Anticoagulation and atrial fibrillation

EDITOR—We would like to congratulate McNulty and colleagues on their excellent clinical audit of antithrombotic therapy in atrial fibrillation.1 Their approach to the methods of audit has been impeccable, comparable to audit in other specialties, and a refinement has since been proposed (box 1), which has been adapted for use in local and national guidelines.

The essential changes relate to the contribution of echocardiography and paroxysmal atrial fibrillation. In the Atrial Fibrillation Investigators overview on echocardiographic risk factors for thromboembolism, left atrial size per se does not appear to be an independent risk factor on multivariate analysis and is no longer used in the risk stratification schema; indeed, left atrial dilatation rarely occurs independent of "other" pathology, such as hypertension or heart failure which themselves constitute high risk features.4 In this analysis, moderate or severe left ventricular dysfunction on two dimensional echocardiography was the only significant abnormality which appeared to be an independent risk factor for thromboembolic stroke in non-valvular atrial fibrillation.5 Other studies using echocardiography for risk stratification have rarely found that the investigation significantly contributed to antithrombotic therapy management decisions, as many patients already had clinical risk factors allowing effective risk stratification.6

Regarding other clinical risk factors, hormone replacement therapy use may also increase risk while alcohol consumption may be protective.7 McNulty and colleagues do not specifically address the problem of paroxysmal atrial fibrillation, which should be emphasised that such patients carry the same stroke and thromboembolic risk as sustained atrial fibrillation, especially in the presence of clinical risk factors.8 In general, our recommendation is to use warfarin in patients with paroxysmal atrial fibrillation unless they can be classified as having “lone” atrial fibrillation or there are contraindications to the use of anticoagulation, where aspirin should be used instead. The safety and tolerability of long term anticoagulation titrated to conventional levels (international normalised ratio (INR) 2–3) is less clear in the very elderly (age older than 75 years), which is the age group encompassing perhaps half of the atrial fibrillation associated stroke patients. The elderly are also prone to more co-morbidity, polypharmacy, cognitive problems and frailty; indeed, biological age in some ways is more important than chronological age, and the decision must be based on the risk-benefit ratio, as with many things in clinical medicine. There have also been suggestions that an INR range of 1.6–2.5 can provide substantial, if partial efficacy (estimated to be nearly 90% of the highest intensities), and could be used for elderly patients to minimise haemorrhagic complications, although this has not been verified by any prospective study.9 Given the uncertainty about the safety of INRs >2.5 for patients with atrial fibrillation over the age 75, a target INR of 2.0 (range 1.6–2.5) may be a reasonable compromise between toxicity and efficacy for this age group, pending further data about the safety of higher intensities. Further information from our ongoing Medical Research Council funded BAFTA (Birmingham Atrial Fibrillation Treatment Assessment) study in elderly patients aged >75 years, with non-valvular atrial fibrillation in primary care, would provide further information.

McNulty and colleagues extrapolate from their data the potential savings both in hospital admission days and financial cost, which may be achievable by a nationwide consensus approach to the problem. We wholeheartedly support this, and agree with their call for improved stroke prevention in atrial fibrillation, especially as there is now evidence the benefits and risks of anticoagulation seen in the clinical trials can realistically be translated into everyday clinical practice.10

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Box 1: Risk stratification and anticoagulation in non-valvular atrial fibrillation

**ASSSESS RISK AND REASSESS REGULARLY:**

1. **High risk (annual risk of CVA = 8%–12%)**
   - All patients with previous transient ischaemic attack or CVA.
   - All patients aged 75 or over with diabetes and/or hypertension.
   - All patients with clinical evidence of valve disease, heart failure, thyroid disease, and/or impaired left ventricular function on echocardiography.*

2. **Moderate risk (annual risk of CVA = 4%)**
   - All patients aged under 65 with no history of embolism, hypertension, peripheral arterial disease, ischaemic heart disease.
   - All patients aged over 65 who are not in high risk group.

3. **Low risk (annual risk of CVA = 1%)**
   - All patients under 65 with no history of embolism, hypertension, diabetes, or other clinical risk factors.

**TREATMENT**

1. **High risk:**
   - Give warfarin (target INR 2.0–3.0) if no contraindications and possible in primary care.

2. **Moderate risk:**
   - Either warfarin or aspirin 75–300 mg. In view of insufficient clear cut evidence, treatment may be decided on individual cases. Referral and echocardiography may help.

