Atrial fibrillation: current approaches to management

Upasana Tayal MA, MRCP and Robert Greenbaum BSc, MD, FRCP, FESC, FACC

Atrial fibrillation is the commonest arrhythmia and GPs have an important role to play in management. Our Drug review discusses its diagnosis and current recommended treatment, followed by sources of further information.

In this review of current approaches to the management of atrial fibrillation (AF) the key issues that affect general practitioners will be addressed: making the diagnosis, rate or rhythm control, managing stroke risk and when to refer to secondary care.

Diagnosing AF
AF (see Figure 1) is the commonest cardiac arrhythmia, affecting up to 2% of the population, so in a GP practice of 1900 patients there will be about 38 patients.

Recording AF: fast facts
• AF may present with palpitations but commonly can be silent, ie will be diagnosed as an incidental finding
• it may present with embolic phenomena, such as a stroke or transient ischaemic attack (TIA)
• opportunistic screening with an ECG is recommended in patients with an irregular pulse
• an ECG is crucial to diagnose AF, whether the patient is symptomatic or not
• 24-hour Holter monitoring is used if symptoms are daily, or an event recorder if symptoms weekly.

What to ask in the history: fast facts
• precipitating factors, eg exercise, alcohol, stressors, hyperthyroidism or thyroid replacement therapy
• how much the symptoms interfere with daily life, symptom frequency and duration
• correctable causes (see Table 1).

Classification
The classification of AF is important because it helps to determine management.

Paroxysmal The individual episodes of AF are self-terminating, usually within 48 hours. It may be possible to maintain sinus rhythm for long periods so a rhythm-control strategy is often adopted.

Figure 1. A 12-lead ECG showing atrial fibrillation with a fast ventricular response rate
A transthoracic echo is usually unnecessary for stroke risk stratification and should not delay assessment of the need for oral anticoagulation. Nevertheless, virtually all patients should have an echo as it may show left atrial dilatation (associated with increased stroke risk), impaired left ventricular function, valvular heart disease or pericardial disease. If any of these conditions are found, assessment in secondary care is advised. If the patient is symptomatic with their AF or has a clearly correctable cause, then it might be worth trying a rhythm-control strategy to try to get them out of AF. This is more likely to be effective if they are younger and it is their first presentation.

**Persistent AF**
For rate control, beta-blockers or rate-limiting calcium channel blockers, eg diltiazem, are recommended. Digoxin can be added if additional control is needed but should only be considered as monotherapy in sedentary patients. The aim should be to achieve a resting heart rate of about 80 beats per minute.

**Tip** Always check the heart rate by auscultation – measuring the radial pulse in a patient with AF can considerably underestimate the actual heart rate.

### Managing stroke risk
The stroke risk with AF persists whether or not the patient is symptomatic, and the identification of which patients are at risk of having a stroke provides one of the biggest challenges in the management of patients with AF. One of the original stroke risk models is the CHADS2 score, which forms the current basis for the QOF 2013 in both England and Scotland (one point for each of congestive heart failure, hypertension, age >75 years, diabetes mellitus; two points for previous stroke/TIA). While the CHADS2 score is useful, subsequent work has shown that it is less effective at identifying those patients who are truly at a low risk of having a stroke and do not need any form of antiplatelet therapy or anticoagulation. The most up-to-date stroke risk stratification model is the CHA2DS2–VASc score (see Table 2). Note that using the latter scoring system all patients aged 75 or above have a score of at least 2 and so are candidates for oral anticoagulation therapy.

### Special situations
Patients for whom anticoagulation may not be appropriate include:
- very frail elderly patients
- patients with a high bleeding risk
- patients who have had a recent stroke/TIA.

**Frail patients**
GPs are often hesitant to initiate anticoagulants in frail elderly patients. Many cardiologists, however, feel that, unless such patients are actually having frequent falls, in most cases anticoagulants should be given: a debilitating but nonfatal stroke could prove disastrous in such a patient. A key trial has shown that a patient would need to fall almost 300 times per year for the risk of intracranial bleed to outweigh the benefit of anticoagulation. Generally there should be an informed discussion between the patient, their family and the physician.

The decision to anticoagulate can and should be reviewed regularly. Where it might have been appropriate to anticoagulate at one stage, the situation can evolve and a few years later it may no longer be appropriate.
Bleeding risk
Unfortunately, the very factors that lead to a higher stroke risk are the same factors associated with a higher bleeding risk when anticoagulated.

This is best seen when looking at the HASBLED bleeding risk score (see Table 3). Caution is advised when considering anticoagulation in patients with a score of three or more. Notably, however, no HASBLED score is an absolute contraindication to anticoagulation.

Recent stroke/TIA
If a patient with AF, either new or known, has had a stroke or TIA, then it is recommended to wait two weeks before starting anticoagulation. If there has ever been a haemorrhagic stroke then anticoagulation is contraindicated.

