

An audit of a medical anticoagulant clinic in a District General Hospital

M. SHAFI
M.B., B.Ch

J. MAYBERRY
M.D., M.R.C.P.

B. CALCRAFT
F.R.C.P.

Royal Gwent Hospital, Newport

Summary

The working and costs of the anticoagulant clinic at the Royal Gwent Hospital was reviewed over the period July 1980-June 1981. The hospital notes of the patients were reviewed and a questionnaire distributed to each patient. The majority of patients have cardiac valve problems or deep vein thrombosis, the latter sometimes being associated with pulmonary emboli. No major complications were reported during the year, but 9.7% reported rectal bleeding or haematuria. The annual cost of running the clinic is approximately £20000 and, if this is representative of Britain as a whole, about £3.75 million is spent annually on anti-coagulation clinics.

Several recommendations are made for improving the anticoagulant clinic service, which includes making sure that the doctor at the clinic and the patient are made aware of the reason for anticoagulation, its duration, and possible side effects and interactions with other drugs.

KEY WORDS: audit, medical anticoagulant clinic.

Introduction

During the last decade, anticoagulant clinics have been established in many District General Hospitals. They are often run by very junior members of staff and there is little continuity of care of the patients. In Newport, 263 patients attended such a clinic during 1980. The clinic is held once every week with about 60 patients attending every session. The cost of running such a clinic has not previously been measured and few attempts have been made to audit the role of anticoagulants.

Method

During the year 1 July 1980 to 30 June 1981, 263 patients attended the medical anticoagulant clinic at the Royal Gwent Hospital, Newport. Of those, 31

patients were discharged. The hospital notes of all patients were reviewed to provide details of the reason for and the duration of anticoagulation. In addition, a questionnaire was distributed to each patient. This dealt with the reason for anticoagulation and complications that had occurred during the year.

The cost of the clinic was estimated from the weekly size of the clinic. The salaries of the medical nursing and laboratory staff were calculated, together with the cost of ambulance travel.

Results

Ninety-five of the patients were male (mean age = 56.4 years) and 168 were female (mean age = 56.3 years). Twenty-three of the 55 patients with an artificial valve had an aortic replacement, 23 a mitral valve replacement and in 9 cases both valves had been replaced (Table 1). Of 117 patients with some form of valve disease, but without replacement 72 had experienced a systemic embolus before anticoagulation. Of the 17 patients anticoagulated because of a pulmonary embolus, the source of embolus was not identified in some cases, although a deep vein thrombosis (DVT) was often implicated. The 33 patients with an isolated deep vein thrombosis are distinct from these cases. Six of the patients were anticoagulated for various reasons, i.e., angina, myocardial infarction, intermittent claudication and hypertrophic obstructive cardiomyopathy. In 13 cases no information was available about the cause, or duration of treatment.

Details of medical management, complications and patient education were collected by questionnaire from 216 of the 232 patients still attending the clinic at the end of the year (93% response rate). One hundred-and-eighty-one patients were treated with warfarin, 29 with nicoumalone and 6 with phenindione. Five of the patients reported a peptic ulcer, 9

TABLE 1. Reasons for anticoagulation in 263 patients attending an anticoagulant clinic at the Royal Gwent Hospital, Newport during 1980. The mean duration of anticoagulation together with the range is recorded

Reason for anticoagulation	Number of cases	Duration of anticoagulation (years)	
		Mean	Range
Valve replacement	55	5.1	0.5-17
Valve disease	45	7.9	0.5-27
Valve disease with systemic emboli	72	4.5	0.1-17
Coronary artery bypass	6	1.9	0.4- 4
Myocardial infarction	4	1.0	0.2- 3
Deep vein thrombosis	33	1.8	0.1-14
Pulmonary emboli	17	1.7	0.1- 5
Cerebrovascular accident	8	3.0	1.2- 6
Transient ischaemic attacks	4	3.8	2 - 6
Miscellaneous	6	6.7	0.2-21
No diagnosis or information	13	—	—

rectal bleeding, 12 haematuria and 23 hypertension. One-hundred and twenty-seven of these patients wanted more information about their disease and the role of anticoagulants. Twenty-five patients reported that they had received no help from anyone (Table 2), although 80% had had some advice from their hospital doctor. Thirty-three of the 216 patients interviewed required ambulance transport to and from the weekly anticoagulant clinic at a cost of almost £15000 a year (Table 3).

