ABC of heart failure: Heart failure in general practice
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Management of heart failure in general practice has been hampered by difficulties in diagnosing the condition and by perceived difficulties in starting and monitoring treatment in the community. Nevertheless, improved access to diagnostic testing and increased confidence in the safety of treatment should help to improve the primary care management of heart failure. With improved survival and reduced admission rates (achieved by effective treatment) and a reduction in numbers of hospital beds, the community management of heart failure is likely to become increasingly important and the role of general practitioners even more crucial.

Diagnostic accuracy

Heart failure is a difficult condition to diagnose clinically, and hence many patients thought to have heart failure by their general practitioners may not have any demonstrable abnormality of cardiac function on objective testing.

A study from Finland reported that only 32% of patients suspected of having heart failure by primary care doctors had definite heart failure (as determined by a clinical and radiographic scoring system). A recent study in the United Kingdom showed that only 29% of 122 patients referred to a "rapid access" clinic with a new diagnosis of heart failure fully met the definition of heart failure approved by the European Society of Cardiology—that is, appropriate symptoms, objective evidence of cardiac dysfunction, and response to treatment if doubt remained.

Similar findings have been reported in the echocardiographic heart of England screening (ECHOES) study, in which only about 22% of the patients with a diagnosis of heart failure in their general practice records had definite impairment of left ventricular systolic function on echocardiography, with a further 16% having borderline impairment. In addition, 23% had atrial fibrillation, with over half of these patients having normal left ventricular systolic contraction. Finally, a minority of patients may have clinical heart failure with normal systolic contraction and abnormal diastolic function; management of such patients with diastolic dysfunction is very different from those with impaired systolic function.

Open access echocardiography and diagnosis

Owing to the non-invasive nature of echocardiography, its high acceptability to patients, and its usefulness in assessing ventricular size and function, as well as valvar heart disease, many general practitioners now want direct access to echocardiography services for their patients. Although open access echocardiography services are available in some districts in Britain, many specialists still have reservations about introducing such services because of financial and staffing issues and concern that general practitioners would have difficulty interpreting technical reports. The cost of echocardiography (£50 to £70 per patient) is relatively small, however, compared with the cost of expensive treatment for heart failure that may not be needed. The cost is also small compared with the costs of...
hospital admission, which may be avoided by appropriate, early treatment of heart failure.

One approach may be to refer only patients with abnormal baseline investigations as heart failure is unlikely if the electrocardiogram and chest x-ray examination are normal and there are no predisposing factors for heart failure—for example, previous myocardial infarction, angina, hypertension, and diabetes mellitus. Requiring general practitioners to perform electrocardiography and arrange chest radiography, as a complement to careful assessment of the risk factors for heart failure, is likely to reduce substantially the number of inappropriate referrals to an open access echocardiography service.

Role of natriuretic peptides

Given the difficulties in diagnosing heart failure on clinical grounds alone, and current limited access to echocardiography and specialist assessment, the possibility of using a blood test in general practice to diagnose heart failure is appealing. Determining plasma concentrations of brain natriuretic peptide, a hormone found at an increased level in patients with left ventricular systolic dysfunction, may be one option. Such a blood test has the potential to screen out patients in whom heart failure is extremely unlikely and identify those in whom the probability of heart failure is high—for example, in patients with suspected heart failure who have low plasma concentrations of brain natriuretic peptide, the heart is unlikely to be the cause of the symptoms, whereas those who have higher concentrations warrant further assessment.

Primary prevention and early detection

General practitioners have a vital role in the early detection and treatment of the main risk factors for heart failure—namely, hypertension and ischaemic heart disease—and other cardiovascular risk factors, such as smoking and hyperlipidaemia. The Framingham study has shown a decline in hypertension as a risk factor for heart failure over the years, which probably reflects improvements in treatment. Ischaemic heart disease, however, remains very common. Aspirin, β-blockers, and lipid lowering treatment, as well as smoking cessation, can reduce progression to myocardial infarction in patients with angina, and β-blockers may also reduce ischaemic left ventricular dysfunction. Early detection of left ventricular dysfunction in “high risk” asymptomatic patients—for example, those who have already had a myocardial infarction or who have hypertension or atrial fibrillation—and treatment with angiotensin converting enzyme inhibitors can minimise the progression to symptomatic heart failure.

