out-of-hospital initiation of antiarrhythmic medications may be considered in patients without heart disease to enhance the success of cardioversion of AF.

F. Stroke Risk Stratification

Risk stratification of stroke in patients with AF depends on various clinical variables well summarized in Risk Assessment Score.

The CHADS2 (Cardiac Failure, Hypertension, Age, Diabetes, Stroke [Doubled]) stroke risk index integrates elements from several schemes. It is based on a point system in which two points are assigned for a history of stroke or transient ischemic attack (TIA), and one point each for age over 75 years, a history of hypertension, diabetes, or recent heart failure (HF) “Table 8”.

In patients with nonvalvular AF, prior stroke or TIA is the strongest independent predictor of stroke, significantly associated with stroke in all six studies in which it was evaluated, with incremental relative risk between 1.9 and 3.7 (averaging approximately 3.0). All patients with prior stroke or TIA require anticoagulation unless contraindications exist in a given patient. Patient age is a consistently independent predictor of stroke, but older people are also at increased

risk for anticoagulant-related bleeding. Special consideration of these older patients is therefore a critical aspect of effective stroke prophylaxis.

The risk reduction of stroke with anticoagulation doesn't depend on the type of AF. Although these schemes for stratification of stroke risk identify patients who benefit most and least from anticoagulation, the threshold for use of anticoagulation is still controversial.

Our recommendations for antithrombotic therapy are summarized in "Table 10". Anticoagulation is recommended for 3 weeks prior to and 4 weeks after cardioversion for patients with AF of unknown duration or with AF for longer than 48h. Although left atrial thrombus and systemic embolism have been documented in patients with AF of shorter duration, the need for anticoagulation is less clear.

Table 8. Stroke Risk in Patients With nonvalvular AF not Treated With Anticoagulation According to the $CHADS_2$ Index

$CHADS_2$ Risk Criteria	Score
Prior Stroke or TIA	2
Age >75 Years	1
Hypertension	1
Diabetes Mellitus	1
Heart Failure	1

AF indicates atrial fibrillation; **TIA** indicates transient ischemic attack

$CHADS_2$ indicates Cardiac Failure, Hypertension, Age, Diabetes and Stroke (doubled)

Table 9. Recommendations for Anticoagulation using $CHADS_2$ score

Score	Risk	Anticoagulation Therapy	Considerations
0	Low	Aspirin	Aspirin daily 325 mg
1	Moderate	Aspirin or Warfarin	Aspirin daily or raise INR to 2.0-3.0, depending on factors such as patient preference
2 or greater	Moderate or High	Warfarin	Raise INR to 2.0-3.0, unless contraindicated (e.g. clinically significant GI bleeding, inability to obtain regular INR screening)

Other stroke risk assessment of AF

Less validated or weaker risk factors	Moderate risk factors	High risk factors
♥ Female gender	♥ Age ≥75 years	♥ Previous stroke, TIA or embolism
♥ Age 65-74 years	♥ Hypertension	♥ Mitral stenosis
♥ Coronary artery disease	♥ Heart failure	♥ Prosthetic heart valve*
♥ Thyrotoxicosis	♥ LV ejection fraction ≤35%	
	♥ Diabetes mellitus	

* indicates if mechanical valve, target INR greater than 2.5

INR indicates international normalized ratio; **LV**, left ventricular; **TIA**, transient ischemic attack.