TABLE 2. Sources of information about anticoagulation reported by 216 patients in the Royal Gwent Hospital, Newport, during 1982

Source of information	Number of patients
Hospital doctors	172
General practitioners	96
Nurses	56
No helpful information from anyone	25

TABLE 3. Cost of staffing and running an anticoagulant clinic at the Royal Gwent Hospital, Newport, during 1980. The annual cost was £19604 or £75 per patient

	Weekly cost (£)
Staff salaries	61.00
Ambulance transport	288.00
Laboratory measurements	12.00
Drug costs	16.00
Total	377.00

The clinic is usually staffed by a medical registrar, staff nurse, auxiliary nurse, two venesectionists, a receptionist, porter and laboratory technician, although this may vary from week to week. A consultant haematologist is in overall charge of the staff, which is not especially large for a clinic with 60 patients, all of whom require haematological studies.

The annual cost of running the clinic is approximately £20000 and if this is representative of Britain as a whole, about £3.75 million is spent annually on anticoagulation. This figure relates to 50000 patients on anticoagulants in the United Kingdom, which may turn out to be a conservative estimate (Sharp, 1982).

Discussion

Most District General Hospitals have an anticoagulant clinic where patients are monitored on a regular basis. The running of the clinic is usually the responsibility of a junior member of staff and continuous supervision of patients is often nominally under one consultant physician and the consultant haematologist. With this in mind, we reviewed the practice in the Royal Gwent Hospital during 1980, as an example of a typical anticoagulant clinic in a District General Hospital. The majority of patients had cardiac valve problems and were on lifelong anticoagulation. However, 33 patients had been anticoagulated because of a deep vein thrombosis. The common practice is for this to be undertaken for 3-6 months. However, the mean duration of anticoagulation was 1.8 years with a range of 0.1-14 years. This wide range results from there being no continuity of care and lack of information regarding the patients. If the reason for, and required duration of anticoagulation were recorded on the anticoagulant therapy cards, anticoagulation for such long periods should be avoided. Information of this nature was only recorded on about 10% of the anticoagulant therapy cards. The fault for this must surely rest with the medical staff. Also, if a regular review was made of all the patients' case notes, their treatments could be amended accordingly. This would cut down on the clinic size and therefore reduce the costs of running such a service. Confirmation that more strict control is required may be seen in the 13 patients for whom

there were no details of the original reason for anticoagulation or its proposed duration, even after a thorough search through the medical records.

No major complications due to anticoagulation were reported during the year. However, 21 of 216 patients (9.7%) reported rectal bleeding or haematuria. This figure is higher than the 2.7% reported by Davis *et al.* (1976) from the Anticoagulant Clinic of the Baltimore City Hospitals over a 6-year period. At this centre, patients were only accepted into the clinic when the reason for, and proposed duration of anticoagulation were available and there was systematic monitoring of appointment dates, so that no patient was lost to follow-up. The cost of running a clinic may be reduced by the more efficient control of anticoagulation which will result in less frequent visits by patients. Recent progress has been made in this area by Wiegman and Vossepoel (1977) who have developed a computer programme which includes the daily anticoagulant dose, the latest two anticoagulation times, the target and limit values set by the physician. At present, patients on stable

anticoagulant dosage are brought back at 4-weekly intervals.

More information should be provided for all patients either as a comprehensive booklet or personally by a physician. Patients should be made aware of the reason for anticoagulation, its duration, and possible side effects and interactions with other drugs.

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References

- DAVIS, F.B., VOIGT, G.V., ESTRUCH, M.T., TOBIN, J.D. & SAMSON-CORVERA, E.B. (1976) Outpatient management of anticoagulation. *Frontiers in Medicine*, **1**, 65.
- SHARP, A.A. (1982) Problems with anticoagulants. *British Medical Journal*, **285**, 242.
- WIEGMAN, H. & VOSSEPOEL, A.M. (1977) A computer program for long term anticoagulation control. *Computer Programs in Biomedicine*, **1**, 71.

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