

Evaluation of a primary care anticoagulant clinic managed by a pharmacist

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Hospital outpatient anticoagulant clinics managed by pharmacists have improved the quality of care and resource use.¹ Patients receiving anticoagulation often are elderly, cannot endure long waiting times,² and find travelling to hospital difficult. Their effective management requires access to information about current medical problems and treatments. Systems for managing risks associated with new prescriptions or illnesses which may affect anticoagulant control should also be available. For all these reasons a clinic based in the general practitioner's surgery might be more appropriate for patients who need long term monitoring. This study aimed to assess the benefits and costs to patients and general practitioners of a surgery based anticoagulation clinic run by a pharmacist.

Method and results

In September 1994 a weekly pharmacist led clinic was established in Downfield Surgery. International normalised ratios were measured from capillary blood samples using a Ciba-Corning Biotrack 512 coagulometer calibrated to give comparability with local hospital derived values.³ Warfarin was prescribed according to British Society for Haematology recommendations.⁴ Prescriptions were recorded in the notes and patients' treatment booklets. Since patient knowledge is important for safe and effective anticoagulant treatment patients were counselled at initial visits with reinforcement at subsequent appointments. The notes of patients receiving anticoagulants were also flagged and an information sheet to advise general practitioners of medicines to avoid and those requiring more detailed monitoring was included in the notes. The quality and cost of surgery management were evaluated after six months and one year. Patient knowledge and preferences were assessed by questionnaire.

At six months and one year 84% and 90% respectively of international normalised ratios were within the target range plus or minus 10% (table 1). This is comparable with control in hospital pharmacist led clinics.⁵ Information sheets may have avoided potential risks, with general practitioners having increased awareness of drug interactions, and allowed patients to be monitored when starting new medicines. Adverse effects were avoided by referring patients to the next clinic instead of waiting for their routine appointment.

Service developments should avoid deterioration in patient care. For the 14 patients previously attending hospital clinics the international normalised ratios measured in the surgery were compared with the values measured in the hospital clinic before transfer. The percentage of values within the desired

range improved significantly (table 1; χ^2 $P < 0.001$).

Patient knowledge was assessed at initial clinic visits. Despite counselling in hospital, this was unsatisfactory. Clinic time was devoted to reinforcing understanding. Review at three months showed improved knowledge levels.

The direct costs to the practice of the clinic, including the cost of the pharmacist, the tests, and the cost of the coagulometer, were less than the £35 charged to fundholders for each hospital appointment. Surgery attendance cost less for 48% of patients and more for 4%. Travelling time was less for 64% and greater for 20%. Most patients lived near the surgery, eliminating the need for an estimated 27 ambulance trips a year. Patients were seen within 10 minutes of their surgery appointment time, while hospital waits routinely exceeded one hour.

Patients preferred surgery management, and most preferred a pharmacist to rotating junior doctors. General practitioners believed that the quality of care improved.

Comment

Anticoagulant control requires skills which clinical pharmacists have. This study shows that if general practitioners are willing to devolve management to pharmacists then good therapeutic control is achievable in the surgery. In addition, liaison between general practitioners and pharmacists reduces the risk of toxicity and treatment failure, and patient knowledge can be improved through counselling. The management of small numbers (about 30 patients at any time) proved to be cost effective. The patients also welcomed reduced waiting times and travelling costs. The elderly and those disabled by cardiovascular diseases benefited particularly, making this model appropriate to extend the benefits of warfarin to patients with non-rheumatic atrial fibrillation.

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Conflict of interest: None.

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Table 1—International normalised ratio values within target range plus or minus 10%

	Surgery clinic after 6 months (30 patients)	Surgery clinic after 1 year (36 patients)	Patients previously managed in hospital (14 patients)	
			Hospital clinic	Surgery clinic
No (%) in target range $\pm 10\%$	117/140 (84)	253/282 (89)	32/56 (57)	38/44 (86)

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