

# **Protocol for the management of atrial fibrillation in primary care**

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# Protocol for the management of atrial fibrillation in primary care

The recommendations in this protocol take account of the best available evidence to provide pragmatic advice on the treatment of Atrial Fibrillation (AF). AF is the most common sustained cardiac arrhythmia and if left untreated is a significant risk factor for stroke and other morbidities.

Unless referenced otherwise, this protocol has been developed from the NICE Guidance for the Management of Atrial Fibrillation<sup>1</sup>.

## Definition<sup>2</sup>

Atrial Fibrillation (AF) is an atrial tachycardia characterised by predominantly uncoordinated atrial activation with consequent deterioration of atrial mechanical function.

On electrocardiography (ECG), AF is described by the absence of consistent P waves; instead there are rapid oscillations or fibrillatory waves that vary in size, shape and timing and are generally associated with an irregular ventricular response when atrioventricular (AV) conduction is intact. The patient may experience AF as palpitations, chest pain, dizziness, or in extreme cases, loss of consciousness. In many cases however, it may occur asymptotically.

*Atrial flutter* is an arrhythmia in which the atria beat **regularly** and rapidly. Diagnosis and treatment is the same as for atrial fibrillation.

## Patient-centred care

Treatment and care should take into account patient's individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow patients to reach informed decisions about their care. Carers and relatives should have the chance to be involved in discussions unless the patient thinks it inappropriate.

## Classification of AF

There are 3 classifications of AF:

**Paroxysmal AF** – is intermittent and recurrent, but terminates spontaneously.

**Persistent AF** – requires cardioversion to return to sinus rhythm

**Permanent AF** – cannot be terminated by cardioversion. It is also the term used for long-standing AF (present for more than one year) in which cardioversion has not been attempted

### A few key facts:

- Atrial fibrillation (AF) is associated with increased mortality from stroke and heart failure. In a 20 year follow-up study 89% of the women had a cardiovascular event (leading to hospitalization or death) and 66% of the men<sup>3</sup>.
- UK studies in the 1990s suggest that a quarter of cases of AF are unknown to their general practitioners and that only a quarter to a half of those known to have AF is on warfarin<sup>4</sup>. However, one study suggests that most of those not on warfarin are either ineligible or would decline<sup>5</sup>.
- Palpation of the pulse by a trained nurse is a sensitive method of detecting AF although it has lower specificity. This means that few will be missed but that less than a quarter of those found by the nurse to have an irregular pulse will have AF<sup>6</sup>.
- An underlying cause can be found in at least 70% of patients with AF<sup>7</sup>.

- The risk of developing AF is increased 5-fold in those with clinical or sub-clinical hyperthyroidism<sup>8</sup>.

## Identification and diagnosis

### Causes of AF include:

#### Cardiac

- Hypertension
- Ischaemic Heart Disease
- Valvular Heart Disease
- Myocardial Infarction
- Accessory pathways e.g. Wolff-Parkinson-White syndrome

#### Intrathoracic

- Lung carcinoma
- Pleural effusion
- Post-thoracotomy

#### Metabolic

- Electrolyte imbalance
- Uraemia
- Acute infection
- Hyperthyroidism

#### Hypoxia

#### Drugs

- e.g. theophyllines, tricyclics, digoxin, antiarrhythmics
- Alcohol – may account for up to half of all new cases)

There are two presentations (see Appendix 1):

- 1) No symptoms – opportunistic case-finding leads to suspicion of AF.
- 2) Symptomatic presentation and clinical suspicion of AF e.g. palpitations, chest pain, hypotension, dyspnoea, dizziness, embolism or more than mild heart failure.

- Perform manual pulse palpitation to assess for an irregular pulse indicating underlying AF in patients who present with breathlessness or dyspnoea, palpitations, syncope or dizziness, chest discomfort or stroke/Transient Ischaemic Attack (TIA).
- Establish alcohol intake (either chronic or bingeing).
- Measure blood pressure (half of all cases of AF are hypertensive).
- Arrange for FBC, TFT's and creatinine and electrolytes.
- Examine for indications of heart failure, valvular disease, congenital heart disease or acute pericarditis or myocarditis.
- Perform an ECG in all patients, whether symptomatic or not, with an irregular pulse in whom AF is suspected.
- Where you suspect paroxysmal AF that has not been detected by standard ECG recording:
  - use a 24-hour ambulatory ECG monitor where you suspect asymptomatic episodes or where episodes are < 24 hours apart
  - use an event recorder ECG where symptomatic episodes are more than 24 hours apart.
- Arrange for Chest X-Ray if echocardiogram not available.
- If symptomatic presentation and clinical suspicion of AF – do emergency referral if appropriate.

## Other Investigations

### Echocardiography

- Perform/request a Transthoracic Echocardiography (TTE):
  - if a baseline Echo is important for long-term management (such as in younger patients)
  - if you are considering a rhythm-control strategy that includes electrical or pharmacological cardioversion
  - if you suspect underlying structural or functional heart disease (failure or murmur) that would influence management, such as choice of antiarrhythmic drug
  - where needed to help with stratifying stroke risk for antithrombotic therapy, but only where clinical evidence is needed for left ventricular (LV) dysfunction or valve disease
- Do **not** routinely use TTE for further stroke risk stratification when you have already established the need for anticoagulation therapy using appropriate clinical criteria.
- Perform/request Transoesophageal Echocardiography (TOE):
  - when the TTE has shown an abnormality such as valve disease that needs further assessment
  - where you need to exclude cardiac abnormalities and TTE is technically difficult or of poor quality
  - if considering a TOE-guided cardioversion

### Stroke risk stratification and thromboprophylaxis (see Appendix 2)

Patients with paroxysmal, persistent or permanent AF should be assessed for stroke risk and possible thromboprophylaxis. There are 3 stroke/thromboembolic risk groups:

#### 1) *High risk*

- previous ischaemic stroke/TIA or thromboembolic event
- Age = 75 years with hypertension, diabetes or vascular disease (cardiovascular disease or peripheral artery disease)
- Clinical evidence of valve disease or heart failure, or impaired LV function on echocardiography

#### 2) *Moderate risk*

- Age = 65 years with no high risk factors
- Age < 75 years with hypertension, diabetes or vascular disease (cardiovascular disease or peripheral artery disease)

#### 3) *Low risk*

- Age < 65 years with no moderate or high risk factors

If identified as high risk:

- patients should be anti-coagulated with warfarin with a target INR of 2.5 (range 2.0 – 3.0). If there are contraindications, prescribe Aspirin 75 – 300 mg/day if not contraindicated. Reassess the risk stratification whenever individual risk factors are reviewed

If identified as moderate risk:

- consider anticoagulation with warfarin or aspirin. If warfarin prescribed, target INR should be 2.5 (range 2.0 -3.0). If aspirin, prescribe 75 – 300 mg/day if not

contraindicated. Reassess the risk stratification whenever individual risk factors are reviewed

If identified as low risk:

- prescribe aspirin 75 – 300 mg/day, if no contraindications and reassess risk stratification whenever individual risk factors are reviewed

### **Treatment Strategy (See Appendix 3)**

The aim of treatment and management is to:

- To relieve symptoms of heart failure, hypotension or angina that can be directly attributed to a rapid heart rate
- To improve overall cardiac function.
- To improve exercise tolerance.
- To reduce the risk of thromboembolism and stroke.

