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Heart failure management in primary care – the story so far

Heart failure management has been propelled to centre stage in primary care. Dr Sarah Jarvis brings general practitioners up to date with the latest on its management.

Abstract

Increasing rates of coronary heart disease and the increasing longevity of the UK population mean that the number of cases of heart failure seen in general practice is rising rapidly. Simultaneously, this disease area has been recognised by the National Institute for Clinical Excellence, which has published guidelines for its management, and it has been made a target for remuneration under the new General Medical Services contract. This, together with the latest clinical trial evidence, has dramatically changed how heart failure is managed in primary care. Considering these recommendations and the latest clinical trial evidence, a logical management plan for heart failure is suggested.

Key words: heart failure, NICE, GMS contract, primary care, angiotensin II receptor blockers, angiotensin-converting enzyme inhibitors, beta blockers.

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Heart failure has not, traditionally, been a subject designed to stir the senses of the average general practitioner (GP). First, it affects primarily an elderly population. Secondly, with its exceptionally high mortality rate (in the region of 40% in the year after diagnosis),[1] it might seem an unrewarding condition to treat. Thirdly, unlike cholesterol, hypertension and other cardiovascular conditions, there have been, until recently, few comprehensive and comprehensible guidelines. And finally, there has been much confusion over diagnosis, with a long list of differential diagnoses (table 1).[2]

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Sarah Jarvis

But in the last two years, the position has been set to change. The reasons are partly born of necessity. The main risk factors for heart failure – coronary heart disease (CHD) and increasing age – are on the rise in the UK. While mortality rates from CHD have continued to drop since the late 1970s, the number of people living with CHD continues to rise steadily.[3] In 65–74 year olds, the incidence of heart failure is about one in 35, but this rises steadily with age to an incidence of more than one in seven in the over 85 years age group. The population of the UK has been changing demographically for decades, with the number of people over 65 more than doubling in the last 70 years. Among the very elderly, the figures are even more dramatic. It is predicted that the number of over 80s will have increased by 50% in the 30 years to 2025, and the number of over 90s will have doubled.[4]

On a more positive note, the need for consistent high-quality management of heart failure is now being recognised. In June 2003, the National Institute for Clinical Excellence (NICE) published the first national guidelines on diagnosis and management of heart failure.[2] With the instigation of the new General Medical Services (GMS) contract in April 2004, GPs were, for the first time, remunerated for targeting their patients with heart failure.[5] The criteria on which they are judged are listed in table 2.

At the same time, it is becoming increasingly apparent that we as GPs cannot afford to ignore this condition for other reasons. While the numbers involved are relatively modest – 64,500 new cases per annum across the UK[3] and a total prevalence of 900,000 patients across the UK, equating to 20–30 patients on the list of an 'average' GP with 2,000 patients[6] – the incidence is set to rise by 50% over the next 25 years.[7] Patients with heart failure also represent a disproportionate source of work. Morbidity and mortality rates for heart failure are high, and many affected patients will require frequent home visits in the community, with all the time implications these entail. The annual cost to the NHS of hospital

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Table 1. Differential diagnosis of heart failure[2]

Chest disease, including lung, diaphragm or chest wall
Venous insufficiency in lower limbs
Obesity
Intrinsic hepatic or renal disease
Pulmonary embolic disease
Venous insufficiency in lower limbs
Severe anaemia or thyroid disease
Drug-induced ankle swelling (e.g. dihydropyridine CCBs)
Drug-induced fluid retention (e.g. NSAIDS)
Hypoalbuminaemia
Bilateral renal artery stenosis
Depression and/or anxiety disorders

Key: CCBs = calcium channel blockers; NSAIDS = non-steroidal anti-inflammatory drugs

Table 2. Targets for left ventricular dysfunction subset

Clinical indicators in the Quality and Outcomes Framework of the New GMS Contract[5]

Indicator		Points	Payment stages
Records	The practice can produce a register of patients with CHD and left ventricular dysfunction	4	
Diagnosis and initial management	% of patients with a diagnosis of CHD and left ventricular dysfunction (diagnosed after 1/4/03) confirmed by echocardiogram	6	25–90%
On-going management	% of patients with a diagnosis of CHD and left ventricular dysfunction currently treated with ACE inhibitors (or ARBs)	10	25–70%

Key: GMS = General Medical Services; CHD = coronary heart disease; ACE = angiotensin-converting enzyme; ARB = angiotensin II receptor blocker

admissions for these patients was estimated at £625 million in 2000[1] – and these costs are borne by the Primary Care Trust (PCT). As practices begin to move towards Practice Based Commissioning, there is likely to be increasing pressure on practices to reduce admission rates by medical management in primary care.

