The impact of long-term warfarin on the quality of life of elderly people with atrial fibrillation

SIR—The prevalence of non-valvular atrial fibrillation (AF) rises with age and increases sharply in older people [1]. In a recent community survey, 1 in 13 people aged over 70 years living in their own homes had AF [2]. With an ageing population, the burden of AF is expected to double over the next two generations [3]. AF is the strongest risk factor for ischaemic stroke. In one study, AF accounted for 10–15% of all ischaemic strokes in younger people and nearly 25% in people aged >80 years [4].

The CHADS2 score which estimates risk of stroke in patients with AF has been validated in recently discharged hospital patients aged 65–95 years [5]. The adjusted stroke rate per 100 patient-years is estimated from <1% (age<65 years, no risk factors) to 18.2% in patients with a CHADS2 score of 6 points [6].

Anticoagulant therapy is more effective than antiplatelet drugs for stroke prevention, with a two-thirds risk reduction in primary and secondary prevention [7]. Anticoagulation is recommended in high-risk (CHADS2 >2) patients even after conversion of AF to sinus rhythm [8]. Warfarin is underused in older people [6]. Medical practitioners have felt that old age deters anticoagulation, independent of severity of stroke and bleeding risk [9, 10].

Perceived reduction in quality of life (QL) is an important factor, which may influence physician’s prescription and patient’s use of warfarin therapy. Bleeding complications together with the inconvenience of anticoagulation monitoring are thought to reduce an individual’s QL. Conversely, patients may be more averse to the potential consequences of stroke and less bothered by the side-effects of antithrombotic treatment than doctors. In an observational study, patients at high risk of stroke placed more value on the avoidance of stroke and less value on the avoidance of bleeding than did physicians [11].

Improving QL is a major goal in the management of chronic disease. QL improves when AF is treated, irrespective of the mode of treatment [12]. It may be anticipated that long-term warfarin treatment can affect QL, but to date, this has not been studied in older people. We performed a concurrent observational study of the QL of older people taking warfarin for thromboprophylaxis of AF (compared with the general population) to determine if there is a perceived change in QL with the duration of anticoagulation.

Methods

This was a cross-sectional study comparing those taking warfarin for <1 year—the Recent Warfarin Group (RWG)—with those on it for >1 year—the Established Warfarin Group (EWG). The setting was community anticoagulation clinics in Leeds. Inclusion criteria were age >75 years and those taking warfarin for AF thromboprophylaxis. Exclusion criteria were any patient on warfarin for an alternative diagnosis, and if they had received warfarin before the current treatment, and those with cognitive impairment [Abbreviated Mental Test Score (AMTS) <7/10].

QL was measured using the Short Form 12 version 2 (SF12v2) questionnaire [13, 14], an abbreviated form of SF-36, well validated in the Western populations. This provides composite QL scores of mental and physical health.

The mean population score for each is 50 with a SD of 10, and in accordance with other studies, we deemed a difference of five to be clinically significant. There were greater numbers of patients in the EWG than the RWG and we found a ratio of 3 : 1. The power calculation for unequal group sizes was performed as described by Kirkwood [15]. The calculated number of participants to achieve a power of 95% at a significance level of \( \alpha = 0.05 \) was 280.

Patients in RWG and EWG were compared with regard to demographics, stroke risk and SF12v2 questionnaire responses. Categorical variables were compared with the chi-squared test, and continuous variables were compared with unpaired \( t \)-test or Mann–Whitney U test as appropriate. Linear regression models were used to account for the potential confounding effects of demographic features and co-morbid conditions. The Statistical Package for Social Science (SPSS version 11.5) was used for statistical analyses.

The study was approved by the East Leeds Research Ethics Committee, and all participants gave informed written consent.

Results

Three hundred and forty-five eligible patients were approached. Eight patients declined to participate because of time constraints. Five patients refused consent and another two felt too ill to participate. Therefore, 330 patients were interviewed. All participants lived in their own homes except one who lived in a sheltered accommodation. Fifteen participants did not fully complete the SF12v2 questionnaire, hence were excluded from analysis.

Table 1 summarizes the baseline characteristics of the study population. Continuous data are presented as mean (SD) and non-continuous data as percentage. Patients were aged between 75 and 97 years. Patients had been on warfarin from 1 month to 18 years. Hypertension, diabetes mellitus and heart failure were slightly more prevalent in the EWG, although none reached statistical significance. Although stroke disease was commoner (35 versus 30%) in the RWG, there was no significant difference in baseline characteristics other than duration on warfarin.
Mental QL (MCS)

The data provided by SF12v2 gives the population mean and SD for those aged >75 as 48.9 and 9.3. The corresponding values in RWG were 48.31 and 10.59 and in EWG were 46.21 and 10.31. By a one-sample t-test, there is no statistical difference between either the RWG or the EWG and the over-75 population for MCS determined by SF12v2.

Physical QL (PCS)

The SF12v2 data gives the population mean and SD for PCS in those aged >75 years as 39.8 and 9.3. The corresponding values in RWG were 40.54 and 9.73 and in EWG were 39.33 and 9.28. Again, by a one-sample t-test, there is no statistical difference between either the RWG or the EWG and the over-75 population for PCS determined by SF12v2.

Linear regression models

To determine whether the QL scores were influenced in other ways, we performed linear regression modelling with MCS and PCS as dependent variables. The independent variables were age, CHADS2 score and the duration of warfarin treatment. Table 2 summarises the difference made to the QL scores per unit increase of each variable, with a significant level of this change in each case.

Discussion

Anticoagulation therapy should be considered in all AF patients with high risk of stroke. For many patients, there will be obvious safety issues or absolute contraindications, but for the majority, the final decision will boil down to choice. There are many factors which influence that decision, and the physician should explore these with the patient, QL being an important issue.

Using a well-validated scale which measures function, well-being and perceived health, we found no difference in mental or physical QL in elderly patients with AF treated with long-term warfarin compared with the general population.

The demarcation of a 1-year period on warfarin was artificially created for the purpose of sample-size calculation. In a separate analysis, this demarcation was removed, and linear regression modelling was undertaken. We found that mental QL was affected only with increasing age. Physical QL was affected only by the CHADS2 score, which was unsurprising because CHADS2 is a surrogate marker of disease burden. Indeed, that this was shown in our study is a good demonstration of its reliability. A North American Study, Boston Area Anticoagulation Trial for Atrial Fibrillation (BAATAF), showed similarly no change in QL in a younger patient-population (mean age, 68 years) [16].

This is an observational study in community-dwelling elderly people, and the results are not applicable to patients with cognitive impairment. The case for wider but judicious use of anticoagulation for older people with AF is strengthened by our study. However, our study excluded elderly patients who had previous complications arising from warfarin treatment and those in care homes. Assessment of QL before and after starting treatment with warfarin will be the subject of further study.

Key points

- Long-term warfarin treatment per se does not affect either the physical QL or the mental QL of older patients with atrial fibrillation compared with the older general population.
- Physicians and their patients can be reassured that concerns regarding deterioration in QL need not play a significant role in deciding on warfarin use.

Conflicts of interest

There are no conflicts of interest.

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