Medicine in the Elderly

Can old people on oral anticoagulants be safely managed as out-patients?

M. Joglekar, K. Mohanaruban, A.J. Bayer and M.S.J. Pathy

Department of Geriatric Medicine, Cardiff Royal Infirmary, Newport Road, Cardiff CF2 1SZ, UK.

Summary: Of 62 patients (mean age 75, range 65-92 years) referred to an out-patient anticoagulant clinic specifically for those aged 65 years or more, treatment was considered unsafe in only one patient and was discontinued. Minor bleeding which did not require a significant change in management was recorded on 25 (7%) of 381 clinic visits and one major haemorrhage occurred requiring emergency hospital admission. Anticoagulation was maintained within the therapeutic range on 284 (75%) visits. The results confirm that with appropriate out-patient care and supervision, the risks of oral anticoagulant therapy in the elderly need be no greater than in younger patients.

Introduction

Oral anticoagulants are frequently indicated for the treatment of venous and arterial thrombo-embolism in the elderly. Some authorities however suggest that the risk associated with their use in older patients generally outweighs the potential benefit.¹ Certainly, recent studies suggest at least an eight-to-tenfold increase in the incidence of intracranial haemorrhage in elderly patients during anticoagulant treatment, though the risk of bleeding was not specifically related to age, but rather to other coincidental factors.^{2,3} Increased sensitivity to warfarin,⁴ the presence of multiple pathology⁵ and the frequency of polypharmacy with the danger of drug interactions⁶ are particular problems in the aged and considerable time and effort is needed to educate most patients to follow a clearly defined regimen which will ensure safe and effective anticoagulant control.

Responsibility for management of these patients is usually delegated to junior doctors who may not have had previous experience, are rarely issued with written policy guidelines and who do not stay in the post long enough to develop any expertise.⁷

We report here our experience of an anticoagulant clinic specifically for patients aged 65 years or more, run by experienced senior medical staff following a clearly defined operational policy.

Patients and methods

Sixty-two consecutive patients, referred to the clinic during a 15-month period, were studied. Most patients had recently been discharged from hospital where anticoagulant treatment had been started, but a few were referred from other clinics. Their ages ranged from 65 to 92 years (mean 75 years) and 39 (63%) were female. On the first clinic visit the indications for treatment and its proposed duration were established and patients were specifically questioned about relevant other illnesses, current medication including 'over-the-counter' drugs, alcohol intake and history of bleeding, including bruises since starting treatment. A venous blood sample was taken for assessment of anticoagulant control, the British corrected ratio (BCR), full blood count, liver function tests and urea and electrolyte estimation. The BCR result was available within 30 minutes and the dose of anticoagulant was adjusted as necessary to maintain a BCR between 2.0 to 4.0. This range provides effective prophylaxis in most patients with a low incidence of complications.⁸ The study was undertaken before the introduction of the International Normalized Ratio. Although three strengths of warfarin tablets (1, 3 and 5 mg) were used in the clinic, each patient was given no more than two strengths. When necessary, alternate day regimens were used, rather than giving half the dose daily by breaking the tablets into halves. Compliance was checked by

Correspondence: M. Joglekar, M.R.C.P., Caerphilly Miners' Hospital, Caerphilly, Mid Glamorgan CF8 2WW, UK.

tablet counting. Subsequent visits were determined by the BCR control, with a minimum interval of 1 week and a maximum of 6 weeks. Patients were instructed always to bring in their current medication and hospital medical notes were always available, as well as a detailed record card kept by the patient. We advised all patients that when a general practitioner prescribed a new drug the patients should remind the general practitioner about their being on warfarin. All medication was checked on every visit and patients were also given a booklet advising them to avoid aspirin or similar drugs.

At each subsequent visit they were questioned about changes in drug therapy, intercurrent illness, bleeding complications and bruising, and their ability to recall their current dose of anticoagulant was checked. Full blood count and liver function were tested at regular intervals. Patients were included in the study until anticoagulant treatment was stopped or for a maximum of ten clinic visits.

Results

Of the patients studied, 61 received warfarin and one received nicoumalone. One patient attended the clinic only once and then moved away to a different area. Treatment was considered unsafe in a further patient because of severe mental and physical disability and was discontinued at the second visit.

Indications for anticoagulant treatment are shown in Table I. Thirteen patients (21%) had more than one indication for treatment and 11 patients (18%) had a past history of thromboembolism prior to their present medical problem. Twenty-six patients (42%) had atrial fibrillation when first seen, but in none was it the primary reason for anticoagulation. Other drugs were being taken by all but seven patients, including two on non-steroidal anti-inflammatory drugs and two on H₂ receptor blockers. A further eight patients were taking drugs likely to interact with warfarin and nine admitted to regularly consuming alcohol.

At the first visit the mean dose of warfarin being

taken was 3.5 mg (range 1–7.5 mg). Forty-three patients (69%) had a BCR within the therapeutic range of 2.0–4.0 and 17 (27%) were under and two (3%) over-anticoagulated. Subsequently, the BCR was maintained within the therapeutic range on 284 (75%) of 381 visits. On 76 (20%) visits it was below and on 21 (5%) visits it was above the therapeutic range. When anticoagulant control was assessed in individual patients, 33 (56%) were within the therapeutic range on more than 75% of visits and only seven (11%) were outside the therapeutic range on more than 50% of visits. Anticoagulant control was unrelated to age, sex, prescribed dose of warfarin, number of other drugs being taken, duration of therapy or number of weeks between clinic visits. Intercurrent illness or a change in concomitant medication, particularly antibiotic preparations, were the factors most frequently identified as causing temporary loss of control. The mean dose of warfarin when the BCR was within the therapeutic range was 3.8 mg (range 1–7 mg).

