

Atrial fibrillation: strategies in primary care

Professor Michael Kirby writes about the common cardiac arrhythmia of atrial fibrillation and how it should be managed in primary care.

Abstract

This article describes the diagnosis, classification and management of atrial fibrillation (AF) in primary care. It looks at its increasing incidence, its risk factors, and the identification and classification of this common arrhythmia. The routine investigations for AF and its treatment, including drug therapy and cardioversion, are also discussed. Finally, with AF being a major risk factor for stroke, strategies to prevent thromboembolism are considered.

Key words: atrial fibrillation, cardiac arrhythmia, sinus rhythm, cardioversion, thromboembolism, stroke.

Br J Cardiol 2005;12:308-11

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'Atrial fibrillation is responsible for about 45% of embolic strokes'

Introduction

Atrial fibrillation (AF) is the most common and important cardiac arrhythmia. It affects 5% of the UK population over the age of 65 years, rising to 10% in those over 75 years.¹ The disorder is also becoming more prevalent with time, even allowing for the adjustment for age and structural heart disease.² It is responsible for about 45% of all embolic strokes,³ increasing the risk of stroke five-fold.⁴ The use of anticoagulation with warfarin reduces the risk of stroke by 68% in primary prevention⁵ and by 62% when used in secondary prevention.⁶

The onset of AF is encouraged by diseases that affect the atrial myocardium, such as mitral stenosis, hypertension and cardiomyopathies. Ischaemic

heart disease is a common cause. Myocardial infarction is an independent risk factor for the development of atrial fibrillation in men only, increasing the likelihood of this disorder by 40% in this group. Other independent risk factors for atrial fibrillation include male sex, diabetes and heart failure. Echocardiographic studies are very helpful because left atrial dilatation, left ventricular hypertrophy and impaired systolic function are also strongly associated with the development of AF.¹

Data from the Framingham study⁷ suggest that lone AF, which is the onset of the problem in a heart that seems to be otherwise structurally and functionally normal, accounts for about 15% of all cases of this disorder in the commu-

nity, with a peak prevalence in patients aged 60-79 years. Little is known about ethnic variations in the prevalence of this disorder.

Standard five of the National Service Framework For Older People⁸ states that Primary Care Trusts (PCTs) should have had in place by April 2004 the following: 'Every general practice, using protocols agreed with local specialist services, can identify and treat patients identified as being at risk of stroke because of high blood pressure, AF or other risk factors'.

Many patients can be identified during day-to-day practice simply by taking the pulse at the wrist to detect irregularity. In my own practice we have 136 patients on the register with AF and by taking pulses, as part of the BAFTA study (Birmingham Atrial Fibrillation Trial in the Aged), we are detecting new patients on a regular basis. In the Cardiovascular Health Study,⁹ 12% of new cases of AF were diagnosed on the basis of yearly electrocardiogram (ECG) screening alone and thus, presumably, these patients had no symptoms.

The effects of atrial fibrillation

Most patients with AF are aware of palpitations and they will describe fast, irregular beating of their heart. In some patients the sensation is barely appreciated, whereas in others, with apparently similar ECG findings, the symptoms are devastating. This is because AF reduces cardiac output and this becomes most evident on exercising. Reasons for the reduced cardiac output include inappropriately rapid ventricular response rate, loss of atrial transport of blood and ventricular irregularity.

Table 1. Classification of atrial fibrillation¹¹**1. Paroxysmal**

- Spontaneously reverts to sinus rhythm
- Treatment is prophylactic

2. Established**a. Persistent**

- Sinus rhythm might be possible
- Treatment is medical or DC conversion

b. Permanent

- Sinus rhythm is not possible
- Treatment is rate control

As stated already, the most important complication of AF is a thromboembolism. Stasis in the left atrium and, to a lesser extent, in the right atrium occurs particularly when these chambers are dilated, which promotes clot formation. Clot formation is also promoted by concomitant cardiac disease and is most prevalent in patients with valvular heart disease such as mitral stenosis. All patients with AF should be judged at significant risk of thromboembolism and considered for anticoagulation.

Despite the fact that AF can be symptomless, up to two thirds of patients report that the arrhythmia is disruptive to their lives.¹⁰

Classification of atrial fibrillation

A useful practical approach is to identify paroxysmal, persistent and permanent forms of AF (see table 1). Paroxysmal AF is defined as episodes that terminate spontaneously within 24 hours of onset. Persistent AF is an attack that lasts for more than 24 hours and in which restoration of sinus rhythm may be possible but is not certain. Permanent AF is a state in which the restoration of sinus rhythm is impossible or considered inappropriate and occurs in those patients with longstanding AF, those with marked left atrial dilatation and/or serious valvular heart disease.

Routine investigations in atrial fibrillation

The following routine investigations

should be undertaken:

- History – including alcohol consumption
- Physical examination – to exclude structural heart disease
- Thyroid function and electrolytes
- ECG – to look for evidence of hypertensive or ischaemic heart disease or cardiomyopathy
- Echocardiography – most patients, unless heart disease is irrelevant to prognosis or already diagnosed
- Holter monitoring to diagnose paroxysmal episodes, which can be symptomless

Treatment

In patients diagnosed with AF, restoration and the maintenance of a sinus rhythm can have many benefits. These include:

- Improved symptoms
- Correction of atrial remodelling that occurs with the arrhythmia
- Reduced risk of thromboembolism
- No need for indefinite anticoagulation.

