Introduction to Heart Failure

1.1. What is Heart Failure?

Heart Failure (HF) occurs when there is a reduction in heart function (either emptying or filling, or a combination of both) causing a rise in filling pressures in the heart. This eventually leads to the clinical features of congestion; symptoms such as breathlessness and signs such as ankle swelling. HF is common affecting approximately 900,000 people in the United Kingdom. Historically it causes or complicates about 5% of all emergency hospital admissions in adults and consumes up to 2% of total National Health Service (NHS) expenditure (1). It is the final common pathway of most serious forms of cardiovascular disease. In the UK it is most commonly attributable to myocardial (heart muscle) dysfunction.

In the UK, the most common type of HF is due to left ventricular systolic dysfunction, where there is impaired contraction of the left ventricle, which is called HF with reduced Ejection Fraction (HFrEF). HF can also be attributed to impaired filling of the left ventricle when the heart muscle is thickened, often as a result of long-standing high blood pressure, which is called HF with preserved ejection fraction (HFpEF). More recently, a third phenotype has been described HF with mildly reduced ejection fraction (HFmrEF). Patient with HFmrEF closely resemble those with HFrEF and its treatment is broadly similar to that of HFrEF. HF is often described as Chronic Heart Failure (CHF) when patients have relatively stable symptoms of breathlessness, fatigue and ankle swelling, and Acute Heart Failure (AHF), when the symptoms become severe, and the patient usually requires admission to hospital. However, in many cases deterioration occurs gradually over several weeks before hospital admission and might be prevented if detected and managed earlier. The typical course of CHF is punctuated by periods of acute or sub-acute decompensation into AHF, although good management and monitoring can either minimise, or prevent these episodes.

HF is too often associated with reductions in quality of life and high levels of debility, morbidity, and mortality. This imposes a heavy burden, not only on patients, but also those who care for them. Repeated hospitalisations are a measure of the adverse effects of HF on quality of life, the failure to control symptoms and disease progression, the high levels of co-morbidity and ultimately of an adverse prognosis; they also make a large contribution to the huge fiscal cost of HF to the NHS. Survival rates for HF patients are variable, dependent on the age and severity of disease of the patient, and the quality of care they receive.

Outcomes are consistently poor for patients who receive suboptimal care but input from the HF specialists and prescription of evidence-based HF therapies have a substantial prognostic benefit and impact on quality of life and readmissions.

The National Heart Failure Audit (NHFA) deals with a specific and crucial phase in the patient journey. It reports on the characteristics of patients admitted to hospital with acute or sub-acute HF, as an emergency, describes their in-hospital investigation and care, the treatment given, the discharge planning and the follow up offered.

The audit is now well established, reporting key metrics on over 70% of admissions with a primary diagnosis of HF and trends on key performance indicator (KPIs) and outcomes compared to previous years.

1.2. Management of patients with Heart Failure

The treatment of HF is determined by the mode of presentation, that is acute or chronic, and the underlying type of cardiac dysfunction (HFrEF or HFpEF).

There has been little progress in the treatments available for AHF over the last forty years. Oxygen (for hypoxia) and intravenous diuretics rapidly relieve (usually within 30-90 minutes) symptoms of pulmonary congestion (breathlessness). Diuretics are also the mainstay of treatment for peripheral congestion although this may require several days of intensive treatment before it is controlled. Once patients are euvolemic, after intravenous therapy, they are converted to oral diuretics to ensure that they remain free from symptoms and signs of congestion (breathlessness and peripheral oedema).

For those who have HFrEF as the underlying cause of their HF, key disease modifying medicines need to be given. These are ACE inhibitors (ACEI) and, beta-blockers (BB) and mineralocorticoid receptor antagonists (MRA). More recently, the Angiotensin-Neprilysin inhibitor (ARNI) sacubitril valsartan has emerged as a replacement for ACEI or ARB in certain patients with CHF Data from numerous clinical trials in HF show that ACEI, BB and MRA, improve or reduce recurrent worsening of symptoms and reduce hospitalisations for HF and mortality. Previous audit reports show that patients discharged on all three of an ACEI, a BB and an MRA have better survival rates from discharge out to 6 years of follow up compared to those discharged on fewer or none. The prescription of these medicines for HFrEF is a KPI in this audit. Another group of drugs the Sodium-Glucose co-transporter 2 (SGLT2) inhibitors, has emerged and these can confer benefit in HFrEF and in HFpEF, when added to the other drugs in persistently symptomatic patients.

1.3. Guidelines and Quality Standards

The NHFA dataset is continuously evolving to ensure it remains an appropriate rapporteur of current evidence-based guideline recommended HF care, and wherever possible reflects current Quality Standards. The current report reflects practice for the financial year April 2022-March 2023 and therefore should be assessed in the context of the NICE Guideline for AHF in 2014 (Nice Clinical guideline [CG187] 2014. Acute Heart Failure: diagnosis and management)and the related Acute Quality Standards in 2015, (3) and the 2021 European Society of Cardiology (ESC) Heart Failure Guideline and its Focussed Update. (4) The most recent NICE CHF guideline, (5) published in September 2018 addresses relevant transfer of care and so will also have some impact on the results of this audit. The 2023 related QS will not have influenced this cycle.

The reported audit cycle, 2022-23, reflects the introduction of a revised HF dataset (V5). This facilitates data collection on the emergency HF admissions, allows the prescribing of ARNI and SGLT2 inhibitors , and pharmacists as members of the HF team, to be identified. In this report most hospitals have adopted the revised dataset. This will improve further with time.

The guidelines are based on evidence from many randomised controlled trials that enrolled many thousands of patients. The NICE guidelines also include economic modelling of the cost-effectiveness of implementing the findings of these trials (6) (7) in the UK. The Acute HF guidance of 2014, and so related Quality Standards, used data from the National Heart Failure Audit to inform this modelling, and both remain highly pertinent to current UK practice. Thus, a virtuous cycle is established whereby audit data from routine practice is used to identify deficiencies in care that can be improved by implementing guidelines and quality standards leading to improved care and outcomes. However, patients will only derive benefit if the information is acted upon, as outlined in the report.

The audit data are used to determine where the Best Practice Tariff (BPT) for HF has been achieved. Hospitals are expected to include ≥70% of their HF emergency admissions in the first diagnostic position and, of these, 60% should have been seen by a specialist on the admission.

References

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6. Techology Appraisal Guidance; NICE 388. [Online] https://www.nice.org.uk/guidance/ta388.
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