A community survey of patients with atrial fibrillation: associated disabilities and treatment preferences

MARK SUDLOW

RICHARD THOMSON

ROSE ANNE KENNY

HELEN RODGERS

SUMMARY

Background. *Anticoagulants are effective in preventing stroke in those with atrial fibrillation, but most patients remain untreated.*

Aim. *To investigate the prevalence of disability, cognitive impairment, and problems with compliance in a representative sample of the elderly with atrial fibrillation, and to determine whether they would want treatment and how they would like services to be arranged.*

Method. *In a survey of a random sample of 4843 elderly subjects, those with atrial fibrillation were identified using electrocardiograms. Views on treatment were obtained using a structured interview. Disability was assessed using the Office of Population Censuses and Surveys Disability Scale and cognitive status using the Mini Mental State Examination. General practitioners were asked, via questionnaire, for their views on each subject's compliance.*

Results. *Two hundred and seven elderly people with atrial fibrillation were identified. Almost all subjects expressed a willingness to undertake treatment to prevent stroke and preferred blood testing performed outside of hospital. Disability (82.7%), cognitive impairment (25.7%), and problems with compliance (25.0%) were common, but the prevalence of these difficulties was not substantially different from the general elderly population, and in many cases they could be overcome (e.g. only 10% of subjects had problems with compliance and no-one who could help them to comply).*

Conclusions. *Most elderly people with atrial fibrillation would accept treatment to prevent stroke. Disability, cognitive impairment, and problems with compliance may make it difficult to treat this patient group. An increase in the use of anticoagulants should be accompanied by the development of services appropriate to this frail population.*

Keywords: atrial fibrillation, elderly, anticoagulation.

M Sudlow, MRCP, MRC, special training fellow in health services research; and H Rodgers, FRCP, senior lecturer in stroke medicine and services, Department of Medicine, School of Clinical Medical Studies, and Department of Epidemiology and Public Health, School of Health Sciences, University of Newcastle upon Tyne. R Thomson, FRCP(UK), FFPHM, senior lecturer in public health medicine, Department of Epidemiology and Public Health, School of Health Sciences, University of Newcastle upon Tyne. R A Kenny, FRCP(I), FRCP(UK), professor of geriatric medicine, Department of Medicine, School of Clinical Medical Studies, University of Newcastle upon Tyne.

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Introduction

SEVERAL randomized controlled trials, and a pooled analysis of results from five of them, have demonstrated the effectiveness of anticoagulants in reducing the risk of stroke among those with atrial fibrillation.[1-7] A large proportion of those with atrial fibrillation are likely to be eligible for such treatment, but only a small proportion currently receive it.[8-14] In this study, about half of those with atrial fibrillation aged 65–74 years, and only one-fifth of those aged 75 and over, are currently anticoagulated, while around two-thirds of those in either age group have no contraindication to this treatment.[12] This is likely to be partly related to the considerable practical difficulties involved in ensuring compliance and in the monitoring of anticoagulation.[15] These difficulties are, in turn, likely to be related to the frailty of these elderly patients, many of whom are over 75 years of age.[13,16] The frailty of these elderly subjects is not, in itself, a contraindication to anticoagulation, but does present a challenge to those involved in arranging this treatment.

Increasing the use of anticoagulants and designing appropriate services for anticoagulation requires an understanding of the characteristics of patients with atrial fibrillation, of the problems they are likely to encounter with treatment, and of their own views on treatment. As part of a survey to determine the prevalence of atrial fibrillation, we investigated the degree of disability and cognitive impairment among those with atrial fibrillation and their views on anticoagulant treatment. Data on the prevalence of atrial fibrillation, and risk factors for stroke, is the subject of a separate publication.[17]

Method

A random age and sex stratified sample of 5264 subjects aged 65 years and greater was taken from the Health Authority Register of all patients registered with one of 26 contiguous general practices in the southern part of Northumberland. The practices covered a dormitory town for the Newcastle area, a market town, a former mining town, a harbour town, a new town, and the former mining and farming communities between them.

