Stroke prevention in atrial fibrillation

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Abstract

This article explores the strengths and weaknesses of current treatment pathways of atrial fibrillation as discussed at a multidisciplinary meeting of healthcare professionals organised by the Thrombosis Quorum. By discussing case studies using a Socratic method of dialogue to elicit better questioning of management practices, the meeting reached a consensus on various issues in the care of the patient with atrial fibrillation.

Key words: atrial fibrillation, Socratic dialogue, anticoagulation therapy.

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Introduction

The Thrombosis Quorum – an educational organisation steered by a group of thrombosis-interested clinicians from primary and secondary care – co-ordinated the 'Socratic Dialogue on Stroke Prevention in Atrial Fibrillation' – a multidisciplinary meeting of healthcare professionals at the Royal College of Pathologists in London.

The Socratic method employed for the meeting was first developed by the Greek philosopher Socrates, who used the technique to educate his students by asking them questions and encouraging them to question themselves. In this instance, the method was used to facilitate an exploration of the strengths and weaknesses of current treatment pathways in atrial fibrillation (AF), and the role of the many healthcare professionals that impact the course of a patient's disease. In particular, the roles of primary and secondary care, and the potential for interface between the two, was a key area for exploration.

Each panel member provided a unique insight into different aspects of the management of AF and some of the practical issues that arise from their management decisions by answering questions put to them by the chairman, Professor Richard Hobbs. The format of the meeting contrasted from the traditional didactic multidisciplinary interactions between secondary and primary care and served as an effective exercise in team-building and networking. Hypothetical case studies were used to guide the discussions and to reinforce to panel members each of their different and equally valid roles and perspectives in the pathway of patient care. Importantly, this led to a reinforced sense of common purpose across the different clinical specialities and disciplines represented by the panel. The following report provides a summary of the panel's discussions around the cases, and the key points of consensus.

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Background facts and figures

AF affects 5% of UK population over 65 years of age, rising to 10% in those over 75 years.[1] It is responsible for about 45% of all embolic strokes,[2] increasing the risk of stroke five-fold.[3] Warfarin reduces the risk of stroke by 68% in primary prevention[4] and by 62% in secondary prevention.[5]

Standard 5 of the *National Service Framework for Older People*[6] charges Primary Care Trusts (PCTs), by April 2004, to have ensured that: "Every general practice, using protocols agreed with local specialist services, can identify and treat patients identified as being at risk of a stroke because of high blood pressure, AF or other risk factors."

Case study 1 – typical AF

Diagnosis

'A 61-year-old man presents to his GP with a fast heart rate (103 bpm), which he says he has had for the past five to six weeks. He suffers from diabetes and hypertension, and experienced a myocardial infarction two years ago. He is otherwise fit and well and enjoys an active lifestyle.'

Case study 1 initiated discussions around the type of investigations a GP might be expected to carry out routinely when a patient presents with signs and symptoms suggestive of AF, and how easy it is for a patient to obtain access to relevant secondary care diagnostic and management services.

The panel noted that GPs are increasingly able to access investigational techniques and equipment that were once restricted to secondary care. They are also helping to devise care pathways leading to more responsibility for the initial diagnosis and management of patients with AF, without needing to refer.

It was recommended that, if the patient is confirmed as being in AF, his or her risk for stroke and other potential complications arising from AF, should be stratified. Panel members agreed that it was reasonable to expect all GPs to be able to make the initial diagnosis of AF with a 12-lead ECG. Biochemical tests, including thyroid function, liver enzymes, electrolytes, and haematological tests should also be requested at this stage.

Although many practices might already have their own 12-lead ECG, the panel suggested that primary care organisations (PCOs) should consider the merits of funding such equipment (especially in single-handed practices) where this is not currently available.

In addition, at this stage of management, the GP should also consider requesting transthoracic echocardiography, either to complete the patient's risk stratification or to aid any decision relating to proposed therapeutic intervention. In some areas of the UK, a rapid access echocardiography service for confirmation of the diagnosis might be available, but this is certainly not universal.

Referral to secondary care

Discussion moved to the issue of referral – whether to refer, when to refer, and to whom to refer?