Treatment requires rhythm or rate control depending on the category of AF.

*Rhythm control* – should be tried first for patients with persistent AF:

- Who are symptomatic
- Who are younger
- Presenting for the first time with lone AF
- Secondary to a treated or corrected precipitant
- With congestive heart failure

*Rate control* – should be tried first for patients with persistent AF:

- Over 65 years
- With coronary artery disease
- With contraindications to antiarrhythmic drugs
- Unsuitable for cardioversion e.g. patients with contraindications to anticoagulation or following a TOE, structural heart disease that precludes long-term maintenance of sinus rhythm, long duration of AF (i.e. > 12 months), history of multiple failure attempts at cardioversion

### **Paroxysmal AF (Appendix 4)**

- Administer appropriate thromboprophylaxis based on stroke risk stratification algorithm (see Appendix 4)
- Consider ‘pill-in-the-pocket’ therapy e.g. Flecanide<sup>9</sup>, for patients who:
  - have no history of LV dysfunction, or valvular disease or ischaemic heart disease
  - have a history of infrequent symptomatic episodes of paroxysmal AF
  - have a systolic BP >100mmHg and resting heart rate > 70 bpm
  - are able to understand how and when to take the medication

**NB: This is usually started by a specialist and only on specific patients**

- If ‘pill-in-the-pocket’ is unsuitable, administer a standard beta-blocker
- If a standard beta-blocker is unsuccessful and patient has:  
*Coronary Artery Disease (CAD)* - prescribe Sotalol which should be progressively titrated from 80mg bd up to 240mg bd. If unsuccessful, prescribe amiodarone or **refer** to a specialist

*LV Dysfunction (LVD)* – prescribe amiodarone or **refer** to a specialist  
*No evidence of CAD/LVD* – prescribe a class 1c agent e.g. flecanide or sotalol. If unsuccessful, **refer** to a specialist

**If there is failure of rhythm control, treat as for persistent or permanent AF.**

### **Persistent AF**

Can refer to a specialist for cardioversion or treat with pharmacological intervention. Advantages and disadvantages must be discussed with the patient.

### Rhythm Control

Following a successful cardioversion:

- Administer appropriate thromboprophylaxis based on the risk stratification algorithm and cardioversion treatment algorithm (see Appendix 2 & 7)
- If antiarrhythmic drug therapy is needed to maintain sinus rhythm post cardioversion and
  - *structural heart disease is present* – a standard beta-blocker should be prescribed. If the drug is ineffective, not tolerated or contraindicated or previous relapse to AF whilst on a beta-blocker and a further cardioversion is planned/attempted then amiodarone should be administered
  - *structural heart disease not present* – a standard beta-blocker should be administered. If the drug is ineffective, not tolerated or contraindicated or previous relapse to AF whilst on a beta-blocker and a further cardioversion is planned/attempted then prescribe a Class 1c agent e.g. flecanide or sotalol and if still unsuccessful then amiodarone should be administered
- A routine follow-up is arranged at 1 month and 6 months post successful cardioversion to assess maintenance of sinus rhythm. The 1 month appointment will include tailoring subsequent reviews to the individual patient, taking into account co morbidities and concomitant drug therapies.
- If the patient remains in sinus rhythm and has no other need for hospital follow-up, they will be discharged from secondary care and an appropriate management plan arranged with their GP.
- Advise patients to seek medical attention if their symptoms recur.

### Rate Control

- Administer appropriate thromboprophylaxis based on stroke risk stratification algorithm.
- Check that rate-control therapy is needed – target a resting heart rate of < 90 bpm (110 bpm for those with recent onset AF). Target an exercise heart rate of < 110 bpm (inactive) or 200 minus age (active).
- If rate-control is decided upon – prescribe a beta-blocker or a rate limiting calcium antagonist.
- Establish if further rate-control therapy is needed. If yes:
  - *during normal activities* - administer beta-blocker or rate limiting calcium antagonist with digoxin. **Please be aware that not all calcium antagonists are licensed for this use.**
  - *during exercise* – administer a rate limiting calcium antagonist with digoxin

- If further rate-control is required refer the patient to a specialist or consider other drugs e.g. amiodarone

### **Permanent AF (see Appendix 6)**

Treatment is as per rate-control for persistent AF.

### **Procedure for starting digoxin**

\* Correct any hypokalaemia.

Loading digoxin doses are dependent on patient size rather than renal function although doses and levels will require monitoring in significant renal impairment. Otherwise monitoring is only required if there are concerns about digoxin toxicity or inadequate response at a reasonable dose.

#### **If there is no urgency:**

Give 5 micrograms (mcg) per Kg per day (usual starting dose is 125 – 250 mcg daily) and review after one week.

#### **If the situation is more urgent:**

Give a loading dose of digoxin of 500 – 1500 mcg (in divided doses over 24 hours) depending on the patient's weight, giving 15 mcg per Kg of estimated lean body weight. If the ventricular rate has not slowed satisfactorily after 24 hours, give a further 5 mcg per Kg. If that fails, abandon digoxin.

#### **Maintenance:**

- Give enough digoxin to control the ventricular rate. In an average-sized patient, start with 250 mcg daily. Halve this if the serum creatinine is even modestly raised. However, a dose of 62.5 mcg daily is likely to be too low except in the elderly and/or in severe renal impairment.
- Check the serum level before exceeding 250 mcg daily, taking blood every 6 – 12 hours after the previous dose. Aim for a level of 1 – 2 mcg/l. However, toxicity can occur in hypokalaemia with a therapeutic digoxin level.
- If therapeutic levels do not control the ventricular rate, add a low dose of a beta-blocker or diltiazem.
- If satisfactory control is achieved at 'sub-therapeutic' plasma levels, the dose should not be adjusted upwards.

NB: Digoxin will not control the rate on exercise or in other situations when sympathetic outflow is high. Check that the patient is calm and resting before taking further action on the basis of a high rate.

