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Stroke Prevention in Elderly Patients with Atrial Fibrillation

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ABSTRACT

Background: The prevalence of atrial fibrillation increases with age. Atrial fibrillation has been shown to be a significant risk factor for stroke in the elderly. Anticoagulation is effective in preventing stroke in geriatric patients with atrial fibrillation, yet many elderly patients with atrial fibrillation are not anticoagulated.

Objectives: This study aims to determine the prevalence of atrial fibrillation in an inpatient population of a geriatric unit and explores the usage of anticoagulants in those patients diagnosed with atrial fibrillation.

Methods: Consecutive admissions to a geriatric unit were screened with an electrocardiogram to establish a diagnosis of atrial fibrillation. Those with atrial fibrillation were evaluated for risk factors for stroke and for contraindications for anticoagulation. Documentation of reasons for withholding anticoagulation was also examined.

Results: Five hundred and six consecutive inpatient admissions were screened. Fifty-six patients had atrial fibrillation (11.1%). Forty of these were known cases of atrial fibrillation whereas sixteen were newly diagnosed. There were 22 (39.3%) males and 34 (60.7%) females. The mean age was 83.3 years (S.D. 6.8). The four most common risk concomitant factors for stroke were age above 75 years (54, 96.4%), hypertension (41, 73.2%), congestive cardiac failure (28, 50%), and a history of strokes (20, 35.7%). Fifty-five (98.2%) patients had at least two other concomitant risk factors for stroke. On discharge, only nine (16.1%) out of 56 patients were anticoagulated. Anticoagulation was withheld because of contraindications in 44 (78.6%) patients and because of patients' objection to anticoagulation in 3 (5.3%) patients. The two most common reasons for withholding anticoagulation were the risk of recurrent falls (18, 38.3%) and peptic ulcer disease (15, 31.9%).

Conclusions: The prevalence rate of atrial fibrillation in elderly inpatients was found to be 11.1%. Most of the elderly with atrial fibrillation had multiple concomitant risk factors for stroke and would benefit from anticoagulant therapy. However, in the majority, anticoagulation was withheld because of contraindications (78.6%) and patients' objection to anticoagulation (5.3%).

Keywords: Atrial fibrillation, elderly, arrhythmia, anticoagulation, stroke

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INTRODUCTION

Atrial fibrillation (AF) is the most common chronic arrhythmia. The prevalence of AF increases with age. Up to two million US citizens are estimated to have AF[1-5]. In the general population the prevalence is estimated to be 1%. However, in the 70 to 74 age group the prevalence is approximately 5% and in the 75 to 80 age group it is 7%. In the population above 80 years of age, the prevalence is as high as 10%.

Atrial fibrillation is a significant risk factor for stroke. There is a five-fold increase in ischaemic stroke in patients more than 65 years old with lone AF. This risk is increased if there is an underlying cardiac lesion, e.g. mitral stenosis, left atrial enlargement, left ventricular failure and hypertensive heart disease. Hypertension and diabetes mellitus further add to the risk of stroke in such patients. Twenty-four percent of subjects in the Framingham study[2] had AF at the time of stroke. In the Oxfordshire county stroke project, the 30-day mortality in patients with acute stroke was three times higher in those with AF compared with those who were in sinus rhythm[6].

It has been shown that anticoagulation is effective in preventing stroke in patients with AF. Several randomised prospective trials have looked at the effectiveness of anticoagulant in the prophylaxis of stroke in AF. These studies include the AFASAK[7], BAATAF[8], CAFA[9], EAFT[10], SPAF[11]. Pooled data from the above studies have shown that warfarin does decrease the rate of stroke and the mortality in the event of stroke[12].

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Table I. Risk Factors for stroke in all cases of AF.

Risk Factor	Frequency (n=56)	Percentage (%)
Age >75	54	96.4
Congestive Cadiac Failure	28	50.0
Mitral Valve Disease	14	25.0
Left Atril Enlargement	14	25.0
Old Myocardial Infarction	6	10.7
Old Stroke	20	35.7
Hypertension	41	73.2
Diabetes Mellitus	14	25.0

Note: Patients may have several co-existing risk factors.

Despite the benefits of anticoagulation in patients with AF, many patients, especially the elderly are not offered anticoagulation[13,14].

This study aims to determine the prevalence of AF in a geriatric unit, as there is no local published data. It also examines the use of warfarin in the prophylaxis of stroke in the elderly patient with AF and documentation of reasons for withholding anticoagulation.