The panel acknowledged that decisions about referral are crucial in the course of the patient's care pathway but noted that, currently, there are a lack of clear protocols for AF management. It agreed that it is unnecessary to refer every patient with AF to secondary care but, in practice, the decision to refer is often based on the individual GP's own capabilities. In the majority of cases, with enough information, patients can be dealt with perfectly adequately – and often more quickly – in primary care. Access to a cardiologist may involve a wait of three to six months.

A formal referral might be prompted by a number of factors including:

- the need to confirm the diagnosis
- heart rate and rhythm control
- consideration for cardioversion, including (but not exclusively) patients with recent onset of AF, a correctable cause (e.g. pneumonia) and a structurally normal heart
- initiation of anticoagulation therapy.

The panel suggested that the following considerations might help the GP in deciding whether to refer or not:

- patient is < 60 years of age
- patient is resistant to usual drugs for heart rate control
- patient is suitable for cardioversion
- further assessment of the patient is required (e.g. for valvular heart disease)
- patient has moderate-to-severe congestive heart failure (CHF)
- patient has frequent attacks of paroxysmal AF
- patient has a syncopal attack due to AF.

Many GPs now have access to echocardiography without the need for formal referral, but interpretation of echocardiogram results may be problematic if the results are not worded simply on the form. It was highlighted that such reports should contain only information that is helpful in terms of directing therapeutic decision making and that individual hospitals should be consulted if this is not the case.

In situations where the GP has made a confident diagnosis but is unsure about an aspect of the patient's management, a telephone call or an e-mail to a local cardiologist for advice might obviate the need for a formal referral. The panel suggested that many specialists would be happy with this approach as, ultimately, it could reduce their own workload.

Initiation of treatment

'The patient is referred to the local cardiologist by his GP. His appointment date comes through for four weeks' time. The patient sees the cardiologist and a diagnosis of AF is confirmed. His investigations show normal haematological and biochemical profiles. Cholesterol is elevated at 6.2 mmol/L. The echocardiogram shows a normal size left atrium, a dyskinetic anterior segment with an ejection fraction (EF) of 55%.'

The panel discussed how the patient should be managed while waiting for a specialist appointment and whether the GP should initiate therapy in the intervening period.

Anticoagulant therapy

Currently, many patients whose symptoms are consistent with AF remain undiagnosed. Even having made an initial diagnosis, some GPs might be tempted to 'watch and wait' rather than initiate treatment, due to the limitations associated with available therapies. Members of the panel agreed, however, that once recognised, AF requires immediate assessment and treatment.

The risk of stroke is thought to be greatest during the early phase of AF. Furthermore, untreated AF might, over time, lead to left ventricular dysfunction and other changes to the myocardium that would make cardioversion more difficult.

The panel were in agreement that anticoagulation therapy to prevent stroke should ideally be initiated on day one or as early

as possible after diagnosis of AF in appropriate patients, but admitted that some GPs may not be comfortable taking responsibility for this. The panel felt that more GPs could and should be encouraged to initiate treatment, whilst acknowledging that many still do not understand the rationale for anticoagulation – their uncertainty is compounded by concerns of an increasing workload. Others may not want the responsibility for initiating such therapy – particularly in elderly patients where compliance is often an issue. The panel highlighted the potential medico-legal implications of taking no action. If a patient is diagnosed as being in AF and subsequently suffers a stroke prior to receiving therapeutic intervention, it might be perceived as negligence.

GPs who are prepared to initiate warfarin therapy themselves should discuss this option in detail with the patient, outlining the limitations versus the benefits.

The question of whether nurses should be able to prescribe warfarin was also raised. It was explained that the current role of anticoagulation clinics is to provide ongoing monitoring and dose adjustment services for patients. Currently nurse specialists are not able to initiate anticoagulation therapy without a signed physician's letter, although he or she is permitted to dispense medication to the patient under a patient group directive. It was noted that precedents are already established in other areas of cardiovascular medicine that might allow nurses to prescribe warfarin in the future.

Discussion moved to who should take responsibility for implementing and managing any decision to anticoagulate, once a diagnosis of AF has been made. In some cases, the GP will take on this responsibility from the outset. In other cases, the anticoagulation clinic will initiate and monitor patients. During this discussion it was recognised that geographical differences play an important role, and what might be appropriate for an inner city practice may not be suitable for a single-handed practice in a rural community.