#### **Special cases:**

- *Heart Failure* – Digoxin and beta-blockers will both be of benefit but the beta-blocker should be introduced more cautiously (and only once the patient is digitalised and stable). ACE inhibition or an ARB should be considered prior to beta blockade.
- *Thyrotoxicosis* – All patients with other unexplained AF should have their thyroid function checked. Control the rate with beta-blockers temporarily. They are likely to need cardioversion once the thyrotoxicosis is controlled.
- *Wolff-Parkinson-White syndrome* – Digoxin and verapamil are contraindicated.
- *Sick sinus syndrome* – digoxin, beta-blockers and calcium antagonists may worsen the situation. Pacing is required.

## **Thromboprophylaxis**

## **In all cases**

- Use the stroke risk stratification algorithm (appendix 2) to assess stroke and embolism risk and give appropriate thromboprophylaxis.
- Reconsider stroke risk stratification whenever reviewing individual risk factors.
- Where it is indicated by stroke risk stratification, begin antithrombotic therapy with minimal delay in all patients newly diagnosed with AF, after co morbidities have been appropriately managed.
- Explain to and discuss with patients both the antithrombotic benefits and the potential bleeding risks of long-term anticoagulation.
- Assess bleeding risk as part of clinical assessment before starting a patient on anticoagulation therapy. Pay particular attention to patients:
  - over 75
  - taking antiplatelet drugs (such as aspirin or clopidogrel) or non-steroid anti-inflammatory drugs
  - on multiple other drug treatments
  - with uncontrolled hypertension
  - with a history of bleeding (such as peptic ulcer or cerebral haemorrhage)
  - with a history of poorly controlled anticoagulation therapy.

## **Antithrombotic therapy for persistent AF**

- Before cardioversion, maintain patients on therapeutic anticoagulation with warfarin (INR 2.5, range 2.0 to 3.0) for at least 3 weeks.
- After successful cardioversion, maintain patients on therapeutic anticoagulation with warfarin (INR 2.5, range 2.0 to 3.0) for at least 4 weeks.
- After cardioversion, continue anticoagulation long term in patients with a high risk of AF recurrence or where it is recommended by the stroke risk stratification algorithm. Factors indicating a high risk of AF recurrence include:
  - a history of failed cardioversion attempts
  - mitral valve disease, LV dysfunction or enlarged left atrium
- Anticoagulation is not required when cardioversion successfully restores sinus rhythm in a patient with AF of confirmed duration of less than 48 hours.
- Give patients with atrial flutter or asymptomatic AF the same antithrombotic therapy as those with symptomatic AF.

## **Antithrombotic therapy for permanent AF**

- When deciding whether or not to give antithrombotic therapy for permanent AF, perform a risk-benefit assessment in discussion with the patient.
- Where antithrombotic therapy is given:
  - the most effective treatment is adjusted-dose warfarin (target INR 2.5, range 2.0 – 3.0)
  - where warfarin is inappropriate, give aspirin (75 to 300 mg/day)
  - if warfarin is appropriate, do not coadminister aspirin purely for thromboprophylaxis, as it provides no additional benefit

## **Antithrombotic therapy for paroxysmal AF**

- Do not base decisions on the need for antithrombotic therapy for paroxysmal AF on the frequency or duration of symptomatic or asymptomatic paroxysms. Perform appropriate risk stratification as for permanent AF.

### **Antithrombotic therapy for acute-onset AF**

- In patients with a confirmed diagnosis of acute AF (less than 48 hours since onset), use oral anticoagulation if:
  - stable sinus rhythm is not restored within the 48-hour period following onset or
  - there are other risk factors for AF recurrence (e.g. history of failed cardioversion attempts, structural heart disease, prolonged history of AF, previous recurrences of AF) or
  - it is recommended by the stroke risk stratification algorithm
- Where the precise time since the onset of acute AF is uncertain, use oral anticoagulation for acute AF, as for persistent AF.
- Where a patient with acute AF is haemodynamically unstable, refer for emergency treatment as soon as possible.

### **Antithrombotic therapy for acute stroke/TIA in patients with AF**

- For acute stroke in patients with AF:
  - manage any uncontrolled hypertension before starting antithrombotic therapy
  - refer for CT or MRI to exclude cerebral haemorrhage:
    - ❖ where there is haemorrhage, anticoagulation therapy is not given
    - ❖ where there is no haemorrhage, anticoagulation therapy begins after 2 weeks
  - anticoagulation is delayed where there is a large cerebral infarction
- For acute TIA in patients with AF:
  - request CT or MRI to exclude recent cerebral infarction or haemorrhage
  - in the absence of either, anticoagulation therapy is commenced as soon as possible

### **Antithrombotic therapy following stroke/TIA in patients with AF**

- Give warfarin as the most effective thromboprophylactic agent.
- Do not give aspirin or dipyridamole as an additional thromboprophylactic agents unless indicated for co morbidities or vascular disease.
- Only begin warfarin treatment after treating relevant co morbidities such as hypertension and assessing the risk-benefit ratio.

### **Contraindications to warfarin in AF<sup>8</sup>**

Absolute contraindications:

- Pregnancy
- Active peptic ulcer or other active source of GI bleeding
- Current major trauma or surgery
- Uncontrolled hypertension
- A bleeding diathesis

- Bacterial endocarditis
- Alcoholism
- Inability to control the INR

Factors which increase the risk of bleeding slightly but only enough to alter decision in cases where the benefit is already borderline include:

- Current NSAID use (add gastroprotection)
- Activities that involve a high risk of injury

Factors often erroneously thought to contraindicate warfarin:

- Old age. The INR is no harder to control in the elderly than in younger patients. There is a slight increase in bleeding risk in older patients but with increasing age the benefit from warfarin rises more than the risk.
- Past history of peptic ulcer or GI bleeding, now resolved.
- Hypertension controlled < 160/90.
- Patients at risk of falling.
- Previous stroke.
- Alcohol intake of 1 – 2 drinks a day.

### **Self-monitoring for long-term anticoagulation**

- Consider self-monitoring for patients with AF who require long-term anticoagulation if they would prefer it and the following criteria are met:
  - the patient (or designated carer) is physically and cognitively able to perform the self-monitoring test
  - there is an adequate supportive educational programme to train patients and/or carers
  - the patient's ability to self-manage is reviewed regularly
  - the equipment is checked regularly using a quality-control programme

### **Post-operative AF – for information only**

#### **Drug prophylaxis**

- In patients undergoing cardiothoracic surgery:
  - reduce the risk of post-operative AF by giving one of:
    - ❖ amiodarone
    - ❖ a beta-blocker
    - ❖ sotalol
    - ❖ a rate limiting calcium antagonist
  - do not use digoxin
- Patients undergoing cardiac surgery who are on pre-existing beta-blocker therapy should continue this treatment unless contraindications develop (such as post-operative bradycardia or hypotension)

#### **Treatment**

- For post-operative AF after cardiothoracic surgery, a rhythm-control strategy is used as the first management option, unless contraindicated.
- Post-operative AF after non-cardiothoracic surgery is managed in the same way as acute-onset AF with any other precipitant.