Table 10. Antithrombotic Therapy for Patients With AF

Risk Category	Recommended Therapy
No risk factors	Aspirin, 81-325 mg daily
One moderate risk factor	Aspirin, 81-325 mg daily or Warfarin (INR 2.0 to 3.0, target 2.5)
Any high risk factor or more than 1 moderate risk factor	Warfarin (INR 2.0 to 3.0, target 2.5)*
If warfarin intolerance	Clopidogrel 75 mg plus Aspirin 75-100 mg

* indicates if mechanical valve, target INR greater than 2.5
INR indicates international normalized ratio

G. Catheter Ablation

Catheter-directed ablation of AF represents a substantial achievement that promises better therapy for a large number of patients presently resistant to pharmacological or electrical conversion to sinus rhythm. The limited available studies suggest that catheter-based ablation offers benefit to selected patients with AF, but these studies do not provide convincing evidence of optimum catheter positioning or absolute rates of treatment success. Identification of patients who might benefit from ablation must take into account both potential benefits and short- and long-term risks. Rates of success and complications vary, sometimes considerably, from one study to another because of patient factors, patterns of AF, criteria for definition of success, duration of follow-up, and technical aspects.

IV. Synopsis of the AF guidelines in special situations

1- Preventing thromboembolism

a Antithrombotic therapy is recommended for patients with atrial flutter as for atrial fibrillation.

b. For patients with nonvalvular AF who have 1 or more of the less well-validated risk factors (age 65-74 years, female gender, or CAD), treatment with either aspirin or vitamin K antagonist is reasonable.

c. In patients with AF without a mechanical heart valve, it is reasonable to interrupt anticoagulation for up to 1 week for procedures that carry a risk of bleeding.

d. In patients 75 years of age and older at risk of bleeding but without contraindications to anticoagulant therapy, and in patients who are unable to safely tolerate standard anticoagulation (INR 2.0 – 3.0), a lower INR target (2.0; range 1.6 to 2.5) may be considered for primary prevention of stroke and systemic embolism.

e. When interruption of oral anticoagulant therapy for longer than 1 week is necessary in high-risk patients, unfractionated or low-molecular-weight heparin may be given by injection, although efficacy is uncertain.

f. For patients with AF undergoing percutaneous intervention, the maintenance regimen should consist of clopidogrel, 75 mg daily, plus warfarin (INR 2.0 to 3.0). Clopidogrel should be given to a minimum of 1 month after a bare metal stent, at least 3 months for a sirolimus-eluting stent, and 12 months or longer in selected patients, followed by warfarin alone.

g. In patients with AF who sustain ischemic stroke or systemic embolism during treatment with anticoagulation (INR 2.0 to 3.0), it may be reasonable to raise the intensity of anticoagulation up to a target INR 3.0 to 3.5.

h. In patients with AF for which warfarin use is contraindicated, the addition of clopidogrel to aspirin is an alternative option in reducing the risk of major vascular events, especially stroke, however there is an increased risk of major hemorrhage. (ACTIVE-A)[1]

2- Pharmacological Cardioversion

a. A single oral dose of propafenone or flecainide ("pill-in-the-pocket") can be used to terminate persistent AF out of the hospital for selected patients once treatment has proved safe in hospital. Before antiarrhythmic medication is initiated, a beta blocker, diltiazem or verapamil should be given to prevent rapid AV conduction.

3- Direct-Current Cardioversion

a. Immediate direct-current cardioversion is recommended for patients with pre-excitation when AF occurs with extreme tachycardia or hemodynamic instability.

(1) Connolly SJ et al. New Engl J Med. 2009, 360(20): 2066-2078

4- Prevention of Thromboembolism in Patients with AF undergoing Cardioversion

a. Patients who have AF for 24h or unknown duration, can either have vitamine K antagonist for 3 weeks followed by cardioversion or trans-esophageal echocardiogram (TEE) guided cardioversion.

b. For patients in whom thrombus is found by trans-esophageal echocardiogram (TEE), oral anticoagulation (INR 2.0 to 3.0) is reasonable for at least 3 weeks before and 4 weeks after restoration of sinus rhythm, and longer anticoagulation may be appropriate after apparently successful cardioversion, because the risk of thromboembolism often remains elevated in such cases.