Rate control therapy

The panel felt that therapy to achieve heart-rate control should be initiated by GPs following diagnosis. Digoxin should be considered only if a beta blocker is not achieving good control, particularly in a hypertensive patient with a history of myocardial infarction, as with this case study. Where a beta blocker is not appropriate, the recent European Society of Cardiology/American Heart Association (ESC/AHA) international guidelines[7] suggest that verapamil should be first-line therapy.

It was agreed that the evidence for continuing aspirin in addition to warfarin – even at a low dose – in this patient remained unconvincing. When added to conventional anticoagulation therapy, aspirin substantially increases the risk of bleeding complications. Even in patients with known carotid artery disease – a fairly common scenario – the group were undecided about whether there is any clinical justification for continuing aspirin therapy once a decision to anticoagulate has been made.

Self-management

'The patient is referred to the hospital's anticoagulation clinic and is started on warfarin. He attends regularly and his INR control is good. Several months later, the patient visits his GP and asks about an Internet article on self-management of warfarin. How should the GP advise him?'

Key points from case study 1

Diagnosis

- With increasing access to investigations, GPs should take on more responsibility for the initial diagnosis and management of patients with AF
- GPs should be able to make an initial diagnosis of AF with a 12-lead ECG (either within the practice or via their local hospital) and biochemical/haematological tests should be requested
- GPs should consider requesting an echocardiogram in order to stratify risk and/or aid management decisions

Referral to secondary care

- Clear protocols for AF management in primary care are needed
- Criteria for referral of patients with AF/suspected AF should be established between the primary care organisation and secondary care – it is not necessary to refer all patients
- Echocardiogram reports for GPs should contain only information helpful for therapeutic decision making

Initiation of treatment

- GPs should be encouraged to initiate treatment with warfarin, if appropriate, as soon as possible after diagnosis of AF
- GPs who are prepared to initiate warfarin therapy should discuss this option in detail with the patient, outlining risks and benefits
- Therapy to achieve heart-rate control should be initiated by GPs following diagnosis
- There may be potential medico-legal implications of not initiating treatments in patients with AF early

Self-management

- At the present time, self-management is feasible only for those patients who can afford the costs of the testing kit
- Self-management will be a welcome development in the future for patients on long-term warfarin, but will only be appropriate for a relatively select group of patients
- A number of key questions regarding accountability and quality control need to be addressed before self-management becomes routine practice

The panel discussed the practicalities, benefits and disadvantages of self-management of anticoagulant therapy.

Currently, self-testing or self-management (dosing and testing) is feasible only for those patients who can afford the testing kit. Reagent strips are now on the Drug Formulary and are therefore prescribable to patients. For patients on long-term warfarin, self-management is likely to be a welcome development in the future. Before this becomes routine, however, the panel raised a number of issues that require resolution:

- Who will be responsible for training patients?
- Who will be responsible for dosing change decisions?
- Who will be accountable for the outcome of self-management?
- Who will be responsible for quality control (frequency of venous samples and consistency with laboratory INRs)?
- Who will be responsible for calibration of patients' machines?
- How frequently should patient follow-up occur?

In addition, patient self-management is likely to be associated with significant cost implications, and the panel felt that reagent strips are unlikely to be included on the Drug Tariff unless it is proven this practice is worthwhile. It was also highlighted that self-management will only be appropriate for a relatively select group of patients.

Case study 2 – anticoagulation in the older patient

'A 75-year-old woman, known to be hypertensive but previously quite active, is admitted to hospital with right-sided pure motor weakness, but no cortical or sensory signs. She was found to be in AF, which was previously unknown. A CT scan showed a small lacunar infarct in the left internal capsule with periventricular lucencies. Carotid duplex studies did not show any carotid disease. Echocardiography showed a moderately dilated right atrium, no thrombi and moderately impaired right ventricular function.'

The purpose of the second case study was to focus on the use of anticoagulation for stroke prevention in the older patient with AF.

It was suggested that a reasonable approach to take in such a case is to administer aspirin 300 mg daily for the first 14 days, before starting treatment with warfarin. If the patient is due to be discharged within that 14-day period, it might be prudent to start treatment with warfarin prior to discharge. The panel noted that this is empirical guidance and is not supported by any formal clinical evidence.