3. **Low risk:** give aspirin 75–300 mg daily.

*Echocardiography: not needed for routine risk assessment but refines clinical risk stratification in case of impaired left ventricular function and valve disease. A large atrium per se is not an independent risk factor on multivariate analysis.

CVA = cerebrovascular accident.


**Improvement in antithrombotic management in atrial fibrillation also requires effective INR control**

EDITOR—McNulty et al report improved management of atrial fibrillation in a busy district general hospital by increasing the percentage of patients at high risk of stroke who receive oral anticoagulation. They suggest that, based on the results of large randomised prospective studies reported in the late 1980s and early 1990s, a similar improvement in management of all hospital patients with atrial fibrillation in the UK would avoid approximately 1400 strokes annually.

The present recommended international normalised ratio (INR) therapeutic range of 2–3 for atrial fibrillation patients on oral anticoagulation is aimed at reducing the risk of thromboembolic disease while minimising the risk of major bleeds. However, orally anticoagulated patients in the desired therapeutic INR range in clinical practice appears to be much more difficult than INR control in carefully selected, well motivated, long term motivated patients.1 For example, in a study of consecutive hospital admissions of over 300 patients to six academic hospitals in the USA, only approximately a third of patients had an INR between 2 and 3 at the time of admission.1 The reasons for poor anticoagulant control are numerous but the major underlying cause remains poor patient compliance.

Unfortunately, McNulty et al fail to provide information on the percentage of...
time orally anticoagulated patients in their audit were in therapeutic INR range or on the incidence of thrombotic stroke and major haemorrhage in this patient group. As implementation of antithrombotic management in atrial fibrillation patients in their hospital remains suboptimal, even on follow up audit, INR control in the orally anticoagulated patient group could also be inadequate, thus jeopardising the hoped for reduction in strokes in this high risk atrial fibrillation group. In addition, the increase in patients on oral anticoagulation in the period between the two audits may have adversely affected the delivery of acceptable INR control by increasing demands on time and resources in a presumably already overstretched district general hospital haematology laboratory.

We suggest that, in future, similar audits of management of atrial fibrillation should include information on the quality of INR control in orally anticoagulated patients. If such patients are found to be inadequately maintained in therapeutic INR range, increased resources should be allocated to improve the efficacy of INR control. Possible areas of improvement in anticoagulant control might include the upgrading of laboratory coagulation equipment, better communication between clinicians and the anticoagulation clinic, adequate laboratory, clerical, nursing and medical staffing, ongoing and more effective patient and hospital staff education, computerised dosage systems—selected cases, patient self monitoring and self management.

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Implementation of antithrombotic management in atrial fibrillation

EDITOR.—We read the above original article of McNulty et al with interest particularly the antithrombotic management algorithm in fig 1.1 There is no mention of the time when the retrospective study was conducted. As was submitted in January 2000 we assume that the study was conducted sometime in 1999. The algorithm originally published in 1999 should be considered outdated in 1999/2000 because: first, in atrial fibrillation an age of 75 years or older is a high risk factor for thromboembolism to qualify for long term anticoagulation.2 Secondly, a large left atrium in patients with atrial fibrillation but without mitral valve disease is not an independent risk factor for thromboembolism.3 Therefore left atrium size of more than 4.5 cm per se should not be used to decide for long term anticoagulation in these patients. Thirdly, patients with atrial fibrillation who are below 65 years of age but with hypertension/ischaeamic heart disease/diabetes mellitus are at high risk and should be given warfarin, not aspirin.4 Fourthly, patients with atrial fibrillation at high risk of thromboembolism in whom warfarin and aspirin are contraindicated should be considered for clopidogrel or at least dipiridamole. In patients with atherosclerotic vascular disease, clopidogrel has been shown to be more active than aspirin in reducing risk of ischaemic stroke, myocardial infarction or vascular death without increasing adverse effect.5 Patients intolerant of aspirin should be given modified release dipiridamole or clopidogrel.6

We believe that using such improved management protocol for atrial fibrillation either for audit purpose or clinical practice, is likely to further reduce the risk of ischaemic stroke.

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12 McNulty SJ, Hutchinson D, Hardy KJ. Are atrial fibrillation patients receiving appropriate stroke prophylaxis? Br J Cardiol 2001;8:38–42.

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