5- Postoperative AF

a. Preoperative Amiodarone reduces the incidence of AF in patients undergoing cardiac surgery and represents appropriate prophylactic therapy for patients at high risk for postoperative AF.

b. It is reasonable to restore sinus rhythm by pharmacological cardioversion with ibutilide or direct-current cardioversion in patients who develop postoperative AF.

c. Recurrent postoperative AF should be treated with antiarrhythmic medications preferably Amiodarone. (CURRENT)

6- Hyperthyroidism

a. In patients with AF and thyrotoxicosis, oral anticoagulation (INR 2.0 to 3.0) is recommended.
b. Once euthyroid state is achieved, antithrombotic prophylaxis need indication is the same as for patients without hyperthyroidism.

7- Pregnancy

a. Digoxin, a beta blocker, or nondihydropyridine calcium channel antagonist is recommended to control the ventricular rate in pregnant patients with AF.
b. Direct-current cardioversion is recommended in pregnant patients who became hemodynamically unstable due to AF.
c. During the first trimester and last month of pregnancy for patients with AF and risk factors for thromboembolism, consider administering unfractionated heparin by continuous intravenous infusion or by subcutaneous injection (10,000 to 20,000 units every 12 h).
d. During the second trimester, consider oral anticoagulation for pregnant women with AF at high thromboembolic risk.

8- Management of AF in patients with Hypertrophic Cardiomyopathy

a. Oral anticoagulation (INR 2.0 to 3.0) is recommended in patients with HCM who develop AF.
b. Antiarrhythmic medications can be useful to prevent recurrent AF in patients with HCM. Amiodarone alone is generally preferred over disopyramide combined with beta blocker or nondihydropyridine calcium channel antagonist.

9 - Management of AF in patients with pulmonary disease

a. For patients who develop AF during an acute pulmonary illness or exacerbation of chronic pulmonary disease, correction of hypoxemia and acidosis are the primary therapeutic measures.

b. Beta blockers, Sotalol, Propafenone, and Adenosine are not recommended in patients with obstructive lung disease who develop AF.

V. Advances in AF management

In the last few years there have been tremendous developments in the management of AF. Some of these strategies have not been incorporated in the current guidelines. However, some of these new developments will find its way in the upcoming guidelines in the near future. Here we will summarize some of the recent advances in AF management.

(1) WATCHMAN closure device of the left atrial appendage (LAA) may provide an alternative to warfarin therapy as a stroke prevention strategy in patients with nonvalvular atrial fibrillation as shown in the PROTECT AF trial[1]. Although there was a higher rate of adverse safety events in the intervention group than in the control group.

(2) Dabigatran is a new direct thrombin inhibitor that has been studied for various clinical indications. In the RE-LY study[2] it has been shown that in patients with AF, dabigatran given at a dose of 110 mg was associated with rates of stroke and systemic embolism that were similar to those associated with warfarin, as well as lower rates of major hemorrhage. Dabigatran administered at a dose of 150 mg, as compared with warfarin, was associated with lower rates of stroke and systemic embolism but similar rates of major hemorrhage.

(3) Dronedarone is a benzofuran derivative with an electropharmacologic

profile resembling that of amiodarone. It has been evaluated in patients with AF who had additional risk factors for death (ATHENA trial)[3]. In this study it has been shown that dronedarone 400 mg twice daily reduced the incidence of hospitalization due to cardiovascular events or death in patients with AF.

(4) In the ACTIVE A trial[4] it has been shown that in patients with AF for whom vitamin K–antagonist therapy was unsuitable, the addition of clopidogrel to aspirin reduced the risk of major vascular events, especially stroke, but at the expense of increasing the risk of major hemorrhage. However, this risk reduction of embolic stroke by the addition of Plavix to Aspirin was still inferior to Warfarin.

(1) Holmes D et al. Lancet. 2009, 374(9689): 534-42
(2) Connolly SJ et al. New Eng J Med. 2009, 361(12): 1139-1151
(3) Hohnloser SH et al. New Eng J Med. 2009, 360(7): 668-678
(4) Connolly SJ et al. New Eng J Med. 2009, 360(20): 2066-2078

G.H.A

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