METHODOLOGY

From 15 November 1999 to 14 March 2000, all geriatric admissions admitted to a subsidised 38 bedded geriatric ward were screened with an electrocardiogram for AF. From 15 March 2000 to 15 May 2000, all admissions to the department, (subsidised and non-subsidised) were similarly screened for AF. All repeat admissions during the period of the study were excluded. All previous and current medical records were reviewed and the following data captured.

1. Basic demographic data (age, sex, race).
2. Whether AF was already known or newly diagnosed.
3. Coexisting risk factors for stroke.
4. Mode of treatment for AF (on admission and on discharge).
5. International normalised ratio (INR) for those patients already on warfarin.
6. Two dimensional echocardiogram findings.
7. Reason(s) for not anticoagulating.

The data captured was entered into Microsoft Access database and analysed using SPSS.

RESULTS

A total of 506 patients admitted to the Geriatric Medicine Unit were screened. Readmissions during the period of the survey were excluded. Out of these, 56 (11.1%) had AF. The mean age of patients with AF was 83.3 years (SD 6.8 years). There were 22 (39.3%) males and 34 (60.7%) females. The ethnic distribution was 45 (80.4%) Chinese, 8 (14.3%) Malay, 1 (1.4%) Indian and 2 (2.8%) other races. Forty (71.4%) were known cases while 16 (28.6%) were newly diagnosed cases of AF.

The four most common risk factors for stroke were: age above 75 years (54, 96.4%), hypertension (41, 73.2%), congestive cardiac failure (28, 50%), and history of strokes (20, 35.7%). Other risk factors are tabulated in Table I.

On admission, the modes of treatment of the 40 known cases of AF were: 8 (20%) on warfarin, 7 (17.5%) on aspirin, 1(2.5%) on both and 24 (60%) on neither. The modes of treatment are tabulated in Table II. Among the 31 patients not anticoagulated (i.e. not on warfarin), the three most common documented reasons for withholding anticoagulation were peptic ulcer disease (5, 16.1%), risk of falls (5, 16.1%) and unsupervised dementia (5, 16.1%). No reason for withholding anticoagulation was documented in the previous medical records in 16 (51.6%) of patients not on warfarin. (During current hospitalisation, it was found that all 16 patients not anticoagulated and one patient already on warfarin had contraindications for anticoagulation). Other reasons for withholding anticoagulation in patients with known AF are charted in Table III. At discharge, 7 (17.5%), 12 (30%), 1 (2.5%) and 20 (50%) of the 40 known cases of AF were on warfarin, aspirin, both and neither respectively. The increase in aspirin usage among patients with known AF at discharge was not statistically significant on chi-square (P=0.61).

Among the 16 newly diagnosed cases of AF, one was started on warfarin, seven on aspirin and one on ticlopidine. Anticoagulation was withheld in 5 (33.3%) of patients, risk of falls in (33.3%), unexplained anaemia in another 2 (13.3%), patient and terminal illness in 2 (13.3%) patients.

Overall, at discharge, only 9 (16.1%) out of 56 patients were anticoagulated with warfarin. Nineteen (33.9%) were given aspirin. I (1.7%) was given ticlopidine and 27 (48.3%) were neither given anticoagulants nor antiplatelet agents. Anticoagulation was withheld in 44 (78.6%) patients because of contraindications, and because of patients' objections in 3 (5.3%). Among the 47 patients not anticoagulated, the two most common reasons for withholding anticoagulation were risk of falls (18, 38.3%) and peptic ulcer disease (15, 31.9%). Eleven (23.4%) had at least two reasons for withholding anticoagulation. The other reasons for withholding anticoagulation are charted in Table II.

Table II. Mode of treatment for Atrial Fibrillation.

Mode of Treatment	Existing cases of AF (On Admission) (n=40)	Existing cases of AF (On Discharge) (n=40)	New cases of AF (n=16)	Al cases of AF (On Discharge) (n=56)
Nil	24	20	7	27 (48.3%)
Warfarin	7	8	1	9 (16.1%)
Aspirin	8	12	7	19 (33.9%)
Warfarin and Aspirin	1	0	0	0 (0%)
Ticlopidine	0	0	1	1 (1.8%)
Total	40	40	16	56 (100%)

Table III. Reasons for not anticogulating.

Reason for not Anticoagulating	Known cases of AF not anticoagulated at time of admission. (n=32)	New cases of AF not anticoagulated. (n=15)	All cases of AF not anticoagulated at discharge. (n=47)
Fall risk	5 (15.6%)	5 (33.3%)	18 (38.3%)
Peptic Ulcer Disease	5 (15.6%)	5 (33.3%)	15 (31.9%)
Unsupervised	5 (15.6%)	0	6 (12.7%)
Unexplained Anaemia	3 (9.3%)	2 (13.3%)	6 (12.7%)
Terminal Illness	0	2 (13.3%)	2 (4.5%)
Intracranial Bleed	2 (6.3%)	0	2 (4.5%)
Other Bleeding Complications	0	0	2 (4.5%)
Dyspepsia	0	0	1 (2.2%)
Others	0	3* (20.0%)	2* (6.4%)
No Reason Documented	16 (51.6%)	0	0

N.B. There may be more than one contraindication to anticoagulating in each patient.