Starting and monitoring drug treatment

Both hospital doctors and general practitioners used to be concerned about the initiation of angiotensin converting enzyme inhibitors outside hospital. It is now accepted, however, that most patients with heart failure can safely be established on such treatment without needing hospital admission. The previous concern—over first dose hypotension—was heightened by the initial experience of large doses of captopril, especially in those with severe heart failure, who are at greater risk of problems. Patients with mild or moderate heart failure, who have normal renal function and a systolic blood pressure over 100 mm Hg and who have stopped taking diuretics for at least 24 hours rarely have problems, especially if the first dose of an angiotensin converting enzyme inhibitor is not reduced.

Open access services have proved popular and are likely to become even more common; indeed, echocardiographic screening of patients in the high risk categories may well be justified and cost effective.
angiotensin converting enzyme inhibitor is taken at night, before going to bed.

Heart failure clinics

Dedicated heart failure clinics within general practices, run by a doctor or nurse with an interest in the subject, have the potential to improve the care of patients with the condition, as they have for other chronic conditions, such as diabetes.

Blood should be taken for electrolytes and renal chemistry at least every 12 months, but more frequently in new cases and when drug treatment has been changed or results have been abnormal. The clinics should be used to educate patients about their condition, particularly in relation to their treatment, with messages being reinforced and drug treatment simplified and rationalised where appropriate. Patients whose condition is deteriorating may be referred for specialist opinion.

Variables that should be monitored in patients with established heart failure comprise changes in symptoms and severity (New York Heart Association classification); weight; blood pressure; and signs of fluid retention or excessive diuresis.

Impact of heart failure on the community

After a patient is diagnosed as having heart failure, substantial monitoring by the general practitioner is required. In our survey of heart failure in three general practices from the west of Birmingham, 44% of general practice consultations (average 2.6 visits per patient) took place within three months of the first diagnosis of heart failure, 23% were at three to six months (1.4 visits per patient), and 33% were at six to 12 months (2.0 visits per patient). Such management requires regular supervision and audit.

Relevance to hospital practice

In our survey of acute hospital admissions of patients with heart failure to a city centre hospital, the median duration of stay was 8 (range 1-96) days, with 20% inpatient mortality. Clinical variables associated with an adverse prognosis include the presence of atrial fibrillation, poor exercise tolerance, electrolyte abnormalities, and the presence of coronary artery disease. Angiotensin converting enzyme inhibitors were prescribed in only 51% of heart failure patients on discharge; after the first diagnosis of heart failure, the average number of hospital attendances (inpatient and outpatient) in the first 12 months was 3.2 visits per patient, with an average of 6.0 general practice consultations per patient. However, 44% of hospital attendances (1.4 visits per patient) took place within three months of diagnosis, 33% were at three to six months (1.0 visits per patient), and 25% were at 6-12 months (0.74 visits per patient).

These figures represent the collective burden of heart failure on hospital practice. Indeed, about 200 000 people in the United Kingdom require admission to hospital for heart failure each year.

Specialist nurse support

The important role of nurses in the management of heart failure has been relatively neglected in Britain. In the United States the establishment of a nurse managed heart failure clinic in South Carolina resulted in a reduction in readmissions of 4%
Economic considerations

With an increasingly elderly population, the prevalence of heart failure could have increased by as much as 70% by the year 2010. Heart failure currently accounts for 1-2% of total spending on health care in Europe and in the United States. In 1993 in the United Kingdom, heart failure cost the NHS £360m a year; the figure now is probably closer to £600m, equivalent to 1-2% of the total NHS budget, and hospital admissions account for 60-70% of this expenditure. Admissions for heart failure have been increasing and are expected to increase further. Preventing disease progression, hence reducing the frequency and duration of admissions, is therefore an important objective in the treatment of heart failure in the future.


Role of specialist nurse in management of patients with heart failure

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The ABC of heart failure is edited by C R Gibbs, M K Davies, and G Y H Lip. CRG is research fellow and GYHL is consultant cardiologist in the department of cardiology, City Hospital, Birmingham; MKD is consultant cardiologist in the department of cardiology, Selly Oak Hospital, Birmingham. The series will be published as a book in the spring.