So how can we, as GPs, make significant inroads into improving care for these patients? A rational approach to diagnosis and management would seem an appropriate starting point and for this we must turn to the NICE guidelines.

Diagnosis of heart failure

On the whole, the NICE guidance for heart failure is well thought out, appropriately evidence-based and practical. The section on diagnosis offers an extremely useful stepwise approach to diagnosis. This approach starts with the list of differential diagnoses (table 1).[2] Next, it recommends a foolproof approach to excluding the diagnosis of heart failure – if an electrocardiogram (ECG) and blood levels of B-natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NTproBNP) are within normal limits, an alternative cause must be considered. Other recommended investigations (table 3) may help with different diagnosis.

An abnormal ECG or BNP/NTproBNP is an indication for referral for echocardiography. Sadly, availability of laboratory analysis of BNP and NTproBNP is patchy across the UK, which makes this aspect of the guidance largely unworkable. However, one of the aims of NICE guidance is to influence future planning of services, and the guidance should provide useful ammunition for PCTs aiming for excellence in heart failure management.

ARBs and heart failure

Another limitation of the NICE guidance on heart failure is its time limit of evidence to that published before October 2002. This means that the Guidance Committee considered the ELITE (Evaluation of Losartan in the Elderly) II trial comparing losartan and captopril, which found similar levels of efficacy between the two drugs, but which did not consider combinations of the two.[8] Val-HeFT (Valsartan Heart Failure Trial), which was also considered, showed that the addition of valsartan to conventional therapy (as above) reduced hospital admissions and the combined end point of mortality and morbidity by 13.2% (p=0.009). Valsartan did not, however, improve all-cause mortality and, in combination with an angiotensin-converting enzyme (ACE) inhibitor and a beta blocker, post-hoc analysis suggested an increase in mortality.[9]

The guidance did not, however, consider the results of the CHARM

> ***'CHARM provides compelling evidence for adding candesartan as routine therapy for all patients with heart failure'***

(Candesartan in Heart failure – Assessment of Reduction in Mortality and morbidity) study, because it was published in September 2003.[10] CHARM included three arms, each of which studied the efficacy of candesartan.

CHARM-Alternative involved patients intolerant of ACE inhibitors, and addition of candesartan to standard therapy (apart from an ACE inhibitor). Standard therapy consisted of diuretic and/or beta blocker and/or spironolactone. At baseline, 55% of patients were also treated with beta blockers and 17% with spironolactone. Cardiovascular mortality and hospitalisation for heart failure was reduced by 23% (p=0.0004). CHARM-Added showed a 15% reduction (p=0.011) in cardiovascular mortality and hospitalisation for heart failure, in patients treated with candesartan in addition to standard therapy, including an ACE

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Table 3. Investigations in possible heart failure[2]

Chest X ray
Urea and electrolytes
Creatinine
Full blood count
Liver function tests
Fasting lipids
Thyroid function tests
Glucose
Urinalysis (glucose and protein)
Peak expiratory flow rate/spirometry

inhibitor. CHARM-Preserved considered the effect of addition of candesartan to standard therapy in patients with preserved left ventricular function > 40%. The reduction in cardiovascular mortality and hospitalisation for heart failure with the addition of candesartan in this arm did not reach statistical significance, but the trend was consistent with the other arms of the trial.

Overall, for the 7,600 patients involved in the trial:

- treatment with candesartan significantly reduced the combined end point of cardiovascular mortality and hospitalisation for heart failure, regardless of other treatment
- cardiovascular mortality was reduced by a statistically significant 12%
- the number needed to treat (NNT) over three years to prevent one cardiovascular death or hospital admission for heart failure was 23.

It is for these reasons that candesartan has become the first angiotensin II receptor blocker (ARB) to be licensed in the UK for the treatment of heart failure. If we wish to optimise our care of patients with heart failure, CHARM provides compelling evidence for adding candesartan as routine therapy for all patients with heart failure.

Heart failure management

Along with appropriate use of drugs for patients with heart failure, the NICE guidance recommends control of blood pressure and diabetes, and influenza and pneumococcal immunisation. Under the GMS contract, the first two of these attract separate payments under the Quality and Outcomes Framework (QOF) – influenza vaccination is payable under the QOF and as a Direct Enhanced Service, and pneumococcal immunisation is remunerated as a Direct Enhanced Service.[5]

With respect to drug management, the NICE guidance recommends a combination approach to drug therapy. The rationale is that heart failure should be seen (unlike hypertension, where second- or third-line medications are added only if control remains inadequate) as a candidate for secondary prevention, as well as symptom control.

A logical management plan, based on the NICE guidance, is shown in the box.