‘PCTs require formal management protocols and care pathways for patients with AF’

Regardless of whether underlying heart disease is common, restoration of sinus rhythm is associated with improvements in exercise capacity and peak oxygen consumption.⁹

However recent studies have shown that rate control can be considered a valid alternative to rhythm control.¹² The longer the AF has been present, the less successful cardioversion procedures are, irrespective of the technique used. In addition, recurrence of the arrhythmia becomes more and more likely. Early restoration of sinus rhythm is thus an important goal whenever it can be safely achieved. Patients who have been in AF without anticoagulation for more than 48 hours need to be adequately anticoagulated for at least

three weeks before cardioversion, either using drugs or DC cardioversion. Anticoagulation should be maintained for at least one month after cardioversion.

A randomised comparison of intravenous flecainide, propafenone and amiodarone for the treatment of recent onset atrial fibrillation showed a significant difference in efficacy between the three drugs, with 90%, 72% and 64% response in patients in the three groups, respectively.¹³

Electrical cardioversion

For patients with persistent AF, synchronised external cardioversion under general anaesthesia is safe and effective, with success rates of 65–90%.

Maintenance of sinus rhythm

Digoxin has no effect on the rate of conversion of AF of recent onset to sinus rhythm, or in preventing recurrence.¹⁴ Beta blockers have a small beneficial effect in maintenance of sinus rhythm.¹⁵ Amiodarone is also commonly used and better than either sotalol or propafenone. In the maintenance of sinus rhythm in patients with a history of AF, amiodarone is much more likely to cause side effects,¹⁶ which include photosensitivity skin rashes, thyroid disorders, eye disorders and pulmonary fibrosis.

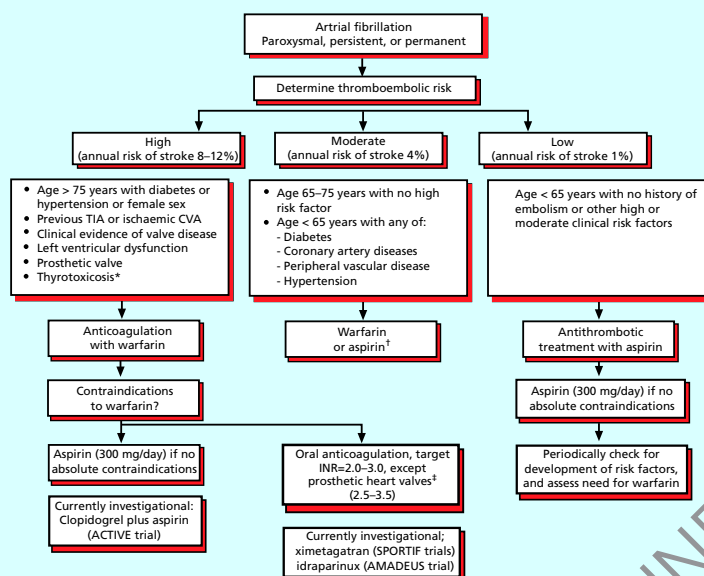
Prevention of thromboembolism

Reduction of the risk of thromboembolism is very important in treatment of patients with AF. Pooled data¹⁷ from five randomised studies of patients with AF has shown that dose-adjusted oral anticoagulation reduces the risk of ischaemic stroke by 68% and lowers mortality by 33%. However, warfarin does increase the risk of haemorrhagic events and the risk-benefit ratio must be assessed individually for every patient.

Aspirin is less effective than warfarin in preventing stroke in AF in regard to the size of risk reduction in placebo-controlled trials (22% versus 68%, respectively). Thus at present, aspirin

ATRIAL FIBRILLATION

Figure 1. Algorithm for anticoagulating patients with atrial fibrillation



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Key: * Thyrotoxicosis is associated with a high thromboembolic risk in atrial fibrillation. Current guidelines recommend anticoagulation with warfarin, if no contraindications exist, at least until a euthyroid state is achieved and congestive heart failure has been corrected.⁶ †Owing to lack of sufficient clear cut evidence, treatment may be decided on an individual basis, and the physician must balance the risks and benefits of warfarin versus aspirin; referral and echocardiography may help in these cases. ‡In patients with older prosthetic valves, the target INR should be higher and aspirin added depending on valve type, valve position, and patient factors. INR = international normalised ratio; CVA = cerebrovascular accident, TIA = transient ischaemic attack



Key messages

- Atrial fibrillation (AF) is the most common and important cardiac arrhythmia
- Early restoration of sinus rhythm and its maintenance is an important goal
- Use of anticoagulation with warfarin reduces the risk of stroke by 68%
- General practices should now have locally agreed protocols for the identification and treatment of all patients with AF

can only be recommended for patients with AF who have no additional risk factors for thromboembolism or those who cannot safely take warfarin.¹⁸

Risk factors and anticoagulation indications

The risk factors for stroke and indications for anticoagulation in patients with atrial fibrillation are as follows:

- Previous history of transient

ischaemic attack (TIA) or stroke

- Age > 65 years
- History of hypertension
- Diabetes
- Heart failure
- Structural heart disease
- Rheumatic or other significant valvular heart disease
- Significant left ventricular systolic function.

The past 20 years have seen many

advances in the understanding of all aspects of AF and new approaches, such as radiofrequency ablation of the foci initiating the AF, mean that many more patients can be cured.

In primary care there is a need and important role for nurses in the earlier and opportunistic identification of AF. All suspected AF patients seen in primary care should undergo risk stratification, 12-lead ECG and appropriate biochemistry. There is an urgent need for greater and quicker access to diagnostic support in the form of echocardiography.

The first step is to initiate heart rate control and anticoagulation pending either further tests or referral. A recent paper in the *BMJ* has clarified the issue regarding risk (see figure 1). PCTs require formal management protocols and care pathways for patients with AF. Patients should be provided with consistent information on the risks and benefits of anticoagulation to help them make an informed choice.¹⁹

Conflict of interest

None declared.

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