Subjects were invited to one of five centres for a screening limb-lead electrocardiogram, from which subjects with atrial fibrillation were identified. They also had their blood pressure measured, had their medication recorded, and completed a questionnaire asking for some demographic details (including their current living arrangements) and about stroke risk factors. Subjects who were unable to attend the study centres, and residents of residential or nursing homes, were offered an appointment in their home.

Subjects found to have atrial fibrillation were invited for a second visit and were interviewed further. They were asked about their use of health services and about their views on treatments to prevent stroke. Each subject was asked: 'If there was a tablet that would help to prevent strokes, but which meant that you had to go to hospital once a month for blood tests, would you want to take it?' Subjects who asked for further details were quoted a stroke risk of 5% per annum without treatment and 2% with treatment. The question was then repeated, but with the site of

the blood tests changed to general practice. Subjects who would accept treatment in one or other of these locations were asked at which location they would prefer to have their blood tests performed. Finally, subjects were asked if they would accept treatment if testing were performed in their own homes.

Subjects also completed the Mini-Mental State Examination (MMSE) and the Office of Population Censuses and Surveys (OPCS) disability scale. The MMSE is a standardized test of cognitive function that has been used extensively in surveys in the elderly.[18,19] It is scored from zero to 30, and a score of less than 24 is often taken as suggestive of cognitive impairment.[18] The OPCS disability scale was designed for use in the OPCS survey of disability among adults.[20] It consists of questions addressing 13 areas of function.[21] A weighted score of between 0 and 10 can be calculated from across these 13 areas to give an estimate of the overall degree of disability. In the OPCS survey, 39.5% of those aged 70–79 years, and 67.4% of those aged 80 and over, had a score of one or greater, and 15.5% and 37.7% respectively had a score of five or greater.[20]

The general practitioner (GP) of each subject with atrial fibrillation was asked to complete a brief questionnaire on their view of the patient's likely ability to comply with warfarin treatment.

Confidence intervals around all proportions were calculated using Confidence Interval Analysis software.[22]

Results

Of the 5264 subjects sampled, 4843 were living in the study area. The response rate among these was 76% (3678/4843). Two hundred and seven cases of atrial fibrillation were identified from the screening electrocardiograms. Self-completion questionnaire data were available for 99% (204/207). Further interviews were conducted with 86% (179/207) of these, and 85% (176/207) were able to express views on treatment. GPs returned questionnaires on compliance for 84% (174/207).

The great majority (87% (177/204)) of people selected with atrial fibrillation were living in their own homes, with only a small proportion living in sheltered, residential, or nursing accommodation (Table 1). There was a high prevalence of disability, with 83% (148/179) disabled to some degree (Table 2). However, only a small proportion of subjects had a high level of disability, with 28% (50/179) scoring five or greater on the OPCS scale. Difficulties with activities important to the ability to take anticoagulants and attend for testing were also prevalent. Sixteen per cent (29/179) had difficulties with vision, 15% (27/179) with dexterity, and 57% (102/179) with locomotion. Low scores on the MMSE were common, with 26% (46/179) scoring less than 24, suggesting cognitive impairment (Table 2). GPs felt that compliance would be problematic in 25% (44/174), although they said that only 10% (17/174) could neither comply alone nor had anyone who could ensure compliance (Table 3).

Eighty-nine per cent (156/176) of the subjects with atrial fibrillation said that they would want therapy to prevent stroke, even if it involved frequent blood tests. Seventy-nine per cent of these (124/156) said that they would accept treatment if these blood tests were performed at hospital clinics, 93% (145/156) would accept treatment if tests were performed in their general practice, and 99% (155/156) would accept treatment if tests were performed in their homes (Table 4). When those who would accept treatment if blood tests were performed in hospital and/or in their GP's surgery were offered a direct choice between the two, 86% (128/149) said that they would prefer tests to be performed in their GP's surgery. None of those aged between 65 and 74 years would prefer tests to be performed in hospital, but 13% (15/114) of the older subjects said that they would prefer hospital testing.