- When preventing and managing post-operative AF, antithrombotic therapy is used as appropriate and identifiable causes such as electrolyte imbalance or hypoxia corrected.

## **Referral for specialist intervention**

- Consider referral for further specialist interventions (such as pulmonary vein isolation, pacemaker therapy, arrhythmia surgery, atrioventricular junction catheter ablation or use of atrial defibrillators) for patients:
  - in whom pharmacological therapy has failed
  - with lone AF
  - with ECG evidence of any underlying electrophysiological disorder such as Wolff-Parkinson-White syndrome
- Explain and discuss the reasons for such referral with the patient

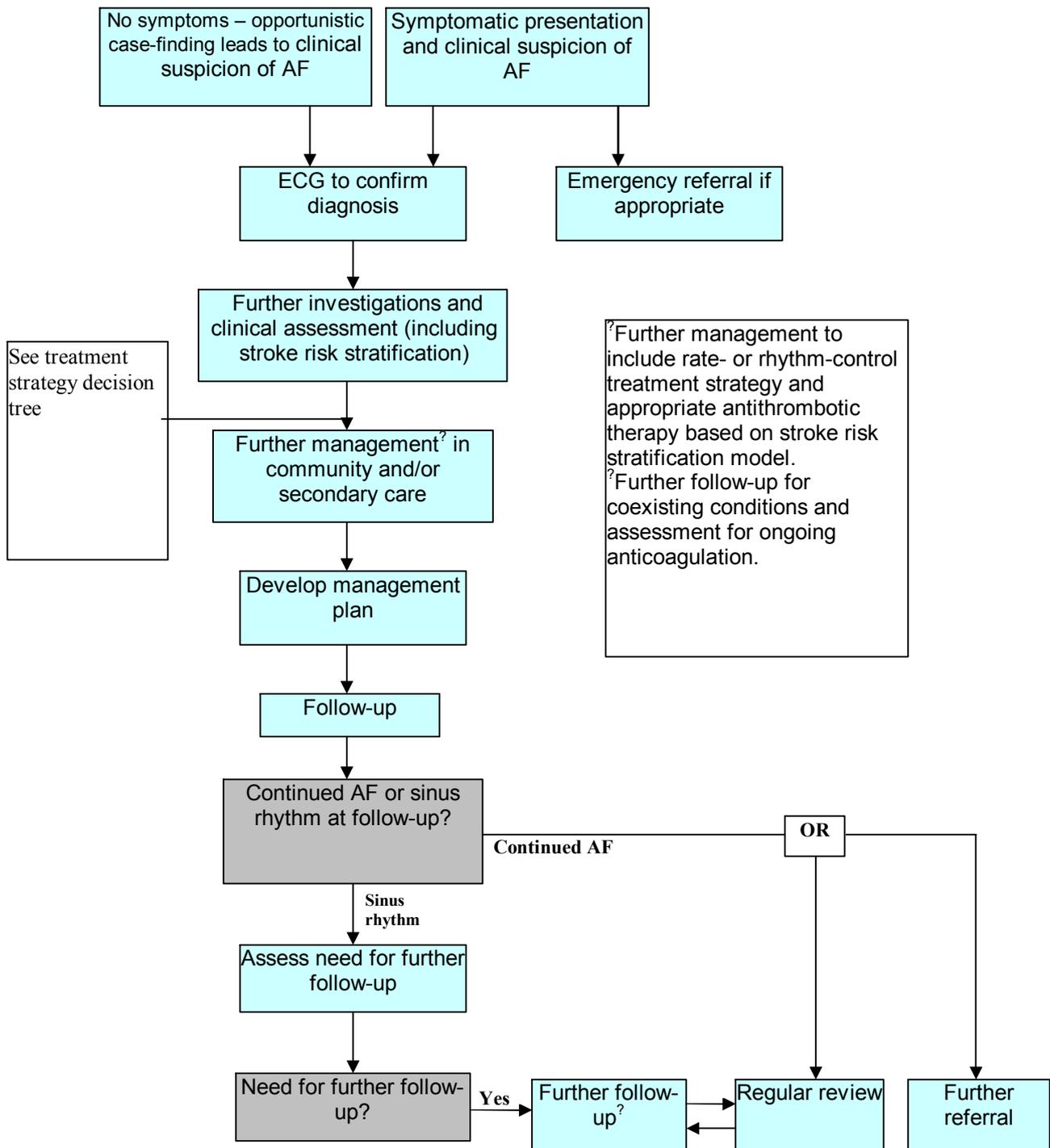
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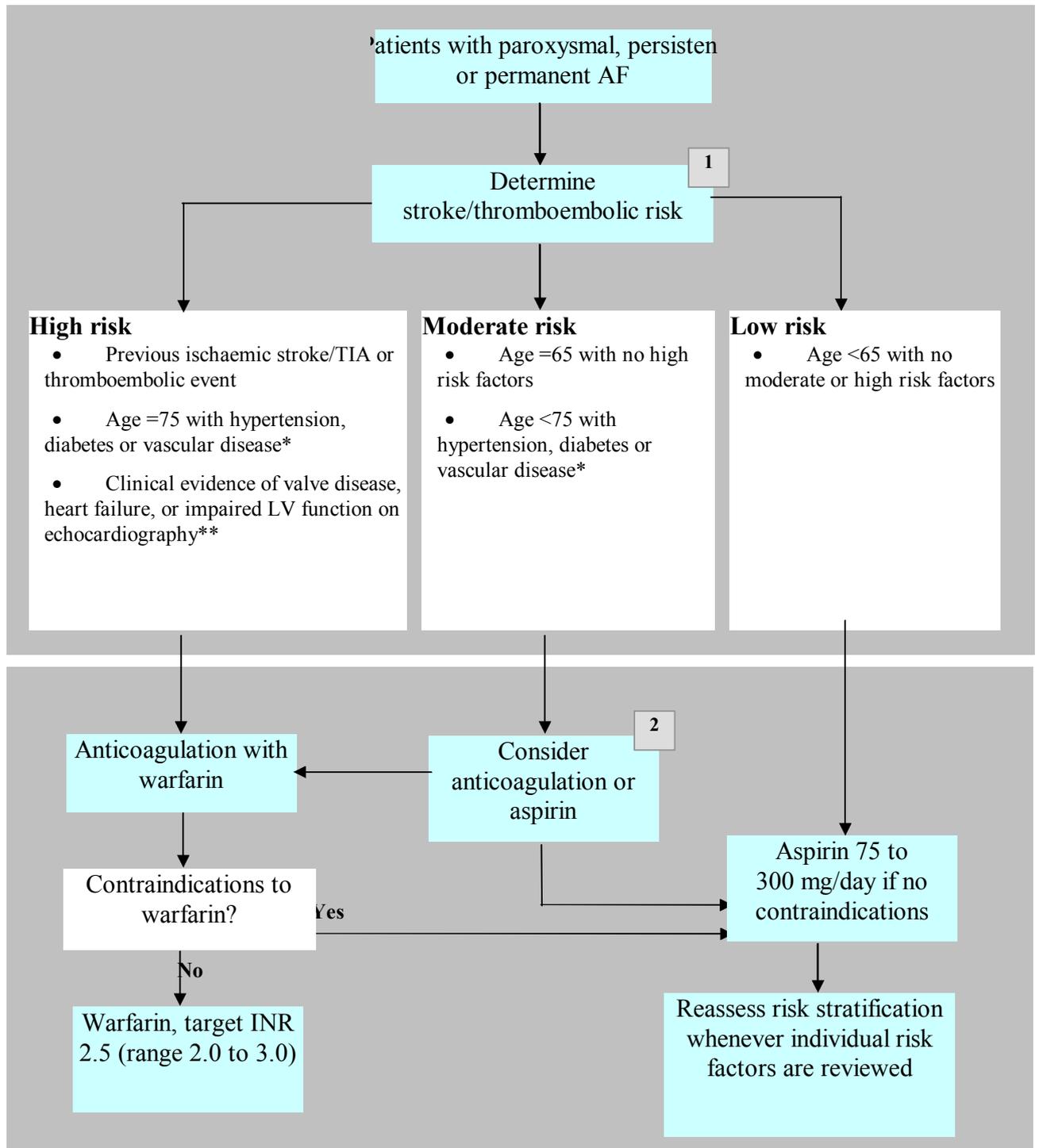
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- <sup>2</sup> Royal College of Physicians (2006) Atrial Fibrillation. National Guidance for management in primary and secondary care. RCP. London
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- <sup>8</sup> Man-Son-Hing M and Laupacis A (2003) Anticoagulation-related bleeding in older persons with atrial fibrillation. *Archives of Internal Medicine*. 163: 1580-1586.
- <sup>9</sup> Alboni P., Botto G. et al (2004) Outpatient treatment of recent-onset atrial fibrillation with the 'Pill-in-the-Pocket' approach. *New England Journal of Medicine* 352 (23):2384-2391.