* Two patients refused anticogulation because it was too troublesome, one refused because of fear of bleeding complications.

The international normalised ratio (INR) for the nine patients with known AF on anticoagulation ranged from 1.36 to 3.24. Of these only 2 (22.2%) were in the therapeutic range (2 to 3) and 1 (11.1%) was beyond three.

Twenty-two (39.3%) patients had a two dimensional echocardiogram done either during the present admission or within the past two years. The left ventricular ejection fraction ranged from 15 to 65% (mean 48.5%; SD 15.5). The most common valvular lesions were mitral regurgitation (19, 86.3%) and tricuspid regurgitation (19, 86.3%). All patients had mixed valvular lesions except three who had isolated valve lesions. 19 (86.3%) patients who underwent two-dimensional echocardiogram were found to have left atrial enlargement.

DISCUSSION

The prevalence of AF in this study was found to be 11.1%. This figure is not surprising as the bulk of the patients were over 80 years old. This correlates well with four large-scale population studies done in the past[2-5].

Numerous guidelines[15] and editorials[16,17] have emerged over the last few years urging the use of anticoagulants in atrial fibrillation. However in clinical practice, the rate of anticoagulant use remains suboptimal[14,18-20]. The rate of anticoagulant usage in patients who have no contraindications ranges from 15.2% to 78.8%[14]. Generally, warfarin use tends to be higher in younger patients[19] than in older ones[20]. In our study, a high proportion (44, 76.8%) of elderly patients had with AF had contraindications for anticoagulation. Of the 12 patients without contraindications for anticoagulation, nine were started on warfarin. The remaining three were treated with aspirin because of patients' objections. This finding is interesting because it suggests that although it is true that elderly patients tend not to be anticoagulated, the reason for this is not a physician factor. The main obstacle is patient factors, i.e. contraindications to anticoagulation and patient objections.

More than half of the patients with known AF who were not anticoagulated did not have documentation of reasons for withholding anticoagulation. Adequate

documentation cannot be overemphasised. Failure of documentation could also imply that the physician did not consider the possibility of the benefit of anticoagulation. From our study, all the patients from whom anticoagulation was withheld were found to have contraindications to anticoagulation. This suggests that the attending physician did consider anticoagulation but did not document the reason for withholding anticoagulation.

In our study, of the nine patients who were anticoagulated, only 3 (33.3%) of those had an INR of two or more, the remaining 6 (66.7%) had a subtherapeutic INR. Some possible reasons for this is the difficulty in monitoring INR in the elderly patients, who may need to come to hospital or visit a polyclinic to have their INR tested. They may be on interacting drugs as well. The ideal INR value for anticoagulation still remains the subject of research. The SPAF III trials[21] show that the ideal INR lies between 1.5 to 3.0, is safe and reduces the risk of stroke. A study of AF in patients staying in long-term care facilities in America showed similarly low therapeutic rate of only 39.6%[20]. Suboptimal control means suboptimal benefit. This finding should spur us on to achieve better control of INR in our patients.

There is a tendency to use aspirin in patients who had contraindications to warfarinisation. ln the study 33.9% of the 56 patients with atrial fibrillation were treated with aspirin. Aspirin is less effective than warfarin as prophylaxis against stroke[22]. However in older patients more than 75 years old, the rate of stroke was substantial whether warfarin or aspirin was given[22]. Some possible reasons for the increased use of aspirin include the assumption that it is a less complicated treatment than warfarin, and the persistent belief that it is as effective as warfarin in the prevention of ischaemic stroke.

The limitations of the study are essentially as follows. The study population is small, with only 56 patients found to have atrial fibrillation. These patients tend to be the sick elderly rather than the well elderly in the community. The population studied was generally over 75 years of age and therefore not comparable with general medical unit which would generally take patients of all ages.

CONCLUSION

The prevalence rate of atrial fibrillation in elderly inpatients was found to be 11.1%. Most of the elderly with atrial fibrillation had multiple concomitant risk factors for stroke and would benefit from anticoagulant therapy. However, in the majority, anticoagulation was withheld because of contraindications (78.6%) and patients' objections to anticoagulation (5.4%).

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