

Open-access echocardiography to general practitioners for suspected heart failure

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SUMMARY

Echocardiography is now considered to be the key investigation when heart failure is suspected, and should improve clinical management. An open-access echocardiography service was piloted to 24 general practitioners and the service was audited after 250 cases. The impact on clinical management was assessed by reviewing general practice notes 2 months after the echocardiogram. Significant impairment of left ventricular function was found in 49 patients (20%). Out of these subjects, 38 had been started on an ACE inhibitor. Twenty patients were considered to have a significant valve lesion by echocritera, of whom 14 had been referred for a cardiological opinion. The provision of an open-access echocardiography service was popular with general practitioners and the information resulted in appropriate management decisions being made.

Keywords: heart failure; echocardiography; management.

Introduction

CHRONIC heart failure is a clinical syndrome consisting of symptoms and signs that may have potentially different causes and treatments. For patients with impaired left ventricular systolic function, angiotensin converting enzyme (ACE) inhibitors reduce premature death and hospitalization.¹ In suspected heart failure, echocardiography is regarded as the key investigation,² since treatable causes, primarily valvular disease, may be identified and left ventricular function assessed, aiding the rational prescription of ACE inhibitors. Cor pulmonale and hypertrophic cardiomyopathy may also be diagnosed; ACE inhibitors are generally contraindicated for these conditions. If general practitioners are expected to initiate ACE inhibitors, access to echocardiography would seem logical. We report our experience with such a system.

Methods

The open-access service was made available to 24 general practitioners (GPs) in five Darlington practices, providing care to some 48 000 patients. Each practice was visited to discuss the echocardiography service, and written guidelines were produced.

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General practitioners were advised to refer patients with a clinical diagnosis of heart failure if they were currently taking a diuretic without an ACE inhibitor.

Full echocardiograms were performed on a Hewlett Packard 77030A imaging system. Systolic left ventricular function was reported as an ejection fraction (measured from fractional shortening) and any valve lesions were described. A label of 'mild', 'moderate' or 'severe' was given to regurgitant jets, whereas aortic stenosis was reported as the maximum velocity and estimated gradient. The report gave no direct guidance as to management, and the GPs were left to act upon the results. Practices were visited approximately 2 months after reporting the echocardiogram, by which stage two patients had died. All other case notes were available for scrutiny.

Results

The open-access service began in October 1993 and was audited after the first 250 referrals (July 1995). Three patients had been referred with problems other than suspected heart failure: two patients had atrial fibrillation and the third had cardiac hypertrophy. The demography of the patients is shown in Table 1.

An assessment of ejection fraction was possible in all but six patients. Significant impairment of left ventricular function (ejection fraction less than 40%) was found in 49 patients (20%). A valve lesion was present in 76 patients and was considered haemodynamically significant in 20: 11 with mitral regurgitation, six with aortic regurgitation, two with combined mitral and aortic regurgitation, and one with mitral stenosis.

A review of GPs' notes showed that an ACE inhibitor had been started in 50 cases and that a further 13 patients had been referred to hospital for initiation under supervision. Of those whose ejection fraction was less than 40%, 38 (78%) were eventually started on an ACE inhibitor. Fourteen out of the 20 patients considered to have a significant valve lesion had also been referred to hospital.

Discussion

When heart failure is suspected, appropriate management should be guided by an accurate diagnosis. In a previous study of heart failure from Finland, the diagnostic accuracy of primary care physicians was low;³ this is supported by a recent study from Dundee.⁴ In a group practice of some 12 000 patients, 149 subjects were taking diuretics for a clinical diagnosis of heart failure, whereas echocardiography showed impaired systolic left ventricular function in only 41%.

Traditionally, hospital-based investigations have followed specialist consultation, but the prevalence of heart failure precludes full assessment without a major cardiological expansion: the present system results in inadequate investigation and sub-optimal treatment.⁵ Prompted by targets to reduce cardiovascular mortality, many purchasers are now pressing for open access to cardiac investigations, but a recent working group of the British Cardiac Society considered this undesirable because of the potential for indiscriminate use of limited diagnostic services.⁶

For open-access services to demonstrate effectiveness, sufficient numbers of treatable abnormalities must be detected, resulting in appropriate changes to management. Open-access echocar-

Table 1. Demography of the 250 patients referred.

Mean age (years)	71 (range 16-92)
Men:women	99:151
History of IHD:*	137 (54%)
previous AMI+	57
angina only	80
Hypertension	79 (32%)
Valvular disease	8
Cardiomyopathy	6
None of the above	70 (28%)
Taking a diuretic:	203 (81%)
loop diuretic	169
thiazide	34

* Ischaemic heart disease.

+ Acute myocardial infarction.

diography was recently reported from Edinburgh: out of 259 patients referred, 119 were already receiving treatment for heart failure.⁷ Serious left ventricular systolic dysfunction was found in 26% of treated patients, compared with 20% of our unselected group. Francis *et al*⁷ provided GPs with an interpretation of the scan and with guidance on management, but whether these rec-

ommendations were implemented is unknown.

We chose not to provide specific advice about management for fear that these recommendations might be implemented without due regard for other factors, such as the level of renal function. By providing GPs with simple information, in conjunction with broad guidelines, appropriate management decisions were reached. The service has now been extended to all GPs in the locality.

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