It may be inappropriate to delay anticoagulation in a patient with no neurological deficit and a relatively normal CT scan. In patients with – for example, transient ischaemic attacks (TIAs) – a delay of 14 days is unacceptable.

Discharge

'The patient was referred back to her GP with a recommendation from the stroke physician for warfarin. Her GP decided not to follow this recommendation due to her age and high blood pressure. She was prescribed low-dose aspirin.'

Key points from case study 2

- A reasonable approach in patients presenting with ischaemic stroke is to administer aspirin 300 mg daily for 14 days prior to initiation of anticoagulation
- Elderly patients with a confirmed diagnosis of AF should not be denied anticoagulation therapy on the basis of their age alone
- Formal assessment of cognition, mobility and compliance should be conducted prior to initiating anticoagulation in the elderly

The panel agreed that elderly patients with a confirmed diagnosis of AF should not be denied anticoagulation therapy on the basis of their age alone. Clinicians should instead discuss the limitations and benefits involved in detail with the patient. Although warfarin will significantly reduce the risk of stroke, there are limitations associated with the treatment, such as frequent coagulation monitoring and multiple interactions with other medications and food. There is also an increased risk of bleeding episodes. Age itself does not increase the risk of bleeding, but associated co-morbidities should be taken into consideration and assessed on an individual basis.

The panel emphasised that not every patient presenting with stroke and AF is suitable for treatment with warfarin and that the main risk factors associated with anticoagulation are cognitive, not cardiological. Formal assessment of cognition, mobility and risk of falls, as well as a subjective measurement of compliance, should be undertaken. Patients must be assessed in terms of their ability to cope with the rigours of repeated testing and should be party to any decision made. In addition, the role of carers or other family members should be considered.

As is this case scenario, GPs may decide not to follow a specialist's recommendation to anticoagulate, prescribing aspirin instead due to concerns about age, particularly in cases where the patient is hypertensive. The panel debated whether the *BMJ*[8] article on the benefits of aspirin versus warfarin has made it easier for GPs to avoid prescribing warfarin.

The panel agreed that a decision to prescribe aspirin may often improve quality of life compared to warfarin[9] but noted that prescribing low-dose aspirin (75 mg daily) – an ineffective dose – is unlikely to be of benefit in stroke prevention in an elderly patient with AF.[4,9] It was felt that if both the risk-benefit ratio of warfarin and the benefits of warfarin versus aspirin are fully explained, few patients would turn down the benefits associated with warfarin treatment. It was recommended that these arguments should be presented consistently to all patients and carers – preferably in the form of patient information leaflets.

Another *BMJ* article[10] explored patients' opinions of suffering from a major bleed (often fatal) versus incurring long-term dis-

Key points from case study 3

- A public campaign to raise awareness about the risk of untreated AF would be a worthwhile initiative
- The current infrastructure of the NHS may not be able to cope with a five-fold increase in the number of patients presenting with an abnormal pulse, but the long-term justification of the benefits of reducing strokes should be considered

ability following a stroke. The authors found that the very small risk of a major bleeding episode was found to be infinitely preferable to having a stroke and the accompanying lack of cognition and disability.

Case study 3 – patient identification

'A 68-year-old man, who is overweight and smokes about 20 cigarettes a day, has been suffering from periodic episodes of a 'fluttering' rapid heart beat. These have been getting more frequent and prolonged, and he has been having night sweats. He has not discussed the problem with his doctor, and puts it down to his advancing age, his weight and lack of exercise.'

This final case raised a number of questions around patient identification:

- How are patients usually picked up in primary care?
- Is there an argument for population-based screening for AF in the elderly, and/or the need for a patient awareness campaign, given the requirement for PCGs/PCTs to identify and treat all patients at increased risk of stroke (as outlined in the *National Service Framework for Older People*)?

The panel felt that formal screening solely for AF was almost certainly not worthwhile. Elderly patients will often be seen by a GP or nurse at least once yearly. A better strategy would be to check pulse rate opportunistically – perhaps when the practice nurse is checking blood pressure. Furthermore, it should not be difficult to teach elderly patients to take their own pulse.

The panel agreed that a public campaign to raise awareness of the risk of untreated AF would be a worthwhile initiative. It was highlighted that, whilst a well-organised practice with appropriate resources and where patients are triaged would be able to cope with an increase in new AF cases, in general, the current infrastructure of the NHS would struggle to cope with a five-fold increase in the number of patients presenting with an abnormal pulse.

