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Heart failure guideline update:

a guide for general practice

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Submitted: 23 August 2018; **Editor's response:** 16 September 2018; **final acceptance:** 4 December 2018.

DOI: https://doi.org/10.3399/bjgp19X704069

INTRODUCTION

Heart failure (HF) is a clinical syndrome caused by a structural or functional cardiac abnormality and results in reduced cardiac output or elevated intracardiac pressures. It affects approximately 900 000 patients in the UK.[1] In recent years, both the European Society of Cardiology (ESC) and the American Heart Association (AHA) updated their HF guidelines simultaneously, with a reassuringly large overlap in most recommendations.[2,3] Furthermore, updated National Institute for Health and Care Excellence (NICE) guidelines (NG106) were published in September 2018, and are largely based on the same evidence.[4]

This article describes updates to seven principal topics, with particular emphasis on areas of most relevance to primary care, including HF definitions, a new 'time to therapy' approach, diagnosis, pharmacological treatment, cardiac resynchronisation therapy (CRT) indications, prevention, and multidisciplinary team working. In addition, the management of HF with preserved ejection fraction (HFpEF) is discussed.

NEW DEFINITIONS OF HEART FAILURE

Previously, HF was divided into those patients with left ventricular (LV) systolic impairment on transthoracic echocardiography (TTE) and those with preserved ejection fraction. The updated ESC, but not AHA or NICE, guidelines, introduce a new notion of HF with mid-range ejection fraction (HF*mr*EF), for patients with LV ejection fraction (EF) of 40–49%, alongside modified definitions for reduced EF (HF*r*EF, EF <40%) and preserved EF (HF*p*EF, EF ≥50%). Although this differentiation may seem semantic, it is hoped that, by making it an entity in its own right, research and treatment will be developed for this important group (HFmrEF) in whom orthodox treatments for HFrEF have been ineffective.

'TIME TO THERAPY' APPROACH FOR ACUTE HEART FAILURE

In line with management of acute coronary syndromes, a new treatment algorithm recommends assessment and initiation of treatment within 60–120 minutes for acute HF. In general practice, this means that signs of acute fluid overload or hypoperfusion should be referred urgently to secondary care.

DIAGNOSIS IN THE NON-ACUTE SETTING

New diagnostic algorithms for HF in the non-acute setting rely on history and examination findings, followed by measurement of plasma brain natriuretic peptide (BNP) or its N-terminal prohormone, NT-proBNP, which are released in response to myocardial stretch and are used as biomarkers in HF; for conciseness, BNP is here used to refer to both assays. If it is normal, HF is unlikely as BNP is very sensitive, although not very specific, for HF. If elevated, management will depend on local guidelines, but will usually recommend referral for TTE and specialist assessment. If normal, onward referral to cardiology is unnecessary and other causes of the symptoms should be considered. The NICE guidelines recommend 6-week routine referral, unless BNP is very high (BNP >400 pg/ml or NT-proBNP >2000 pg/ml), in which case 2-week referral is recommended. The NICE guidelines emphasise that BNP may be uniformly lower in patients of West African family origin, thereby confounding diagnosis for these patients, in whom there is a relatively high incidence of HFpEF.

TREATMENT OF HFrEF

The mainstay of pharmacological treatment for this patient group continues to be angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) and beta-blockers, alongside diuretics (Figure 1). Mineralocorticoid-receptor antagonists should be added if symptoms remain and EF ≤35%. Next-line therapies include an angiotensin receptor neprilysin inhibitor (ARNI), sacubitril/valsartan, in place of the ACEI, which has been shown to reduce the risk of hospitalisation and death in ambulatory patients.[5]