Episodes of minor bleeding or bruising were recorded on 25 (7%) visits, none of which required a significant change in management. However, a major gastrointestinal haemorrhage occurred in one patient, requiring emergency hospital admission. This was due to a previously undiagnosed peptic ulcer and warfarin was not re-started.

Two patients were found to be mildly iron deficient when first seen and a further three patients developed iron deficiency whilst attending the clinic. All responded successfully to oral iron. Two patients died during the study period; the causes of death were congestive cardiac failure in a patient anticoagulated for recurrent pulmonary embolism, and undiagnosed adenocarcinoma in a patient with deep vein thrombosis. There was one probable thrombo-embolic episode during the study period when a patient taking warfarin for cerebrovascular disease had a transient ischaemic attack. At the time the BCR was below the therapeutic range.

Discussion

Out-patient management of oral anticoagulant therapy and the incidence of complications in the present series of elderly subjects compares favourably with other published studies involving patients of all ages.^{9–11} The average daily dose of warfarin required to maintain control was less than is normally required in younger patients, though similar to that previously reported in patients aged 70 years or more.^{12–14}

In our clinic, particular attention was given to educating the patients and relatives about their

Table 1 Indications for anticoagulant treatment in 62 elderly patients referred to an anticoagulant clinic (some patients had more than one indication)

	n(%)
Deep vein thrombosis	19 (31)
Pulmonary embolism	23 (37)
Cerebrovascular disease	15 (24)
Valvular heart disease	13 (21)
Peripheral arterial embolism	3 (5)
Retroperitoneal fibrosis	2 (3)

medication and, when necessary, carers were contacted by telephone to confirm compliance and relay any alterations in the dose. We feel the emphasis on communication and patient understanding was the most significant contribution to the satisfactory outcome. The background and experience of the medical staff in the clinic also meant that other medical problems could be managed at the same time as monitoring warfarin therapy, thus reducing the number of hospital visits. Such an approach would be difficult to achieve in a clinic responsible for patients of all ages. In many hospitals staffing levels and patient numbers may be inadequate to justify an anti-

coagulant clinic specifically for elderly patients and it may then be better to see them in the geriatric out-patient clinic, rather than the general anticoagulant clinic.

Thrombo-embolic events remain a common problem in the elderly and without anticoagulant therapy the resulting morbidity and mortality is significant. At present, however, many clinicians avoid anticoagulating older patients, believing the risks to outweigh the possible benefits. Our experience confirms that with appropriate care and supervision the risks need be no greater than in younger patients.

References

1. Hoffbrand, A.V. & Lewis, S.M. (eds). *Postgraduate Haematology* (2nd edition). Heineman, London, 1981.
2. Second Report of the Sixty Plus Reinfarction Study Research Group: Risks of long-term anticoagulant therapy in elderly patients after myocardial infarction. *Lancet* 1982, **i**: 64-68.
3. Wintzen, A.R., de Jonge, H., Loeliger, E.A. & Bots, G.T.A.M. The risk of intracerebral haemorrhage during oral anticoagulant treatment: a population study. *Ann Neurol* 1984, **16**: 553-558.
4. Shepherd, A.M.M., Hewick, D.S., Moreland, T.A. & Stevenson, I.H. Age as a determinant of sensitivity to warfarin. *Br J Clin Pharmacol* 1977, **4**: 315-320.
5. Davis, F.B. & Sezupak, C.A. Out-patient oral anticoagulation: guidelines for long-term management. *Postgrad Med* 1979, **66**: 100-109.
6. Standing Advisory Committee for Haematology of the Royal College of Pathologists. Drug interaction with coumarin derivative anticoagulants. *Br Med J* 1982, **285**: 272-275.
7. Duxbury, B. McD. Therapeutic control of anticoagulant treatment. *Br Med J* 1982, **284**, 702-704.
8. Blackburn, E.M. Long-term anticoagulant therapy. *Prescribers' J* 1977, **17**: 73-74.
9. Shafi, M., Mayberry, J. & Calcraft, B. An audit of a medical anticoagulant clinic in a district general hospital. *Postgrad Med J* 1983, **59**: 492-494.
10. Errichetti, A.M., Holden, A. & Ansell, J. Management of oral anticoagulant therapy: experience with an anticoagulant clinic. *Arch Intern Med* 1984, **144**: 1966-1968.
11. Pegg, M., Bourne, J., Mackay, A.D., Lawton, W.A. & Cole, R.B. The role of the pharmacist in the anticoagulant clinic. *J R Coll Phys Lond* 1985, **19**: 39-44.
12. Eccles, J.T. Control of warfarin therapy in the elderly. *Age Ageing* 1975, **4**: 161-165.
13. O'Malley, K., Stevenson, I.H., Ward, C.A., Wood, A.J.J. & Crooks, J. Determinants of anticoagulant control in patients receiving warfarin. *Br J Clin Pharmacol* 1977, **4**: 309-314.
14. Routledge, P.A., Chapman, P.H., Davies, D.M. & Rawlins, M.D. Factors affecting warfarin requirements: a prospective population study. *Eur J Clin Pharmacol* 1979, **15**: 319-322.