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Review Article

Role of Primary Care in Management of Heart Failure Preserved Ejection Fraction (HFpEF): A Literature Review

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Abstract

Heart failure with preserved ejection fraction (HFpEF) is a non-communicable disease with the prevalence increasing globally. HFpEF has signs and symptoms of typical heart failure, with EF >50%, and structural heart disease or raised BNP. Primary care has an important role to prevent the progression of HFpEF. In this study, we review the importance of primary care in HFpEF management and the gaps with the newest ESC guideline in real practice. The challenges in the diagnosis of HFpEF result in treatment delayed or disease progression. Since there is a new drug has been added to the newest guideline, prior guideline adherence in primary care is suboptimal. Communication is the key to bridging the physician and expert. More epidemiological study of HFpEF in the specific region would be a starting point in an effort for adapting standardized guidelines and this requires a health system with appropriate resources and incentives.

Keywords: HFpEF, primary care, disease prevention, guideline, communication.

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Introduction

Most non-communicable disease (NCDs) deaths are preventable. The greatest reductions in NCDs are expected to result from a comprehensive, population-wide approach to addressing risk factors. The roles of primary care in NCDs seem to be in the area of secondary prevention via management of risk factors, coordination of care and medications, and continuing progress from specialists and hospital providers.[1] The Incidence of Heart failure (HF) is increasing globally. Heart failure (HF) with preserved ejection fraction (HFpEF) is a global public health crisis, responsible for a high burden of mortality and morbidity. The high burden of cardiovascular risk factors particularly in Asia are warning signs of an impending epidemic of HFpEF.[2,3] From the Asian-HF study, the prospective multinational data from Asia show that HFpEF affects relatively young patients with a high burden of co-morbidities. Regional differences in types of co-morbidities and outcomes across Asia have important implications for public health measures.[3] The costs associated with heart failure in many high-income countries (HICs) such US, UK, Netherlands, and Sweden typically consume 1%–2% of healthcare resources. The healthcare costs are for repeated admissions to hospitals, prolonged inpatient stays, and the use of medication.[4] There is evidence that health systems with a strong primary care orientation achieve better health outcomes, especially focusing on chronic disease.1 Better continuity of care from primary care is expected to improve patient outcomes and reduce health care costs.[5] This article will review the importance of multisectoral approaches and better integration of care across the treatment spectrum of HFpEF between primary care and expert.

Discussion

Patients with chronic illnesses, frequently experience a health care system that is poorly coordinated. Most of them randomly visit multiple venues without coordinating levels from primary, secondary, and tertiary healthcare services. Communication among these providers is often suboptimal, and poor coordination has been shown to be widespread, with adverse effects on health care costs, patient compliances and outcomes, and experiences with care.[5] As HFpEF becomes the dominant form of HF, Multimorbidity is common in types of HF, whether heart failure with reduced ejection fraction (HfrEF), mild reduced ejection fraction (HfmrEF), or preserved ejection fraction (HfpEF), but slightly more severe in HFpEF, in which approximately 50% of patients have five or more major comorbidities.[6-8] Common HFpEF comorbidities

that also may influence the pathophysiology of the syndrome include atrial fibrillation, diabetes mellitus, chronic kidney disease (CKD), and obesity.[8] Since HFpEF is a multimorbidity complex disease and needs multisectoral management, HFpEF is poorly recognized and managed in the community. It is important to develop effective primary care-based programs of prevention, identification, management, and care continuity.[9]