In response to this potential resourcing issue, the panel suggested that earlier identification and management of at-risk patients would significantly decrease the number of strokes. In the long-term, this might reduce pressure on hospital services, facilitating an improvement in the care of those patients who have had a stroke. Although this may not save money, it might mean that resources could be invested more cost-effectively and beneficially to appropriate patients.

Summary of outcomes

Areas of consensus

- There is a need for earlier and opportunistic identification of AF in primary care
- Suspected AF patients seen in primary care should undergo risk stratification, 12-lead ECG, and appropriate biochemistry
- There is a need for greater and quicker access to diagnostic support (especially echocardiography)
- Immediate initiation of heart rate control and anticoagulation pending further tests and/or referral should be considered
- Formal management protocols/care pathways in AF are needed – at both local and national level
- Patients should be provided with consistent information on the risks and benefits of anticoagulation to allow them to make an informed choice
- Primary care clinicians should be reassured that, with proper risk stratification and assessment, most patients with confirmed diagnosis of AF can be prescribed warfarin
- A carefully orchestrated public campaign about the increased risk of stroke associated with undiagnosed and untreated AF should be considered – but could the NHS cope?

Areas for further discussion

- Role of cardioversion in the initial management of AF
- Dosing regimens with aspirin
- Nurse prescribing of warfarin
- The role of protocols and management guidelines

Meeting panel

Chairman of the meeting was Professor Richard Hobbs, Professor of Primary Care and General Practice, University of Birmingham.

The panel members were: Dr Neil Baldwin, Stroke Physician, Frenchay Hospital, Bristol; Dr Peter Brambleby, Public Health Consultant, Norwich; Dr David Cohen, Stroke Physician/Geriatrician, Northwick Park Hospital, Harrow; Dr Mark Davis, General Practitioner, Leeds; Dr Stewart Findlay, Chairman of the Dales Primary Care Group, Bishop Auckland, County Durham; Professor Gregory YH Lip, Consultant Cardiologist, Birmingham City Hospital; Professor John McMurray, Consultant Cardiologist, University of Glasgow; Dr Isobel Walker, Consultant Haematologist, Glasgow Royal Infirmary; Ms Vicki Warburton, Nurse Practitioner for Haematology, CLOT, North Hampshire Hospital.

Conflict of interest

The Thrombosis Quorum, an educational organisation steered by a group of thrombosis-interested clinicians from primary and secondary care, is supported by an educational grant from AstraZeneca.

References

1. Final consensus statement of the Royal College of Physicians of Edinburgh consensus conference on atrial fibrillation in hospital and general practice. *Br J Haematol* 1999;**104**:195-6.
2. Cerebral Embolism Task Force. Cardiogenic brain embolism. *Arch Neurol* 1986;**43**:71-84.
3. Hobbs R. Identification and treatment of patients with atrial fibrillation in primary care. *Heart* 1999;**81**:333-4.
4. Atrial Fibrillation Investigators. Risk factors for stroke and efficacy of antithrombotic therapy in atrial fibrillation: analysis of pooled data from five randomised controlled trials. *Arch Intern Med* 1994;**154**:1449-57.
5. EAFT (European Atrial Fibrillation Trial) Study Group. Secondary prevention in non-rheumatic atrial fibrillation after transient ischaemic attack or minor stroke. *Lancet* 1993;**342**:1255-62.
6. Department of Health. *National Service Framework for Older People*. London: Department of Health, 2001.
7. Task Force Report. ACC/AHA/ESC guidelines for the management of patients with atrial fibrillation. *Eur Heart J* 2001;**22**:1852-923.
8. Taylor F, Cohen H, Ebrahim S. Systematic review of long-term anticoagulation or antiplatelet treatment in patients with non-rheumatic atrial fibrillation. *BMJ* 2001;**322**:321-6.
9. Li-Saw-Hee F, Lip G. Atrial fibrillation, thromboembolism and anti-thrombotic therapy. *Int J Clin Pract* 1999;**53**(2):110-17.
10. Devereaux PJ, Anderson DR, Gardner MJ *et al*. Differences between perspectives of physicians and patients on anticoagulation in patients with atrial fibrillation: observational study. *BMJ* 2001;**323**:1218-22.