Discussion

We conducted a large screening survey to identify representative community subjects with atrial fibrillation, and assessed disability, cognitive impairment, and compliance among those with atrial fibrillation. Subjects' views on treatment and preferences for the location of blood testing were sought. Although response rates to the survey were high, it is likely that there was a degree of non-response bias. Such bias would probably give us minor underestimates of the prevalence of disability and cognitive impairment in patients with atrial fibrillation, and may have led us to slightly overestimate patients' willingness to accept treatment. As the treatment of the patients involved in the study remained the prerogative of their GPs, the Local Research Ethics Committee felt it would be inappropriate for us to discuss potential anticoagulant treatment with the subjects explicitly. We were therefore obliged to use limited and hypothetical questions, and it is possible that our questions put to them about willingness to use anticoagulant treatment provoked a more positive response than would be the case in practice. However, we do not think that these limitations in our methods substantially affect the validity of our conclusions.

There is a high prevalence of disability and of cognitive impairment among those with atrial fibrillation. Comparison with data from other studies[20,23] does not suggest that the prevalence of either of these is much greater than in the general elderly population. The point estimates for the prevalence of disability using

Table 1. Place of residence of subjects with atrial fibrillation. Figures are percentage of subjects in given category with 95% confidence intervals (actual numbers of cases are given in brackets).

	Female				Male			
	75+ years	95% CI	65–74 years	95% CI	75+ years	95% CI	65–74 years	95% CI
Living in own home	73% (46/63)	60–83%	100% (18/18)	82–100%	89% (84/94)	81–95%	100% (29/29)	88–100%
Living in sheltered accommodation	14% (9/63)	7–25%	0% (0/18)	0–18%	3% (3/94)	1–9%	0% (0/29)	0–12%
Living in residential home	5% (3/63)	1–13%	0% (0/18)	0–18%	3% (3/94)	1–9%	0% (0/29)	0–12%
Living in nursing home	5% (3/63)	1–13%	0% (0/18)	0–18%	2% (2/94)	0–7%	0% (0/29)	0–12%

Table 2. Disability and cognitive impairment among subjects with atrial fibrillation. Figures are percentage of subjects in given category with 95% confidence intervals (actual numbers of cases are given in brackets).

	Female				Male			
	75+ years	95% CI	65–74 years	95% CI	75+ years	95% CI	65–74 years	95% CI
OPCS score of 1 or greater	93% (53/54)	90–100%	64% (9/14)	35–87%	82% (70/85)	73–90%	62% (16/26)	41–80%
OPCS score of 5 or greater	35% (19/54)	23–49%	14% (2/14)	2–43%	29% (25/85)	20–40%	15% (4/26)	4–35%
Difficulty with vision	19% (10/54)	9–31%	14% (2/14)	2–43%	18% (15/85)	10–27%	8% (2/26)	1–25%
Difficulty with dexterity	26% (14/54)	15–40%	7% (1/14)	0–34%	9% (8/85)	4–18%	15% (4/26)	4–35%
Difficulty with locomotion	83% (45/54)	71–92%	29% (4/14)	8–58%	52% (44/85)	41–63%	35% (9/26)	17–56%
Mini-mental state examination <24	31% (17/54)	20–46%	7% (1/14)	2–34%	29% (25/85)	20–40%	4% (1/26)	0–20%

Table 3. General practitioners' views of ability to comply with warfarin among subjects with atrial fibrillation. Figures are percentage of subjects in given category with 95% confidence intervals (actual numbers of cases are given in brackets).