## Appendix 1

## AF care pathway





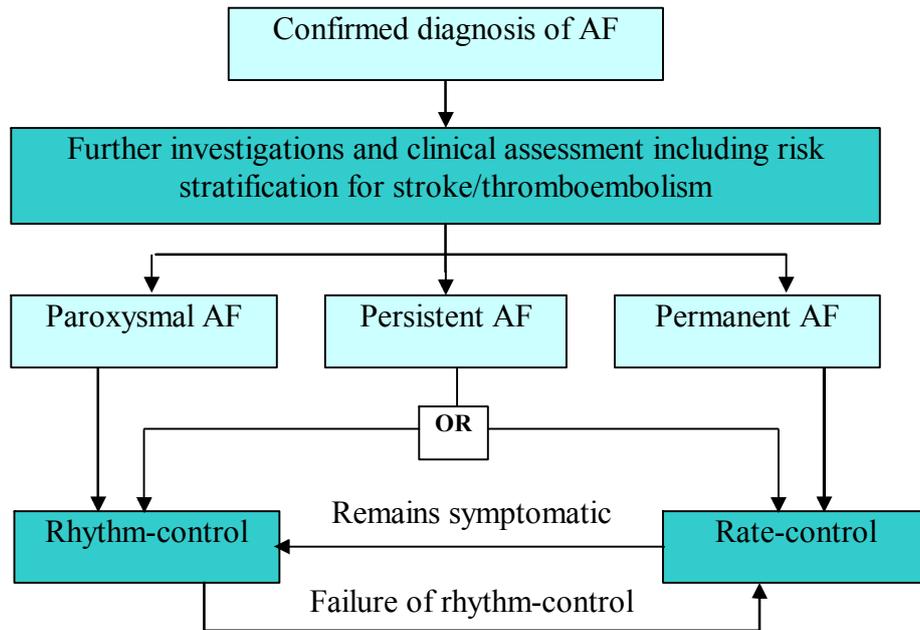
1. 1. Note that risk factors are not mutually exclusive, and are additive to each other in producing a composite risk. Since the incidence of stroke and thromboembolic events in patients with thyrotoxicosis appears similar to that in patients with other aetiologies of AF, antithrombotic treatments should be chosen based on the presence of validated stroke risk factors.
2. 2. Owing to lack of sufficient clear-cut evidence, treatment may be decided on an individual basis, and the physician must balance the risk and benefits of warfarin versus aspirin. As stroke risk factors are cumulative, warfarin may, for example, be used in the presence of two or more moderate stroke risk factors. Referral and echocardiography may help in cases of uncertainty.

\*Coronary artery disease or peripheral artery disease.