Logical management plan for heart failure based on NICE guidance

- Diagnose heart failure (confirmation with echocardiography attracts payment under the QOF)
- Establish left ventricular systolic dysfunction as the underlying cause
- Control symptoms with loop diuretics
- If heart failure is due to CHD, prescribe aspirin 75–150 mg/day unless contraindicated
- At the same time, start a statin if the patient fulfils the criteria for statin therapy on the basis of CHD. The NICE guidance does not recommend statins in every case, both because patients with heart failure have been excluded from many statin trials, and because of uncertainty over their risk:benefit profile. While statins may improve left ventricular function, there is experimental evidence that they may also increase the effect of endotoxins in heart failure[7]
- Add in an ACE inhibitor, starting with the smallest dose and titrating up at not less than two-weekly intervals to the maximum dose tolerated, or the maximum recommended from clinical trial evidence. With each titration, blood pressure, serum urea, electrolytes and creatinine should be monitored
- If an ACE inhibitor is not tolerated (eg due to cough), an ARB should be substituted. Either will attract payment under the QOF. As we shall see below, however, this recommendation for ARB use only if ACE inhibitors are not tolerated, may have been superseded by more recent evidence
- Unless absolutely contraindicated, add a cardioselective beta blocker (such as bisoprolol or carvedilol), again titrating up at not less than two-weekly intervals and monitoring blood pressure, heart rate and clinical condition with each titration, and serum urea, electrolytes and creatinine 1–2 weeks after initiation and 1–2 weeks after final dose titration. Target dose for bisoprolol should be 10 mg once daily (starting dose 1.25 mg once daily) and target for carvedilol 25–50 mg once daily (starting dose 3.125 mg twice daily)
- Look beyond the NICE guidance for new evidence on the effectiveness of ARBs. As we have seen, there is compelling evidence for the addition of candesartan after treatment of diuretics, ACE inhibitors and beta blockers – with a starting dose of 4–8 mg daily, titration up at not less than two weekly intervals, and monitoring of blood pressure, serum urea, electrolytes and creatinine at each titration. The target dose for candesartan is 32 mg daily.
- Digoxin should be used as first-line therapy for patients in atrial fibrillation, but can also be initiated at this stage in patients in sinus rhythm, if they remain symptomatic in this drug combination
- Spironolactone at a dose of 12.5–25 mg daily (titrated to 50 mg daily if tolerated) can be added for patients who remain moderately to severely symptomatic, and blood pressure, serum urea, electrolytes and creatinine monitored with each titration

Key: QOF = quality and outcomes framework; CHD = coronary heart disease; NICE = National Institute for Clinical Excellence; ACE = angiotensin-converting enzyme; ARB = angiotensin II receptor blocker

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Summary

The incidence of heart failure is rising rapidly, and national guidelines, as well as targets affecting remuneration for its management, have revolutionised its treatment. The announcement of the license for the treatment of heart failure with candesartan – the first ARB to receive such a licence – offers the prospect of significant improvements on current therapy regimens.

Conflict of interest

SJ has received advisory fees from Astra Zeneca, Takeda, Novartis and Boehringer Ingelheim.

References

1. Petersen S, Rayner M, Wolstenholm J. *Coronary heart disease statistics: heart failure supplement.* London: British Heart Foundation, 2002.
2. National Institute for Clinical Excellence. Clinical Guideline 5. Chronic heart failure – Management of chronic heart failure in adults in primary and secondary care. London: NICE, July 2003.
3. www.heartstats.org (accessed 13/2/05)
4. Department of Health. *National Service Framework for Older People.* London: Department of Health, 2001.
5. Investing in General Practice: The New General Medical Services Contract. BMA, February 2003.
6. Davies MK, Hobbs FDR, Davis RC *et al.* Prevalence of left ventricular systolic dysfunction and heart failure in the Echocardiographic Heart of England Screening study: a population-based study. *Lancet* 2001;**358**:439-45.
7. National Institute for Clinical Excellence. Chronic heart failure: management of chronic heart failure in adults in primary and secondary care. Draft for second consultation April 2003.
8. Pitt B, Poole-Wilson PA, Segal R *et al.* on behalf of the ELITE II investigators. Effect of losartan compared with captopril on mortality in patients with symptomatic heart failure: randomised trial – the Losartan Heart Failure Survival Study ELITE II. *Lancet* 2000;**355**: 1582-7.
9. Cohn JN, Tognoni G; Valsartan Heart Failure Trial investigators. A randomised trial of the angiotensin receptor blocker valsartan in chronic heart failure. *N Engl J Med* 2001;**345**: 1667-75.
10. Pfeffer MA, Swedberg K, Grainger CB *et al.* for the CHARM Investigators and Committees. Effects of candesartan on mortality and morbidity in patients with chronic heart failure: the CHARM-Overall programme. *Lancet* 2003;**362**:759-66.

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