

Atrial Fibrillation and Stroke Prevention in the Community

JANICE E. O'CONNELL, CHRISTOPHER S. GRAY

Summary

Atrial fibrillation (AF) is an important and independent risk factor for stroke, particularly in elderly people. The efficacy of treatment with warfarin and aspirin in primary and secondary stroke prevention in AF has been demonstrated in randomized clinical trials. In a demographic study, we examined the prevalence of AF in patients registered with a general practice in the North East of England; 91 patients with known AF were identified, 69 with chronic AF and 22 with paroxysmal AF. The mean duration of the arrhythmia was 6.43 years and the prevalence of AF increased with age. There was a high prevalence of cerebrovascular disease in AF patients. The majority of AF patients were not receiving therapy with aspirin or warfarin as primary or secondary stroke prevention. If strategies for stroke prevention in AF are to be applied to the community, general practitioners will need to play a more active part.

Introduction

The importance of atrial fibrillation (AF) as a major independent risk factor for stroke in the elderly population is clearly established [1]. There is now evidence from large randomized clinical trials for the efficacy of warfarin or aspirin in both primary and secondary stroke prevention in non-valvular (non-rheumatic) AF [2]. However, many doctors are reluctant to prescribe anticoagulant or antiplatelet therapy for elderly patients because of concerns about haemorrhagic side-effects and drug compliance [3]. Studies of patients with AF discharged from hospital have shown that many do not receive antithrombotic therapy [4, 5]. The majority of patients with AF who are at risk of first or recurrent stroke are elderly and residing in the community. They are often frail individuals with significant co-morbidity who are unable to attend hospital outpatient clinics for monitoring of prothrombin time [6]. The decision to commence antithrombotic therapy in such individuals may therefore be perceived as having a significant impact upon general practice resources.

We undertook this study to determine current use of aspirin and warfarin in patients with AF in a general practice population in the North of England.

Methods

Gateshead, Tyne and Wear, is an urban area with high levels of social deprivation. A fundholding general practice in Central Gateshead was chosen for study. Anticoagulation services are provided through the Haematology Department of the local District General Hospital. The practice list size is 9162 patients, 1421 of whom are aged over 65 years. Lists of

patients known to have AF were identified from computerized practice records using disease-specific and drug-history searches. The diagnosis of AF was verified from the individual patient records; this was a clinical diagnosis, where necessary confirmed by 12-lead ECG. Information was obtained on cardiovascular history, vascular risk factors and current use of antithrombotic therapy. Analysis of results was performed with the SPSS-X for Windows statistical package using χ^2 or Mann-Whitney U tests as appropriate.

Results

Ninety-one cases of known AF were identified whose mean age was 75.62 (SE 1.04) years. There was a predominance of women (54 women:37 men), who were significantly older than the men [77.7 (1.4) years vs. 72.5 (1.4) years; $p = 0.01$]. The average known duration of AF was 6.43 (0.70) years. Sixty-nine (75.8%) patients [75.9 (1.2) years] had a history of chronic AF and 22 [74.9 (2.0) years] were known to have paroxysmal AF. The prevalence of AF rose with age from 2.2% of men and 1.6% of women aged 60–69 years to 8.2% of men and 9.6% of women aged 80–89 years.

There was a high prevalence of cardiovascular disease and risk factors in patients with AF [Table I]. Nineteen (20.9%) had a history of cerebrovascular disease (stroke or transient ischaemic attack; TIA). The average age of patients with previous TIA or stroke did not differ significantly from that of those with no such history [76.9 (2.6)] vs. 75.3 (1.1) years; $p = 0.51$]. Hypertension was documented in 9/19 (47%) AF patients with TIA or stroke and was the only vascular risk factor which was significantly more

Table I. History of cardiovascular disease and vascular risk factors in 91 patients with atrial fibrillation

	No. (%) of patients
Congestive cardiac failure	28(31)
Ischaemic heart disease	26(29)
Hypertension	23(25)
Transient ischaemic attack or stroke	19(21)
Rheumatic heart disease	14(15)
Thyroid disease	14(15)
Peripheral vascular disease	13(14)
Diabetes mellitus	5(6)

common when compared with the 72 patients with no history of cerebrovascular disease ($p = 0.05$).

Information on use of antithrombotic therapy was available for 80/91 AF patients [Table II]. Fourteen individuals [mean age 63.29 (2.11) years] received long-term warfarin; eight for rheumatic valvular disease; five because of prosthetic cardiac valves and one for stroke prevention in non-valvular AF. Eight patients [mean age 75.3 (3.0) years] were taking aspirin, mainly for coexistent vascular disease; only two patients were given aspirin for primary stroke prophylaxis in non-valvular AF. Nine patients with previous TIA or stroke took antithrombotic therapy for secondary stroke prevention (five warfarin; four aspirin).

Thirty-six (62%) of 58 patients not on aspirin or warfarin [mean age 77.3 (1.1) years] had no contra-indication to antiplatelet or anticoagulant treatment documented in their records [Table III].

