

Benefits of a pharmacist-led arrhythmia clinic

A specialist cardiac pharmacist has been running an arrhythmia clinic in The Luton and Dunstable Hospital NHS Foundation Trust since 2007. This article describes the impact of the clinic on patient waiting lists and the time taken to optimise treatment regimens. By Sandra Allan and Neil Marcus.

In 2006, the cardiac pharmacist at The Luton and Dunstable Hospital NHS Foundation Trust, a large district general hospital serving a population of 300,000 people, undertook non-medical independent prescribing training, with a view to specialising in the management of atrial fibrillation (AF) and other arrhythmias (see Background box).

The pharmacist-led arrhythmia clinic (PAC) was established within the hospital in 2007.

The clinic was developed on a background of increasing patient referrals for AF and palpitation management. At that time, patients were waiting for up to 18 weeks for an initial review by a cardiologist, then six to nine months for a follow-up appointment. Further, it was frequently observed that after the initial clinic visit, anti-arrhythmic drug therapy was not



Over 100 telephone consultations were carried out in the first two-years of the pharmacist-led arrhythmia clinic

Background

In 2005, the National Service Framework for coronary heart disease suggested improving services for arrhythmia by using a multidisciplinary approach such as those already in place for heart failure and chest pain.¹ The NHS Plan introduced the concept of 'practitioners with a special interest (PwSi)' to deliver these expectations.

Early implementation of arrhythmia treatment in primary care was slow, and concerns were highlighted about practitioner experience and clinical governance structures. In 2007, the Heart Improvement Programme produced guidance on the training of PwSi's with an interest cardiology.²

titrated upwards as recommended, and it sometimes took over a year to optimise treatment.

The initial aims of the PAC were to:

- Reduce the time from patient referral for AF management to attendance at the first outpatient clinic appointment
- Provide safe initiation, optimisation and monitoring of anti-arrhythmic medication
- Reduce the time taken to optimise treatment
- Provide direct patient support via a telephone helpline

The clinic

Clinical governance The PAC operates according to the trust's non-medical prescribing policy, which sets out the

required clinical audit, quality and reporting standards.

The pharmacist undertook training as a non-medical prescriber, which also covered the legal, ethical and clinical governance aspects of prescribing. Training and assessment of clinical skills and the management of arrhythmias was carried out by the consultant cardiologist. The pharmacist was assessed using the clinical competencies set out in the Heart Improvement Programme's 'Skills-based operational framework for practitioners with a special interest in cardiology'.² The pharmacist completed specialist courses in electrocardiogram interpretation and arrhythmia management, and was required to participate in weekly ward rounds, clinical audits and departmental

Drug/class	Number of episodes			Total no. of episodes	Prescribing episodes by class (mean)
	2007	2008	2009		
Beta-blocker	24	20	44	88	Rate limiting 150 (46%)
Diltiazem	10	6	9	25	
Digoxin	9	14	14	37	
Sotalol	22	12	29	63	
Amiodarone	7	5	2	14	Anti-arrythmic 94 (28%)
Flecainide	4	5	6	15	
Propafenone	0	1	1	2	
Diuretic	0	5	3	8	ACE/ARB 33 (10%)
Angiotensin converting enzyme inhibitors/angiotensin receptor blockers	4	11	10	25	
Warfarin	1	3	13	17	Anticoagulant 28 (9%)
Aspirin	1	4	6	11	
Other	5	5	15	25	Other 25 (8%)
Total	87	91	152	330	

Table 1. Prescribing episodes since the start of the pharmacist-led arrhythmia clinic

education and training sessions.

Although the pharmacist worked as an independent prescriber within the clinic, overall responsibility for patient care remained with the consultant cardiologist, and all patients were seen at least once by the cardiologist.

The PAC was run alongside the weekly cardiology clinic in the hospital. This enabled easy access to the cardiologist for assistance or advice if needed.

Clinic referrals Following initial review of patients in the cardiology outpatient clinic or patients on the hospital wards, the consultant cardiologist initiated treatment and introduced the patients to the concept of a pharmacist-led clinic. Patients were then contacted by the pharmacist and invited to attend the PAC.

Referrals to the PAC were initially for patients who were likely to benefit from closer monitoring of their arrhythmia and for up-titration of drug doses. As the clinic became established, new patient referrals were received from primary care and other specialist consultants.

The cardiologist's letter to the patient's GP, which was copied to the pharmacist and outlined the clinical plan and timescales for patient review, served as the referral to the PAC. For new patient referrals, the

pharmacist performed the initial patient review, which was based on guidelines for the assessment of patients with AF and other arrhythmias,³⁻⁵ and then presented the findings to the consultant cardiologist for confirmation and development of a management plan.