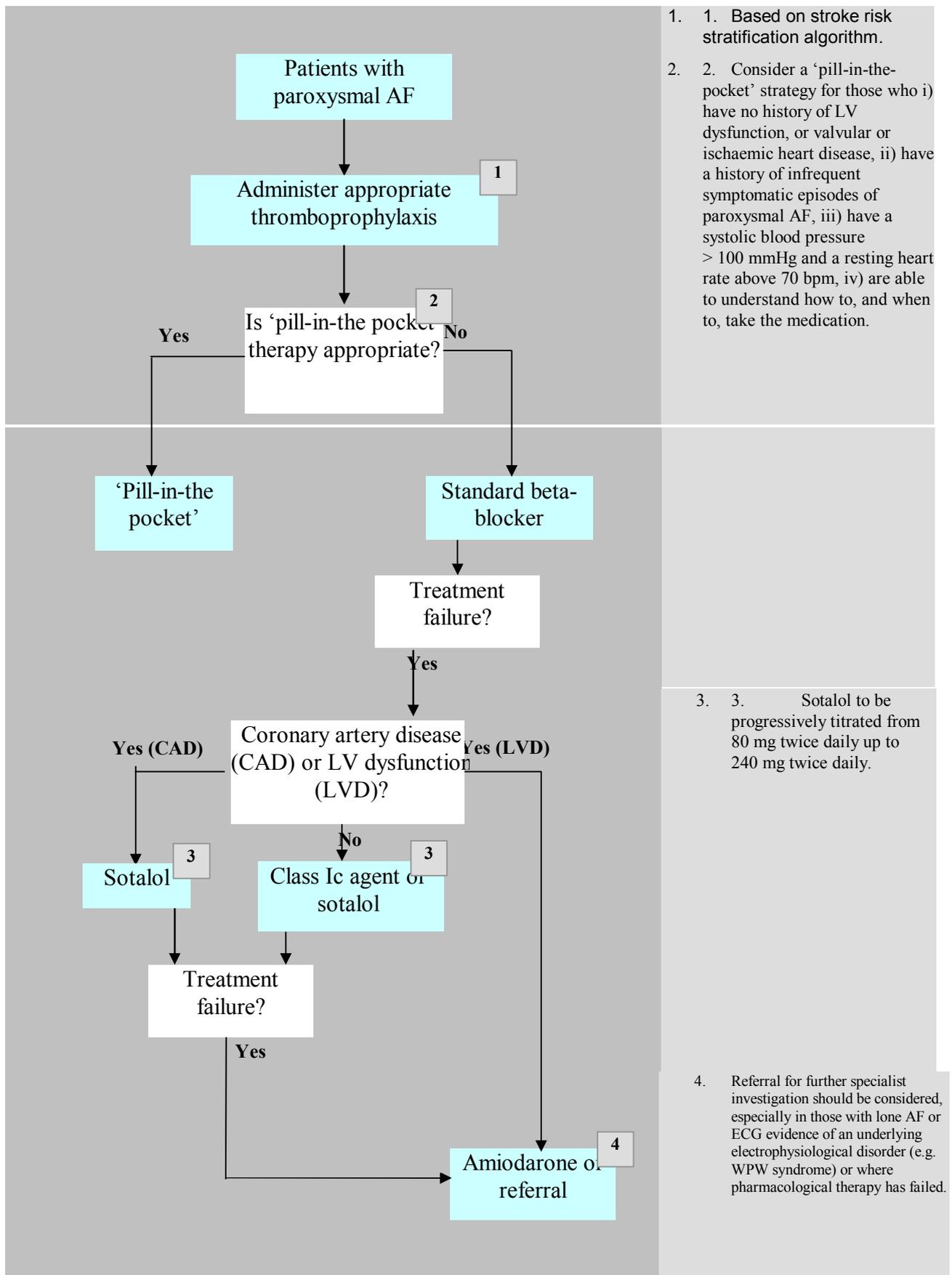
\*\* An echocardiogram is not needed for routine assessment, but refines clinical risk stratification in the case of moderate or severe LV dysfunction and valve disease.

F

Treatment Strategy Decision Tree



**Rhythm-control treatment algorithm for paroxysmal AF**

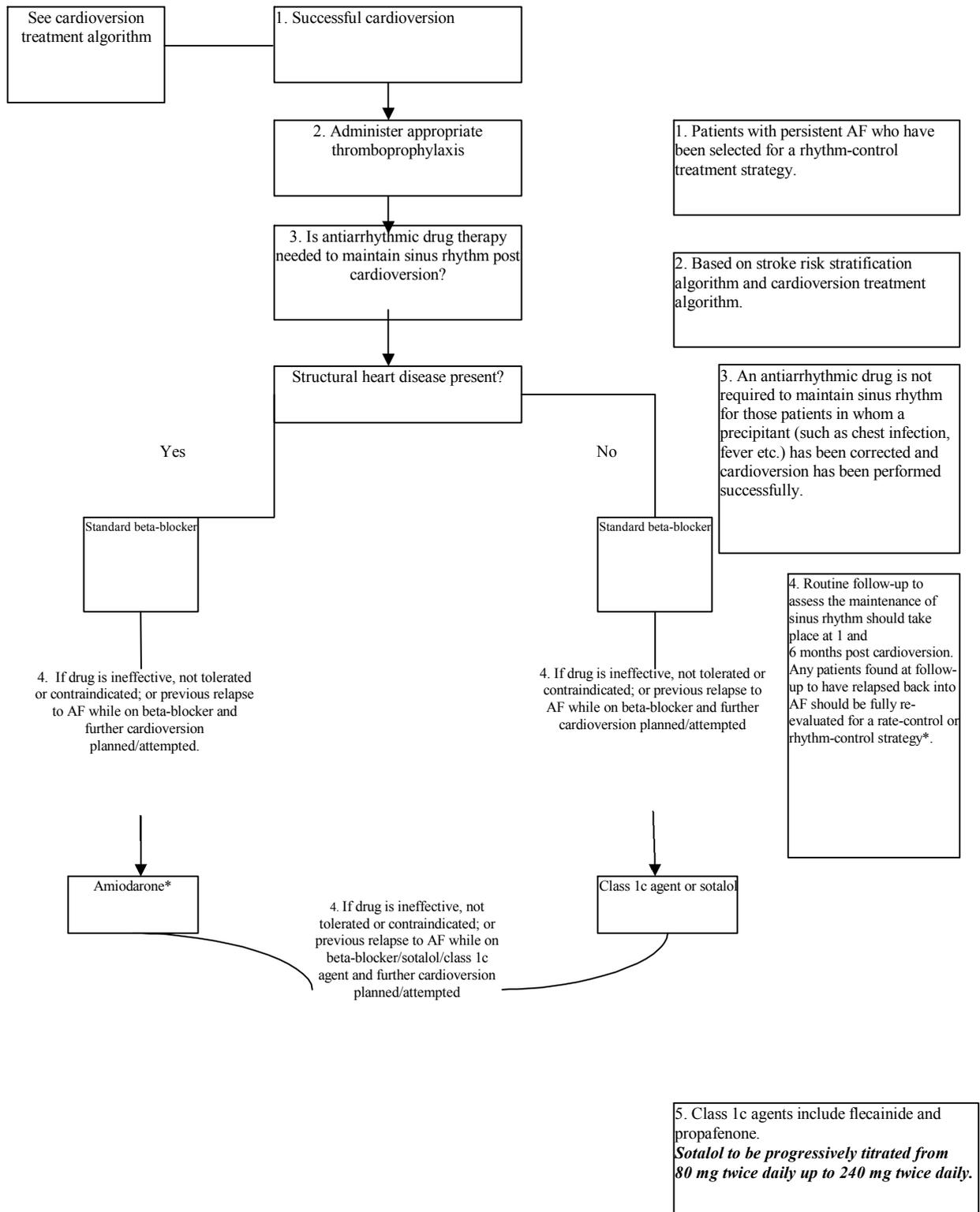


1. 1. Based on stroke risk stratification algorithm.  
 2. 2. Consider a 'pill-in-the-pocket' strategy for those who i) have no history of LV dysfunction, or valvular or ischaemic heart disease, ii) have a history of infrequent symptomatic episodes of paroxysmal AF, iii) have a systolic blood pressure > 100 mmHg and a resting heart rate above 70 bpm, iv) are able to understand how to, and when to, take the medication.

3. 3. Sotalol to be progressively titrated from 80 mg twice daily up to 240 mg twice daily.