Novel oral anticoagulants
It is widely recognised that warfarin can be very inconvenient for patients, both in terms of lifestyle, eg drug and diet interactions, as well as the hassle of regular blood tests and appointments for INR checks. The novel oral anticoagulants (NOACs) provide an alternative to warfarin and three have recently been licensed for use in non-valvular AF by NICE.

It is worth stressing that these drugs should not be used in patients with heart valve replacements. They do not replace warfarin in all indications.

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### Table 2. The CHA2DS2–VASc clinical scoring tool for stroke risk and the European Society of Cardiology recommendations

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
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<tbody>
<tr>
<td>Cardiac failure</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
</tr>
<tr>
<td>Age ≥75</td>
<td>2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>1</td>
</tr>
<tr>
<td>Vascular disease</td>
<td>2</td>
</tr>
<tr>
<td>Age 65–74</td>
<td>1</td>
</tr>
<tr>
<td>Sex category – female</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total score</th>
<th>Adjusted stroke rate (%/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>3</td>
<td>3.2</td>
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<tr>
<td>4</td>
<td>4.0</td>
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<tr>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>6</td>
<td>9.8</td>
</tr>
<tr>
<td>7</td>
<td>9.6</td>
</tr>
<tr>
<td>8</td>
<td>6.7</td>
</tr>
<tr>
<td>9</td>
<td>15.2</td>
</tr>
</tbody>
</table>

- **CHA2DS2–VASc score equal or greater than 2: anticoagulation indicated**

- **Score of 1 – either anticoagulation or antiplatelet therapy, ideally anticoagulation**
  
  For patients in this category, a clear discussion between patient and physician is required about the stroke risk and risks and benefits of antiplatelet and anticoagulation therapy.

- **Score of 0 – either antiplatelet therapy or nothing, ideally nothing**
  
  Key development, recognising a truly low-risk population and understanding the potential harm from antiplatelet therapy. Aspirin alone is not as innocuous as previously believed and the bleeding risk, especially in elderly patients, is significant, and must not be considered a ‘softer option’ compared to formal anticoagulation.

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**Rivaroxaban (Xarelto): fast facts**

- direct factor Xa inhibitor
- NICE recommends rivaroxaban in patients with nonvalvular AF with one or more of the following risk factors:
  - congestive heart failure
  - hypertension
  - age 75 years or older
  - diabetes mellitus
  - prior stroke or TIA
- dose 20mg once daily
- key trial: ROCKET-AF (Rivaroxaban once-daily oral direct factor Xa inhibition compared with vitamin K antagonism for prevention of stroke and embolism trial in atrial fibrillation).

**Dabigatran (Pradaxa): fast facts**

- direct thrombin inhibitor
- NICE recommends dabigatran in patients with nonvalvular AF with one or more of the following risk factors:
  - previous stroke, TIA or systemic embolism
  - left ventricular ejection fraction below 40 per cent
  - symptomatic heart failure of New York Heart Association (NYHA) class 2 or above
  - age 75 years or older
  - age 65 years or older with one of the following: diabetes mellitus, coronary artery disease or hypertension
- dabigatran 150mg twice daily is associated with a lower
incidence of stroke or systemic embolism compared with warfarin
- lower risk of intracranial haemorrhage (including haemorrhagic stroke) than warfarin
- higher risk of gastrointestinal bleeding compared with warfarin
- dose 110mg/150mg twice daily
- key trial: RE-LY (Randomized evaluation of long-term anticoagulant therapy).

Apixaban (Eliquis): fast facts
- direct factor Xa inhibitor
- NICE recommends apixaban in patients with nonvalvular AF with one or more of the following risk factors:
  - congestive heart failure
  - hypertension
  - age 75 years or older
  - diabetes mellitus
  - prior stroke or TIA
- dose 2.5mg/5mg twice daily
- key trials: ARISTOTLE (Apixaban for reduction in stroke and other thromboembolic events in atrial fibrillation), AVERROES (Apixaban versus acetylsalicylic acid to prevent strokes).

Table 3. The HASBLED bleeding risk score

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension (SBP &gt;160mmHg)</td>
<td>1 point</td>
</tr>
<tr>
<td>Abnormal renal (chronic dialysis or renal transplant or creatinine &gt;200mmol/l) and liver function (chronic hepatic disease, significant biochemical hepatic derangement)</td>
<td>1 or 2 points</td>
</tr>
<tr>
<td>Stroke</td>
<td>1 point</td>
</tr>
<tr>
<td>Bleeding history or predisposition to bleeding (eg bleeding diathesis, anaemia)</td>
<td>1 point</td>
</tr>
<tr>
<td>Labile INRs</td>
<td>1 point</td>
</tr>
<tr>
<td>Elderly (eg age &gt;65 years)</td>
<td>1 point</td>
</tr>
<tr>
<td>Drugs (eg antiplatelets, NSAIDs) or alcohol</td>
<td>1 or 2 points</td>
</tr>
<tr>
<td>maximum 9 points</td>
<td></td>
</tr>
</tbody>
</table>

When to refer and other treatment options available
Referral for specialist intervention should be considered for patients:
- in whom pharmacological therapy has failed
- with lone AF, ie no apparent cause
- with ECG evidence of any underlying electrophysiological disorder such as Wolff-Parkinson-White syndrome.

