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Diagnosis and management of chronic heart failure:

NICE guideline update 2018

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Submitted: 24 October 2018; **Editor's response:** 15 November 2018; **final acceptance:** 29 November 2018.

DOI: https://doi.org/10.3399/bjgp19X702665

INTRODUCTION

Heart failure (HF) is a common problem affecting almost 1 million people in the UK. Prevalence increases with age, rising to 10% in people aged ≥75 years. The diagnosis requires symptoms and evidence of a structural or functional abnormality of the heart. HF is classified according to left ventricular ejection fraction (EF). In HF with reduced ejection fraction (HFrEF) the EF is below 40%, and in HF with preserved ejection fraction (HFpEF) the EF is ≥50% but there is evidence of impaired relaxation and stiffness in the left ventricle. The type of HF is important for determining further management options. Arrhythmias and valvular heart disease are also important causes of HF.

The National Institute for Health and Care Excellence (NICE) has updated its chronic heart failure guideline.[1] This article highlights areas of particular importance for primary care.

CLINICAL ASSESSMENT

Patients with HF may present with one or more of the classical triad of symptoms: breathlessness, ankle swelling, or fatigue. Clinical assessment is important to determine if the patient is stable or requires admission. The history should include symptom onset, change in exercise tolerance, risk factors for cardiovascular disease, and any history of cardiovascular disease. Examination should include pulse, blood pressure, and oxygen saturations along with auscultation of the heart and lungs with assessment of fluid retention.

NATRIURETIC PEPTIDE TESTING

If HF is suspected, a natriuretic peptide (NP) blood test is required to guide referral decisions. NPs are released by the myocardium in response to increased wall stress and are raised in patients with HF. NP levels can be assessed by measuring either B-type NP (BNP) or N-terminal pro-B-type NP (NT-proBNP). NT-proBNP is now recommended as it has greater sensitivity and is more stable over time.

NICE recommends referral for transthoracic echocardiography and specialist assessment if the NT-proBNP is above 400 pg/ml. The European Society of Cardiology guideline[2] recommends a threshold of 125 pg/ml. If the level is too high, patients with HF will be missed. However, if the level is too low, more patients will have unnecessary investigations, contributing to patient anxiety and potentially overwhelming cardiology services. The NICE threshold is informed by a UK primary care diagnostic accuracy study and health economic modelling, which found that an NT-proBNP threshold of 400 pg/ml was the optimal cut-off for referral for HF diagnosis in the NHS.

Very high NP levels carry a poor prognosis so NICE recommends urgent referral (Box 1). NP levels can be affected by several variables. For example, obesity and medications affecting the renin–angiotensin–aldosterone system can reduce NP levels, whereas chronic kidney disease or a rapid heart rate can increase them. If there is still concern about the possibility of HF, despite an NT-proBNP level <400 pg/ml, further discussion with the HF team should be considered.

The guideline recommends that the primary care team consider other tests to assess for an alternative diagnosis,

Box 1. NT-proBNP levels for referral

- NT-proBNP >2000 pg/ml: refer for echo and specialist assessment, to be seen within *2 weeks*.
- NT-proBNP 400–2000 pg/ml: refer for echo and specialist assessment, to be seen within *6 weeks*.
- NT-proBNP <400 pg/ml: heart failure unlikely, consider alternative diagnosis.

NT-proBNP = N-terminal pro-B-type natriuretic peptide.

Box 2. Other tests to consider in heart failure diagnosis

- Electrocardiogram
- Chest X-ray
- Blood tests: renal, liver, full blood count, thyroid function, lipids, HbA1c
- Urinalysis
- Peak flow or spirometry

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Competing interests

Clare J Taylor was lead author for the diagnostic accuracy study (REFER), which was considered in the evidence review for the guideline. Roche Diagnostics provided the NT-proBNP testing equipment for the REFER study but did not have any influence on study design, conduct, or reporting.