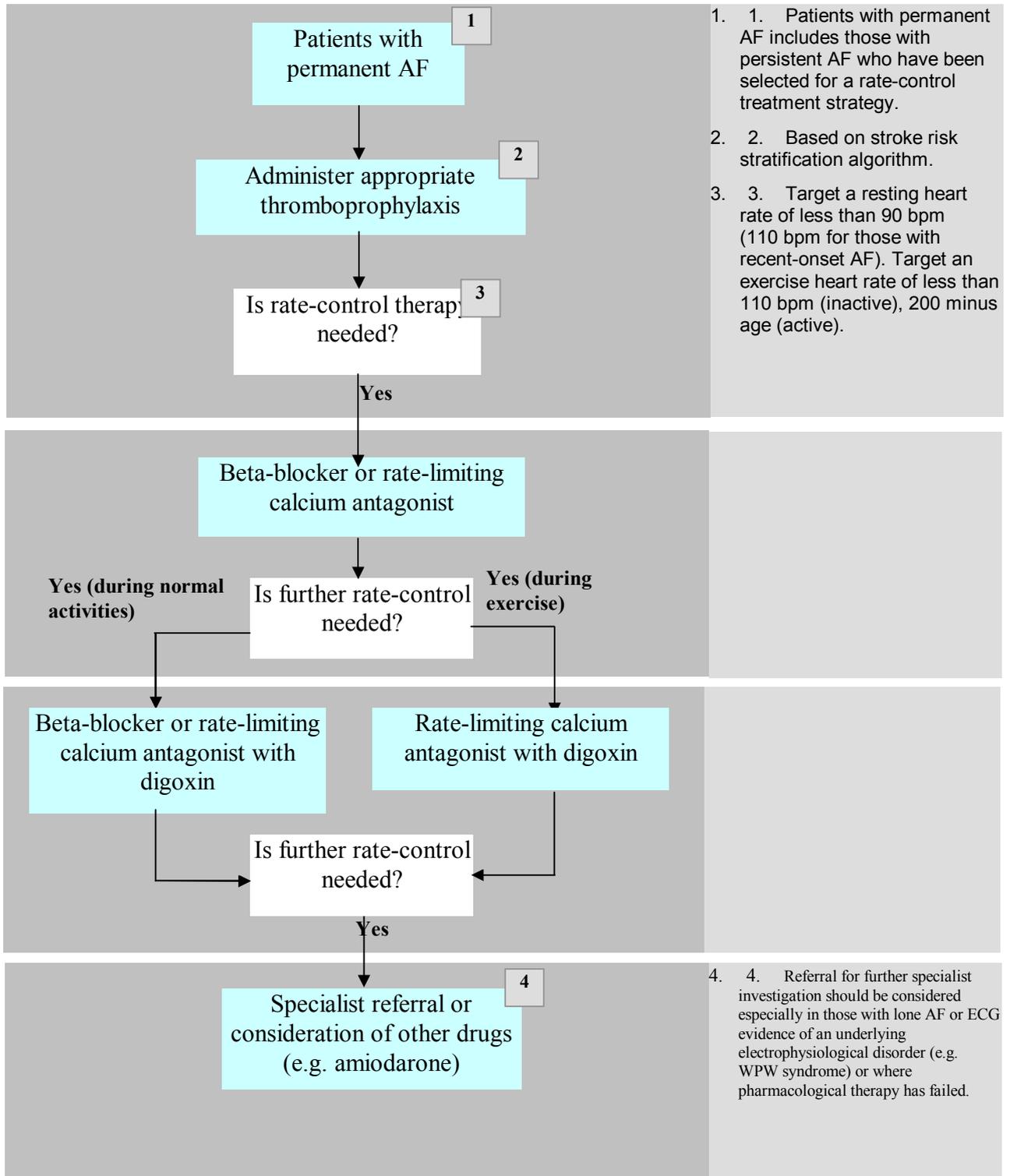
4. Referral for further specialist investigation should be considered, especially in those with lone AF or ECG evidence of an underlying electrophysiological disorder (e.g. WPW syndrome) or where pharmacological therapy has failed.

**Rhythm-control treatment algorithm for persistent AF**



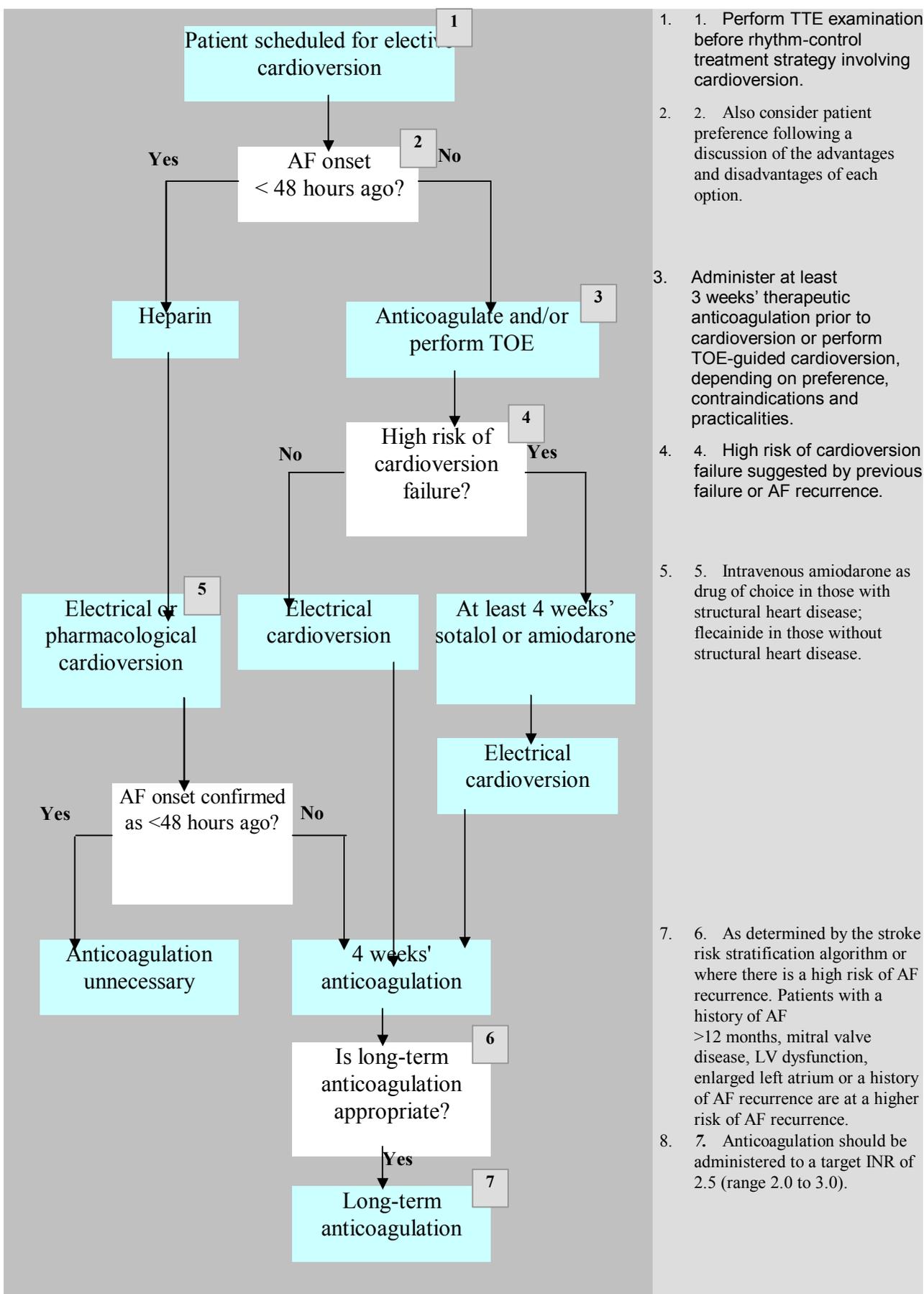
- ■ *If rhythm-control fails, consider the patient for rate-control strategy, or specialist referral for those with lone AF or ECG evidence of underlying electrophysiological disorder (e.g. Wolff–Parkinson–White [WPW] syndrome)*