	Female				Male			
	75+ years	95% CI	65–74 years	95% CI	75+ years	95% CI	65–74 years	95% CI
Inability to comply alone	38% (21/55)	25–52%	14% (2/14)	2–43%	23% (19/83)	14–33%	9% (2/22)	1–29%
Inability to comply and no help with compliance available	15% (8/55)	6–22%	7% (1/14)	0–34%	10% (8/83)	4–18%	0% (0/22)	0–15%

Table 4. Subjects' preferences for treatment and location of testing. Figures are percentage of subjects in given category with 95% confidence intervals (actual numbers of cases are given in brackets).

	Female				Male			
	75+	95% CI	65–74	95% CI	75+	95% CI	65–74	95% CI
Would want treatment	78% (42/54)	64–88%	93% (13/14)	66–100%	93% (78/84)	85–97%	96% (23/24)	79–100%
Would want treatment if testing were only in hospital	57% (31/54)	43–71%	86% (12/14)	57–98%	70% (59/84)	59–80%	92% (22/24)	73–99%
Would want treatment if testing were only in GP's surgery	69% (37/54)	54–80%	93% (13/14)	66–100%	87% (73/84)	78–93%	92% (22/24)	73–99%
Would want treatment if testing were only at home	78% (42/54)	64–88%	93% (13/14)	66–100%	93% (78/84)	85–97%	92% (22/24)	73–99%
Would prefer testing in GP's surgery	82% (31/38)	66–92%	85% (11/13)	54–98%	84% (64/76)	74–92%	91% (20/22)	71–99%
Would prefer testing in hospital	13% (5/38)	4–28%	0% (0/13)	0–25%	13% (10/76)	6–23%	0% (0/22)	0–15%
Unsure or no preference	5% (2/38)	1–18%	15% (2/13)	2–46%	3% (2/76)	0–9%	9% (2/22)	1–29%

the OPCS scale are slightly, but not dramatically, higher than in the OPCS survey of the general population.[21] The point estimates for the prevalence of cognitive impairment do not differ radically from those in similarly aged populations.[23] Nevertheless, the high prevalence of disability and cognitive impairment are likely to make anticoagulation of many patients with atrial fibrillation problematic, and suggest that supervision of medication and near patient testing are likely to be important for some. Ability to take anticoagulants and attend testing are likely to be particularly affected by the high prevalence of cognitive impairment and of

difficulties with vision, dexterity, and locomotion. Concerns about compliance are amplified by our finding that GPs foresaw difficulties with compliance for many patients. Nevertheless, while supervision was thought necessary in order for many subjects to be anticoagulated safely, help with compliance was widely available.

Disability and cognitive impairment may make anticoagulation difficult to arrange, but we would regard only inability to comply as a definite contraindication to treatment. Despite these difficulties, nearly 90% of patients appear to want treatment, and this treatment could be safely used in around two-thirds of them if the practical difficulties presented by their disabilities could be overcome.[12] Patients may indeed feel that they would like treatment even when their clinicians are more cautious, and these views ought to be taken into account.[24] Patients also have views on where anticoagulant testing should take place. Although some patients will require regular testing of INR to be performed in their homes, over 90% would accept testing in either general practice or at hospital clinics. Of our subjects who were willing to accept testing in one or other of these locations, almost all expressed a preference for testing in general practice. Nevertheless, some of the more elderly patients expressed a preference for hospital testing, probably because of the easier availability of ambulance transport for hospital appointments.

To comply with patients' preferences, both hospital and general practice testing may be necessary, although improvements in transport to GPs' surgeries or widely available home testing might make hospital clinics unnecessary, except for a small minority. Wherever services are based, the fact that patients with atrial fibrillation are frequently frail, and will have difficulties with taking their medication and with attending for blood testing, should be taken into account in their design.

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Address for correspondence

Dr Helen Rodgers, Centre for Health Services Research, 21 Claremont Place, Newcastle upon Tyne NE2 4AA.