Discussion

This study confirms that many individuals with AF are known to their general practitioners and are readily identifiable for the purposes of stroke prevention therapy. In addition there will be patients with

Table II. Use of antithrombotic therapy by 91 patients with atrial fibrillation

	No. of patients
<i>Long-term anticoagulation (warfarin)</i>	14
Rheumatic heart disease	8
Prosthetic heart valve	5
Non-valvular AF	1
<i>Long-term antiplatelet therapy (aspirin)</i>	8
Ischaemic heart disease	2
TIA or stroke	3
Non-valvular AF	2
Other	1
<i>Not on aspirin or warfarin</i>	58
Information not available	11
Total	91

Table III. Contra-indications to antithrombotic therapy in AF patients not receiving aspirin or warfarin

Reason for withholding aspirin/warfarin	No. of patients
Gastro-intestinal bleeding	1
Peptic ulcer disease	6
Dyspepsia/intolerance of aspirin	12
Alcohol excess	1
Other	2
None documented	36
Total	58

undiagnosed AF or paroxysmal AF in this community. However, our prevalence figures are similar to those obtained in a previous community survey in the North of England [7] and therefore it is unlikely that many cases were missed by our ascertainment method.

As in studies of hospital inpatients [4, 5], we have found that many patients in the community are not given antithrombotic therapy for stroke prevention in AF. It is possible that in a few cases, there were relative contra-indications to treatment with aspirin or warfarin, for example poor compliance with drug therapy, which were known to the general practitioner but not documented in the practice records. However, it is likely that most AF patients in this sample were suitable candidates for antithrombotic therapy, at least with aspirin.

Anticoagulation for stroke prevention in AF is cost-effective only if the rate of haemorrhagic complications is low [8], which may not be the case with frail elderly patients. In the European Atrial Fibrillation Trial of secondary stroke prevention in a relatively elderly population (mean age 71 years), the optimal intensity of anticoagulation was identified as an International Normalized Ratio (INR) between 2.0 and 2.9, with only two major haemorrhagic events occurring per 100 person-years of treatment. Most major bleeding complications were seen with INR greater than 5.0 [9]. There is no doubt that older patients are more sensitive to the effects of warfarin and there is a reduction in dose requirement with age [10]. However, studies have shown that, with regular INR monitoring, haemorrhagic complications from warfarin therapy can be avoided in elderly outpatients [11].

Aspirin is less effective than warfarin in preventing stroke in patients with AF. In the European Atrial Fibrillation Trial, aspirin prevented 40 vascular events annually (mainly recurrent strokes) per 1000 patients treated compared with a reduction of 90 events per 1000 patients with warfarin [12]. Aspirin has the advantage of being safer and easier to administer than warfarin. Nevertheless we found in our study that patients with no known contra-indication to aspirin were not being offered treatment. Education regarding the benefits of stroke prevention in AF is required in primary care.

The major determinant of more widespread use of anticoagulants in the community is the practicality of

regular INR monitoring in an older population who may have difficulty attending local anticoagulation services at the local hospital or health centre. To encourage general practitioners in addressing 'Health of the Nation' targets there is a role for extending Government support for primary and secondary stroke prevention strategies.

Acknowledgements

We are grateful to Dr P. Moran and Partners, Kells Lane Surgery, Gateshead for allowing us access to their practice records.

References

1. Wolf PA, Abbott RD, Kannel WB. Atrial fibrillation: a major contributor to stroke in the elderly: the Framingham study. *Arch Int Med* 1987;**147**:1561-4.
2. Hart RG, Halperin JL. Atrial fibrillation and stroke: revisiting the dilemmas. *Stroke* 1994;**25**:1337-41.
3. Kutner M, Nixon G, Silverstone F. Physicians' attitudes toward oral anticoagulants and antiplatelet agents for stroke prevention in elderly patients with atrial fibrillation. *Arch Int Med* 1991;**151**:1950-3.
4. Bath PMW, Prasad A, Brown MM, MacGregor GA. Survey of use of anticoagulation in patients with atrial fibrillation. *Br Med J* 1993;**307**:1045.
5. Lip GYH, Tean KN, Dunn FG. Treatment of atrial fibrillation in a district general hospital. *Br Heart J* 1994;**71**:92-5.
6. O'Connell JE, Gray CS. Use of warfarin dependent on local services [Letter]. *Br Med J* 1993;**307**:1493.

7. Grimley Evans JG, Prudham D, Wandless I. Risk factors for stroke in the elderly. In: *The aging brain: neurological and mental disturbances*. New York: Plenum Press, 1980:113-26.
8. Gustafsson C, Asplund K, Britton M, Norrving B, Olsson B, Marke L-A. Cost-effectiveness of primary stroke prevention in atrial fibrillation: Swedish national perspective. *Br Med J* 1992;**305**:1457-60.
9. EAFT Study Group. Optimal oral anticoagulant therapy in patients with nonrheumatic atrial fibrillation and recent cerebral ischemia. *N Engl J Med* 1995;**333**:5-10.
10. James AH, Britt RP, Raskino CL, Thompson SG. Factors affecting the maintenance dose of warfarin. *J Clin Pathol* 1992;**45**:704-6.
11. Wickramasinghe LSP, Basu SK, Bansal SK. Long-term oral anticoagulant therapy in elderly patients. *Age Ageing* 1988;**17**:388-96.
12. EAFT Study Group. Secondary prevention in non-rheumatic atrial fibrillation after transient ischaemic attack or minor stroke. *Lancet* 1993;**342**:1255-62.

Authors' addresses

J. E. O'Connell
 Elderly Care Directorate,
 South Tyneside District Hospital,
 South Shields,
 Tyne and Wear NE34 0PL

C. S. Gray
 Queen Elizabeth Hospital,
 Gateshead NE9 6SX

Received in revised form 18 December 1995