**Rate-control for persistent and permanent AF**



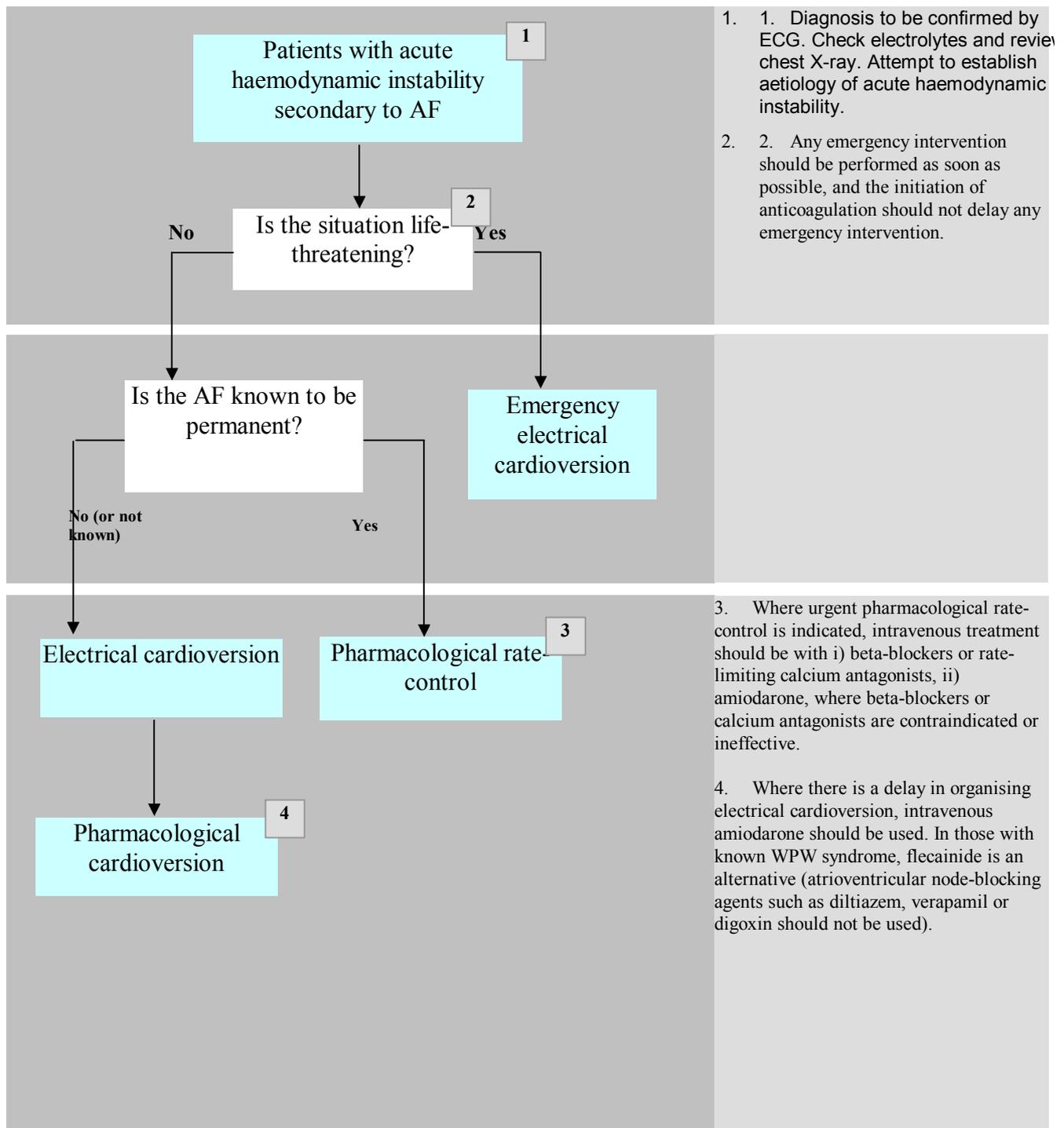
## Cardioversion treatment algorithm

## Appendix 7



1. 1. Perform TTE examination before rhythm-control treatment strategy involving cardioversion.
2. 2. Also consider patient preference following a discussion of the advantages and disadvantages of each option.
3. 3. Administer at least 3 weeks' therapeutic anticoagulation prior to cardioversion or perform TOE-guided cardioversion, depending on preference, contraindications and practicalities.
4. 4. High risk of cardioversion failure suggested by previous failure or AF recurrence.
5. 5. Intravenous amiodarone as drug of choice in those with structural heart disease; flecainide in those without structural heart disease.
6. 6. As determined by the stroke risk stratification algorithm or where there is a high risk of AF recurrence. Patients with a history of AF >12 months, mitral valve disease, LV dysfunction, enlarged left atrium or a history of AF recurrence are at a higher risk of AF recurrence.
7. 7. Anticoagulation should be administered to a target INR of 2.5 (range 2.0 to 3.0).

**Haemodynamically unstable AF treatment algorithm**



1. 1. Diagnosis to be confirmed by ECG. Check electrolytes and review chest X-ray. Attempt to establish aetiology of acute haemodynamic instability.

2. 2. Any emergency intervention should be performed as soon as possible, and the initiation of anticoagulation should not delay any emergency intervention.

3. Where urgent pharmacological rate-control is indicated, intravenous treatment should be with i) beta-blockers or rate-limiting calcium antagonists, ii) amiodarone, where beta-blockers or calcium antagonists are contraindicated or ineffective.

4. Where there is a delay in organising electrical cardioversion, intravenous amiodarone should be used. In those with known WPW syndrome, flecainide is an alternative (atrioventricular node-blocking agents such as diltiazem, verapamil or digoxin should not be used).