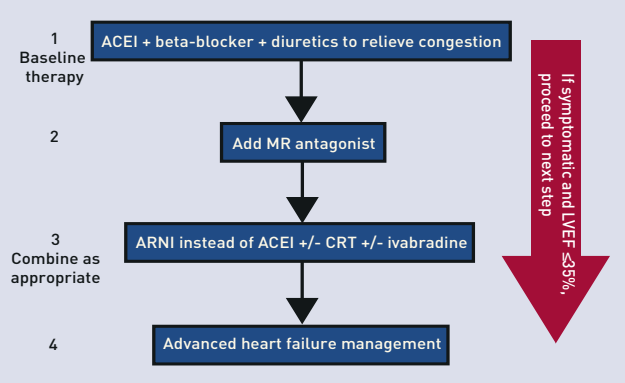

Figure 1. Therapeutic algorithm for a patient with symptomatic heart failure with reduced ejection fraction. Adapted from European Society of Cardiology guidelines.[2] ACEI = angiotensin-converting enzyme inhibitor. ARNI = angiotensin receptor neprilysin inhibitor. CRT = cardiac resynchronisation therapy. LVEF = left ventricular ejection fraction. MR = mineralocorticoid receptor.

Further adjuvant treatments include ivabradine, which can be added for rate control in patients in sinus rhythm once maximum tolerated doses of beta-blockers are prescribed. In addition, the ESC guidelines recommend intravenous iron therapy in symptomatic patients with HFrEF and iron deficiency to alleviate symptoms; however, no such recommendation has been made in the NICE guidelines. Finally, the NICE guidelines clarify the timing of monitoring in patients with chronic HF, which is at least 6-monthly for stable patients.

Routine treatment with statins, anticoagulants, or antiplatelets is not recommended in HFrEF, but they should be continued if patients are already receiving them for other indications. Calcium channel blockers are contraindicated for these patients.

MANAGEMENT OF HFpEF AND HFmrEF

HFpEF and HFmrEF present in a similar way to HFrEF but the underlying pathophysiology is typically different. To confirm diagnosis, in addition to EF, patients with HFmrEF and HFpEF should have elevated BNP and either relevant structural heart disease or diastolic dysfunction on TTE.

There is no significant update in the new guidelines regarding the management of HFpEF and HFmrEF. Unlike HFrEF, there is little convincing evidence regarding effective treatments. Therefore, treatment is with diuretics and optimal management of comorbidities.

CARDIAC RESYNCHRONISATION THERAPY INDICATIONS

Some patients with HF develop dyssynchronous contraction between the left and right ventricle, which is indicated by bundle branch block on ECG; CRT is a treatment that uses two ventricular leads to electronically resynchronise the ventricular contraction. In carefully selected patients with HFrEF (EF ≤35%), this can improve cardiac function and symptoms. Some patients will also require an implantable cardioverter-defibrillator (ICD) to treat life-threatening ventricular arrhythmias. Patients may therefore have either ICD alone, CRT alone (CRT-P, where the 'P' stands for pacing only), or a combination of both (CRT-D, where the 'D' stands for defibrillator).

PREVENTION OF HEART FAILURE

The new guidelines make several evidence-based recommendations regarding pharmacological approaches to prevent or delay the onset of HF. In particular:

- the management of arterial hypertension is given increased prominence, and should be treated as per the latest clinical guidelines;[6]
- statins in patients with or at high risk of coronary artery disease (CAD) are recommended both to prevent cardiovascular events, and to delay the onset of HF independent of recurrent myocardial infarction;
- ACEI therapy is recommended for all patients with CAD, regardless of HF status, and in all patients with asymptomatic LV systolic dysfunction, alongside the existing indication of HFrEF; and
- beta-blockers are recommended for all patients with HFrEF, as well as for secondary prevention in ischaemic heart disease.

Finally, empagliflozin, an oral hypoglycaemic that inhibits sodium-glucose cotransporter 2 (SGLT2), has been shown to improve outcomes (including reduction in mortality and HF hospitalisations) in patients with type 2 diabetes; however, further evidence from other SGLT2 inhibitors is required before formal guideline recommendations are likely.

MULTIDISCIPLINARY TEAM WORKING

The NICE guidelines, in particular, give clearer detailed advice on multidisciplinary working, with a focus on shared decision making, care planning, cardiac rehabilitation, lifestyle advice, comorbidities, and end-of-life care.

CONCLUSION

The comprehensive updated HF guidelines apply to a large cohort of patients and are therefore highly relevant to GPs across the UK. Despite some differences between the ESC/AHA and NICE guidance, the latter should take precedence in the UK. HF is a treatable disease and application of the growing evidence base will ensure the best possible outcomes for patients.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests.

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