Assessment of the patient by the pharmacist in the clinic was based on guidelines for the assessment of patients with AF.^{3,4}

Audit

An audit of the PAC was carried out between 2007 and 2009. It investigated:

- Achievement of clinic aims
- Consultation time
- Prescribing episodes and treatment required
- Patient safety

Results

During the three-year data collection period, 278 patients were referred to the PAC, of which 206 (75%) were referred for treatment of AF or atrial flutter. The remaining referrals included patients with other arrhythmias, such as supraventricular tachycardia.

The average number of PAC visits was 2.0 per patient (range 1–12).

Only two patients declined the invitation for PAC review, both because of transport difficulties.

Consultation time In year one, four 30-minute appointments were held per week. This changed to 10 appointment slots per week by the end of the audit period.

Atrial fibrillation

Atrial fibrillation (AF) is the most common cardiac arrhythmia in the UK. There are more than 46,000 new cases of AF diagnosed each year, accounting for almost 1% of total NHS expenditure.⁶ Although many patients are unaware of their condition, for some, symptoms can seriously limit quality of life.

AF presents a 5% risk of stroke each year. The broad aims of treatment are to prevent stroke, minimise symptoms associated with excessive heart rate and prevent tachycardia-associated cardiomyopathy.

AF is broadly categorised by chronicity into paroxysmal, persistent and permanent AF.

Treatment for AF is divided into: medical rate and rhythm control; or interventional techniques for rhythm control.

Treatment is becoming more complex. The majority of patients have a cardiac cause that also requires careful management, such as hypertension or ischaemic heart disease. There is some evidence for the use of ACE inhibitors to slow disease progression,⁷ and for the use of more intensive rhythm control using anti-arrhythmic drugs, and/or ablation to control the arrhythmia and its consequences.⁸

Patients with AF often require considerable time in the clinic so that treatment options, such as anticoagulation, rate versus rhythm control or intervention options, can be explained in full, and to review the treatment of AF-associated risk factors, including hypertension, hypercholesterolaemia and tachycardia.

Clinic aim	Outcome
To reduce waiting time	Waiting time for the first outpatient clinic appointment was reduced from 15 weeks to a median of 15 days
To provide safe initiation, optimisation and monitoring of high-risk medication	Average patient admission rate for AF patients was 3.9% over three years
To reduce treatment optimisation time	Time taken to optimise treatment was reduced from an average of 59 weeks to 10 weeks
To provide a telephone helpline	Patient telephone support line exceeded capacity

Table 2. Summary of outcomes from the pharmacist-led atrial fibrillation clinic

Prescribing and treatment A total of 330 prescribing episodes (starting a new medication or making a dose adjustment) were recorded from 432 appointments in the PAC for patients with AF, with an average of 1.6 prescribing episodes for each patient who was referred to the clinic (see Table 1, p57).

The most commonly prescribed medicines were rate-limiting drugs such as beta-blockers, calcium antagonists or digoxin (46%), and anti-arrhythmic drugs (28%). The remaining prescribing episodes included treatment for related cardiac conditions such as hypertension and heart failure, and treatment with anticoagulants.

In the first two years, 108 telephone consultations were carried out using the patient advice line. As the number of calls increased, it became necessary to implement an answer machine and pager service.

Following patient attendance at the PAC, 14 patients were referred to the pharmacist-led cardioversion service (see Profile article, p53). Referral to a tertiary centre, for electrophysiology/ablation, was arranged for 15 patients.

Patient safety Hospital admission rates for patients seen by the pharmacist were compared with admission rates for patients seen by the cardiologist before the PAC was set up. A total of 30 patients with AF (matched for baseline characteristics and clinical plan) from each intervention were used in the comparison. Hospital admission rates for AF-related events within 12 months

of intervention were similar between the groups: three patients were admitted following pharmacist intervention and four patients were admitted following cardiologist intervention.

Over three years, a total of eight admissions for AF-related events were recorded from the 206 patients seen in the PAC — a 3.9% average admission rate. Admission rates recorded in a recent clinical trial show averages of 29–36% for patients with AF.⁸

A summary of the clinic outcomes for the 206 patients with AF can be found in Table 2.

Challenges

The main challenges have been clinical training and difficulties securing resources to support the clinic (e.g. clinic space, funding of the pharmacist’s time and secretarial support).

Conclusions

We have demonstrated that an arrhythmia clinic run by a prescribing pharmacist, under the guidance of a consultant cardiologist, is an innovative approach to the evidence-based treatment for AF and other arrhythmias.

The clinic speeds up optimisation of treatment, provides risk management for anti-arrhythmic therapy, releases the consultant cardiologist’s time, and safely improves the patient’s pathway in the treatment of AF.

The cardiology skills acquired by the PAC pharmacist have led to several new service developments. The pharmacist

has taken over the existing cardioversion service with a positive effect on patient waiting times.

The pharmacist has also developed a role in training the junior cardiology doctors.

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