

## A summary of the ESC 2010 Atrial Fibrillation guidelines for General Practitioners

Atrial Fibrillation (AF) remains the most common sustained cardiac arrhythmia affecting around 1-2% of the population and its prevalence is estimated to double over the next 50 years. The major risk of AF is stroke. In addition, AF is associated with several other adverse clinical outcomes: hospitalisations are frequent and there can be a substantial impact on exercise capacity and quality of life; there may be an association with cognitive decline and vascular dementia. Death rates are doubled in AF, independently of other predictors of mortality.

AF progresses from short, infrequent episodes, to longer repeated attacks before eventually achieving permanence. The risk of AF complications is no different in patients with short AF episodes and those with sustained forms of the arrhythmia. Anti-coagulation is therefore required regardless, but other treatments are indicated at different stages of the condition.

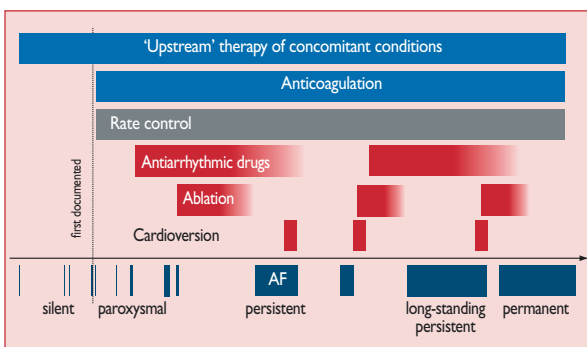


Figure 1. Natural progression of AF

### Diagnosis:

Symptoms of palpitations or dyspnoea, or the finding of an irregular pulse should always raise the suspicion of AF but a 12 lead ECG is required to make the diagnosis. More intense and prolonged monitoring may be required in symptomatic patients with a normal 12 lead

ECG. When taking the history particular reference should be made to the severity, frequency and duration of symptoms, precipitating factors and the presence or absence of any co-morbidity. The 2010 guideline introduces the European Heart Rhythm Association (EHRA) scoring system to quantify severity of symptoms (see Figure 2)

Classification of AF-related symptoms (EHRA score)	
EHRA class	Explanation
EHRA I	'No symptoms'
EHRA II	'Mild symptoms'; normal daily activity not affected
EHRA III	'Severe symptoms'; normal daily activity affected
EHRA IV	'Disabling symptoms'; normal daily activity discontinued

Figure 2. EHRA Symptom Score

AF can occur in the absence of other pathology but is often associated with other conditions including hypertension, valvular heart disease, coronary artery disease, obesity and diabetes mellitus. The presence of these should be documented at the time of diagnosis.

### Thromboprophylaxis

The principal risk of AF is stroke. There is a 5-fold increased risk of stroke in patients with AF and 20% of all strokes are attributed to this arrhythmia. Strokes secondary to AF also tend to have a poorer prognosis. Therefore, anticoagulation is the mainstay of treatment. The latest guideline adopts a more aggressive attitude to anticoagulation; physicians are challenged to think about not who qualifies but rather who is exempt from the norm that is formal anticoagulation.

The CHADS2 score provides a well established, quick and easy to remember tool to assess stroke risk score. 1 point is assigned for each of recent cardiac failure, hypertension, age > 75 and diabetes, with 2 points for a his-

tory of stroke or TIA. In patients with a score  $\geq 2$  oral anticoagulant therapy (OAC) with warfarin is recommended.

The ESC guideline introduces a more comprehensive stroke risk score, particularly to stratify those patients with a CHADS<sub>2</sub> score  $< 2$ . 'Major' risk factors are now recognised as prior stroke, TIA or thromboembolism, and older Age ( $\geq 75$  years). 'Clinically relevant non-major' risk factors are cardiac failure, hypertension, diabetes mellitus, vascular disease, age 65-74 years and female sex (Sc). This risk factor based approach can be expressed by the acronym CHA<sub>2</sub>DS<sub>2</sub>-VASc: 2 points are assigned for a major risk factor and 1 point for each 'clinically relevant non-major risk factor'.

or no antithrombotic therapy, with no antithrombotic preferred.

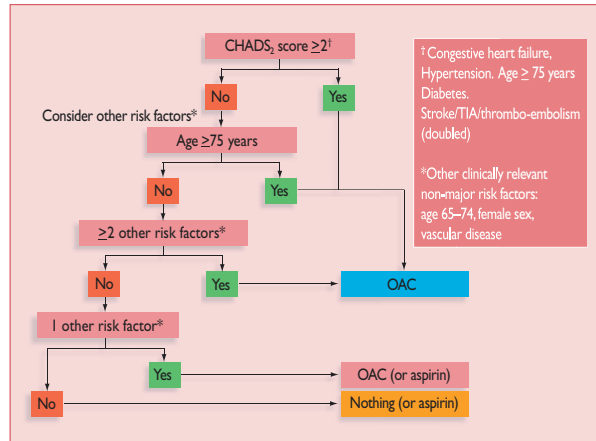


Figure 4. Choice of anticoagulation

(a) Risk factors for stroke and thrombo-embolism in non-valvular AF	
'Major' risk factors	'Clinically relevant non-major' risk factors
Previous stroke, TIA, or systemic embolism Age $\geq 75$ years	Heart failure or moderate to severe LV systolic dysfunction (e.g. LV EF $\leq 40\%$ ) Hypertension - Diabetes mellitus Female sex - Age 65-74 years Vascular disease <sup>a</sup>
(b) Risk factor-based approach expressed as a point based scoring system, with the acronym CHA <sub>2</sub> DS <sub>2</sub> -VASc (Note: maximum score is 9 since age may contribute 0, 1, or 2 points)	
Risk factor	Score
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age $\geq 75$	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease <sup>a</sup>	1
Age 65-74	1
Sex category (i.e. female sex)	1
<b>Maximum score</b>	<b>9</b>

