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 in audit cycles by instigating a process of reaudit after the results from the original data set had been intensively presented to hospital colleagues, itself leading to a highly effective intervention.

We would, however, appreciate this opportunity to provide a brief update in a few aspects of the current knowledge of stroke prevention in atrial fibrillation. The Lip and Lowe algorithm used for risk stratification was first published in 19962 and a refinement has since been proposed (box 1),3 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 be a 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" 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 has 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 be a 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

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.8 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 and 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,9 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

---


---

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

EDITOR,—McNulty et al report improved management of antithrombotic therapy 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. Hence, maintaining 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 patients, and closely monitored study subjects.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.2 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

---


---

LETTERS TO THE EDITOR

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

**ASSES 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 clinical risk factors: diabetes, 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**

- **High risk:** give warfarin (target INR 2.0–3.0) if no contraindications and tolerable in practice.
- **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.
- **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.
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. 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 compared to long term anticoagulation. Secondly, a large left atrium in patients with atrial fibrillation but without mitral valve disease is not an independent risk factor for thromboembolism. 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/ischamia heart disease/diabetes mellitus are at high risk and should be given warfarin, not aspirin. Fourthly, patients with atrial fibrillation at high risk of thromboembolism in whom warfarin and aspirin are contra-indicated should be considered for clopidogrel or at least dipyridamole. In patients with atherosclerotic vascular disease, clopidogrel has been shown to be more effective than aspirin in reducing risk of ischaemic stroke, myocardial infarction or vascular death without increasing adverse effect. Patients intolerant of aspirin should be given modified release dipyridamole or clopidogrel.

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.

S K LAIRIKYENGHAM A G DAVIES P D JONES
Department of Medicine, Bromley General Hospital, Aburywayth SY3 1IR, UK


Dear McNulty, Hutchinson, and Hardy respond: We read the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.

When the audit was conceived we did debate whether to include paroxysmal atrial fibrillation (PAF) as well as sustained atrial fibrillation in our study but at that time the "jury was still out" as to whether PAF carried the same risk—so we chose to audit sustained atrial fibrillation only; again we appreciate the comments raised by each, in turn. We appreciate the three letters above with much interest and would like to address the issues raised by each, in turn. We appreciate the update on current knowledge of stroke prevention provided by Conway and Lip, which we have followed as it appears in the literature. Obviously we were unable to use these revised guidelines as our original audit predicted the publication of this revision.
Improvement in antithrombotic management in atrial fibrillation also requires effective INR control

P T MURPHY and M C CASEY

doi: 10.1136/pmj.77.909.487a

Updated information and services can be found at:
http://pmj.bmj.com/content/77/909/487.2

These include:

References
This article cites 5 articles, 3 of which you can access for free at:
http://pmj.bmj.com/content/77/909/487.2#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/