Acknowledgements

Clare J Taylor and Jim Moore are members of the Chronic Heart Failure 2018 Guideline Committee.

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exacerbating factors, and as a baseline prior to treatment initiation (Box 2).

DIAGNOSIS

The diagnosis should be made by a lead physician with subspecialty training in cardiology (usually a cardiologist). Patients with newly diagnosed HF should be offered an extended first consultation, followed by a follow-up consultation to take place within 2 weeks if possible.

MANAGEMENT

The management of patients with HF relies on effective team working and the guideline outlines responsibilities for primary and secondary care.

A core specialist HF multidisciplinary team (MDT) should work in collaboration with the primary care team. The MDT should diagnose new HF, optimise HF treatment, start new medicines that require specialist supervision, and manage people with HF that is not responding to treatment. The MDT should directly involve other services including rehabilitation and services for older people, and palliative care when appropriate.

The primary care team should ensure effective communication between different clinical services involved in the patient's care, lead a full review of the patient's HF care (which may form part of a long-term conditions review), update the clinical record, and share any changes with the specialist HF team. Regular monitoring of drug treatments in primary care is also required.

DRUG THERAPIES

In people with HFrEF or HFpEF, diuretics should be offered to relieve symptoms of congestion and fluid retention. People with HF should not be advised to restrict their sodium or fluid consumption. All should be offered a personalised, exercise-based cardiac rehabilitation programme once their condition is stable.

There is an extensive evidence base for treatments in HFrEF that improve quality of life, reduce hospitalisation rates, and improve survival. An evidence base does not exist for patients with HFpEF, where optimal management of comorbidities such as high blood pressure, ischaemic heart disease, and diabetes mellitus is recommended.

First-line HFrEF treatments

First-line treatment is angiotensin-converting enzyme inhibitor (ACE-I)/angiotensin receptor blocker (ARB), and beta-blockers. Renal function should be checked at baseline and 7–10 days after starting or increasing the dose of ACE-I/ARB. Beta-blockers should be titrated upwards with a 'start low, go slow' approach, checking pulse, blood pressure, and for signs of fatigue every 2–4 weeks.

Second-line treatment is a mineralocorticoid receptor antagonist (MRA) and is suggested for patients who remain even mildly symptomatic. Patients require more frequent monitoring of renal function to check for hyperkalaemia or reduction in estimated glomerular filtration rate (eGFR) if triple therapy with an MRA is used. If the eGFR is ≤45 ml/min, lower doses of ACE-I, ARBs, and MRAs should be considered.

Second-line HFrEF treatments

If symptoms persist despite optimal first-line therapy, further specialist advice should be sought. A variety of options are available to the specialist HF MDT. These include the new angiotensin receptor neprilysin inhibitor (ARNI) called sacubitril valsartan, licensed for use in people with ongoing symptoms and an EF ≤35%. ARNI replaces the ACE-I so care is required to ensure medication lists are updated. Ivabradine may be added for patients in sinus rhythm and a heart rate of ≥75 beats per minute. Hydralazine/nitrate and digoxin are also available as third-line options. Devices such as cardiac resynchronisation therapy and implantable cardioverter defibrillators may also be considered.

PALLIATIVE AND END-OF-LIFE CARE

Patients with HF have reduced survival but predicting outlook is difficult. If the patient with HF has worsening symptoms, despite optimal treatment, the primary care team should discuss their needs with the specialist HF MDT and consider referral for a specialist palliative care assessment.

COMMENT

In the 2018 update NP testing is the crucial step in the referral pathway for HF diagnosis. Previous history of myocardial infarction as a referral criterion has been removed. The role of triple therapy in treatment for HFrEF has been strengthened and the importance of rehabilitation for all patients with HF highlighted. The guideline also provides much greater clarity on the role of the specialist HF MDT and primary care team, emphasising the importance of communication to ensure patients with HF receive seamless, evidence-based care.

Provenance

Freely submitted; externally peer reviewed.