The guidelines recommend that for patients with a CHA<sub>2</sub>DS<sub>2</sub>-VASc score of  $\geq 2$  warfarin is recommended. Patients with a single 'clinically relevant non-major' risk factor can be anticoagulated with either warfarin or aspirin, although warfarin is preferred. Those patients with no risk factors can receive either aspirin

### Bleeding Risk

An assessment of bleeding risk is recommended before starting anticoagulation. Various risk factors may increase the risk of bleeding in the anti-coagulated patient. These include hypertension; abnormal liver or renal function; previous stroke; previous bleeding; labile INRs; age  $> 65$  years, and other drugs or high alcohol intake. The guideline notes the fear of falls in the elderly can be overstated as a patient may need to fall around 300 times per year for the risk of an intracerebral bleed to outweigh the benefits of stroke prevention.

### Rate control

A rate control strategy will be appropriate for the majority of patients presenting to primary care with AF. There is no evidence that rhythm control is superior to rate control in terms of reducing mortality or complications from AF. It should be noted that anticoagulation is required regardless. If rate control does not adequately relieve a patient's symptoms, a rhythm control strategy can be considered.

Recent evidence suggests lenient rate control, with a target resting heart rate of below 110/min is acceptable for patients without severe symptoms.

For those patients in whom symptoms persist, a stringent rate control should be adopted with a target resting heart rate below 80/min.

There are several choices of drug for rate control:

- Beta-blockers are recommended as first choice and are particularly useful in the presence of exercise-induced symptoms or symptoms of associated myocardial ischaemia.
- Digoxin is effective for control of heart rate at rest but less so on exercise and therefore may be useful for more sedentary patients. It can be used in combination with beta-blockers,
- Non-dihydropyridimole calcium channel antagonists such as diltiazem are effective, especially in patients who cannot tolerate beta-blockers. They should be avoided in patients with systolic heart failure.

### (Long-term) Rhythm control

A rhythm control strategy should only be adopted in patients whom remain symptomatic despite adequate rate control. Referral to a specialist should be considered when adopting a rhythm control strategy. Since the presence of structural heart disease and LV dysfunction will influence the choice of treatment all patients should have an echocardiogram before pursuing rhythm control.

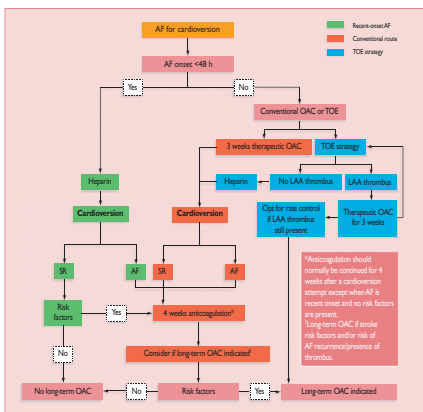


Figure 5. Choice of rate and rhythm control strategies

Beta-blockers are a logical first attempt to prevent AF when the arrhythmia is clearly associated with mental or physical stress (adrenergic AF). Since they are less effective for other forms of AF, other agents should be considered for maintenance of sinus rhythm.

Other options include:

- Flecainide approximately doubles the chance of remaining in sinus rhythm but is contra-indicated in structural heart disease and coronary artery disease.
- Sotalol has class III effects in addition to beta-blockade. It is safe in coronary disease but may prolong the QTc interval. Regular ECG monitoring is therefore mandatory.
- Dronedarone has recently been developed and demonstrated to be useful in maintaining sinus rhythm with fewer side effects than amiodarone. There is clear guidance from NICE regarding in whom it should be used. It should be avoided in patients with unstable heart failure.
- Amiodarone is effective in preventing AF but its long-term use is associated with significant side-effects affecting the thyroid, liver, skin and other organs. However, it has a role in patients whom cannot be controlled with other drugs or who have heart failure when other drugs are contra-indicated.

Patients whose symptoms are not adequately controlled despite optimal medical therapy may be considered for left atrial catheter ablation.

### Upstream therapy

Upstream therapy to prevent or delay myocardial remodelling may deter the development of new onset AF (primary prevention) or, once established, its rate of recurrence or progression to permanent AF (secondary prevention).

ACE-Inhibitors and Angiotensin Receptor Antagonists (ARBs) reduce the incidence of new onset AF in patients with significant underlying



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heart disease (e.g. LV dysfunction and hypertrophy). The evidence is less robust in secondary prevention and they are not recommended for patients without other heart disease in primary prevention.

Statins may be useful in preventing new onset AF in patients with other cardiovascular disease. Research is ongoing regarding other agents and this may be a developing field.

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