Possible specialist interventions include:
- **DC cardioversion** This can be curative or used as a trial of symptomatic improvement by restoring sinus rhythm (to see if patient would benefit from, for example, catheter ablation).
- **Catheter ablation (pulmonary vein isolation)** An invasive procedure, usually performed under general anaesthesia. One procedure is rarely sufficient but can achieve long-term success; it may not obviate the need for anticoagulation. Catheter ablation can be first line in patients with paroxysmal AF with a low risk of procedural complications.
- **Ablate and pace** Ablation of AV node and ventricular pacing only. Anticoagulation is still needed but rate/rhythm control is not required (now rarely employed).
- **Left atrial appendage closure** There is limited evidence for efficacy and safety but the hypothesis is that closure may obviate the need for anticoagulation in patients who cannot tolerate anticoagulants. There are not enough data to support this intervention at present.

**Conclusion**
AF is common, and GPs play a crucial role in its identification. In many cases a simple ECG will confirm its presence. The GP should make a rapid assessment of thromboembolic risk using a clinical scoring tool such as CHA2DS2-VASc, and patients qualifying for oral anticoagulation should be started on this as soon as possible. Consideration of further investigation such as echocardiography can be undertaken later.

At least in the first instance the ventricular rate can be controlled with beta-blockers or calcium-channel blockers such as diltiazem.

**Declaration of interests**
Dr Greenbaum has received speaker honoraria from Boehringer-Ingelheim and Bayer.

Dr Tayal is SpR in cardiology, Barnet and Chase Farm Hospitals NHS Trust, and Dr Greenbaum is consultant cardiologist at Barnet and Chase Farm Hospitals and The Royal Free Hospital NHS Trusts.
Resources

Guidelines


Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation. TA256. NICE, 2012.

Prescriber articles


CPD: Management of AF

Answer these questions online at Prescriber.co.uk and receive a certificate of completion for your CPD portfolio. Utilise the Learning into Practice form to record how your learning has contributed to your professional development.

For each section, one of the statements is false – which is it?

1. In the diagnosis of AF:
   a. AF may be silent and diagnosed incidentally
   b. measuring the radial pulse in a patient with AF may underestimate heart rate
   c. precipitating factors include hyperthyroidism
   d. opportunistic screening with an ECG is not recommended for patients with an irregular pulse

2. Which one of the following statements is false?
   a. a rhythm-control strategy is often adopted for paroxysmal AF
   b. if a patient with persistent AF is older or has coronary artery disease, then a rhythm control strategy is advised
   c. assessment in secondary care should be considered for a patient with left atrial dilatation
   d. the commonest associated cause of AF is hypertension

3. In the management of AF:
   a. the aim of rate control is a resting heart rate of 60bpm
   b. as-required use of flecainide is often prescribed for a young patient with paroxysmal AF and no structural heart disease
   c. monotherapy with digoxin may be prescribed for a sedentary patient with permanent AF
   d. beta-blockers or rate-limiting calcium-channel blockers such as diltiazem are recommended for the treatment of permanent AF

4. In a patient with AF:
   a. the risk of stroke persists only while the patient is symptomatic
   b. the GP should make a rapid assessment of thromboembolic risk using a clinical scoring tool such as CHA₂DS₂-VASc
   c. when using CHA₂DS₂-VASc, all patients aged 75 or above are candidates for oral anticoagulation therapy
   d. CHADS₂ is not sufficiently reliable for identifying patients who do not need any form of antiplatelet therapy or anticoagulation

5. When considering anticoagulation for a patient with AF:
   a. an anticoagulant should be prescribed for a frail elderly patient unless they are having frequent falls
   b. a HASBLED score of 3 or more is an absolute contraindication to anticoagulation
   c. anticoagulation should be delayed by 2 weeks in a patient who has had a recent ischaemic stroke or TIA
   d. novel oral anticoagulants should not be prescribed for a patient with a heart valve replacement

6. Of the nonpharmacological management options for AF:
   a. DC cardioversion may be curative
   b. anticoagulation is still necessary after AV node ablation and ventricular pacing
   c. catheter ablation is a last resort for patients with paroxysmal AF
   d. patients with no apparent cause for their AF should be referred to a specialist