Heart Failure with Preserved Ejection Fraction

The definition of HFpEF is the patient comes with symptoms and signs of heart failure, with ejection fraction >50%, with objective evidence of cardiac structural and/or functional abnormalities, consistent with the presence of LV diastolic dysfunction/raised LV filling pressures on echocardiogram, including raised natriuretic peptides (BNP).[3,10,11] In the early stages of HFpEF, the patient will manifest symptoms of heart failure such as effort intolerance, dyspnea, and fatigue only on activity or exertion, but do not have clinical signs at rest. In this stage of the disease, impairment in myocardial and chamber-level function are present at rest and becomes more dramatic during exercise when Left ventricular filling pressures (LVFPs) become markedly elevated. In advanced stages of HFpEF, LVFPs do elevate at rest. This limits the ability of the heart to augment stroke volume, which impairs the cardiac output response to exercise. High LVFP during exercise in HFpEF is correlated with heightened inspiratory drive, symptoms of dyspnea, alterations in gas exchange and pulmonary ventilation, and reductions in aerobic capacity.[8,12] The diagnosis of HFpEF is challenging particularly at the early stage of the disease where symptoms are nonspecific and can be caused by numerous non-cardiac conditions.[11] HFpEF is less well understood than HFrEF, with greater diagnostic difficulty and management uncertainty.[9] This is where to start using other diagnostic tools for the patient with the high-risk factor such as echocardiography, exercise stress testing, and coronary angiography. To confirm the diagnosis of HFpEF or exclude other diagnoses too.[12]

Patients suffering from HFpEF have very few treatment options that have proven to be effective. The European Society of Cardiology (ESC) recently added Sodium-glucose co-transporter 2-inhibitor (SGLT2-i) to their guidelines for the treatment of heart failure (HF) accompanying another therapy.[13] The prognosis and survival of people with HFpEF are poor, nearly 40% of HFpEF patients die within 5 years following discharge from the hospital.11 Study from Hussey *et al.* showed between 3.5% of patients with diabetes mellitus (DM) and 10.5% of patients with CHF had at least 1 hospitalization during the episode of care. Emergency department visitation is between 26.6%-44.6%.[5] There is an urgent need for an applicable guideline from primary care perspective for secondary prevention and management of HFpEF.

Role of Primary Care in HFpEF Treatment

Primary care has contributions to chronic disease prevention and control.[1,20] That includes management services through better communication, health service networks to facilitate access to diagnostic and specialist care, coordination of medications, and tracking the outcomes. These ideal features require a health system with appropriate resources and incentives.[1] Primary care has the role of preventing re-hospitalization of chronic disease by secondary, or tertiary prevention, this includes managing existing risk factors, encouraging adherence to medical therapy, facilitating rehabilitation, and preventing of future complications.[1] Study from Reyes *et al.* showed rates of readmission ranged between 3% and 15% at 30 days. From Asian-HF study, HF patients in Indonesia spent between 5 days in hospital stays on average and 12.5 days in Taiwan.[14] In the majority of conditions, primary care has a role in early screening and diagnosis, referral, appropriate control, and follow-up.[1] HF is a highly prevalent, progressive condition associated with substantial morbidity and mortality. The practice of HF guidelines provides a contemporary, evidence-based approach to its diagnosis and management.[12] The uncertain role of primary care in the guideline of HFpEF, and the limitation of the facility make this patient group remains under-diagnosed in primary care, causing the management to lack evidence-base for specific pharmacological therapy.[11]

In an effort to treat asymptomatic LV dysfunction in HFpEF, recent ESC (European society cardiology) guidelines 2021 added new first-line therapy SGLT2-i besides other prior treatments.[12,22] SGLT2-i were very recently added to the ESC guidelines as the newest HF treatment. EMPEROR-preserved study, a double-blind and placebo-controlled trial of Empagliflozin, an SGLT2-i, in patients with HFpEF led to a 21% lower relative risk of cardiovascular death or hospitalization for heart failure, which was related to 29% lower risk of heart failure hospitalization.[15] In the primary endpoint, the patient's baseline EF did not influence the effect of Empaglifazon, compared with placebo.10,15,16 The meta-analysis study from Butler *et all* showed that all patients with HF, regardless of DM status, may benefit from SGLT2-i.[16] On the other side, the other agents such as diuretic agents, angiotensin-converting enzyme inhibitors (ACE-I), angiotensin receptor blockers (ARBs), beta-blockers, and sacubitril/valsartan have been unable to provide indisputable proof for their effectiveness in patients with an EF of 50% or more. On the other way, these groups of drugs are only shown effective for reduced hospitalization.[12,15,17]

Based on a Meta-analysis study by Callender *et al.,* in the low-middle income countries, the most commonly prescribed HF treatments are loop and/or thiazide diuretics prescribed for 69%, ACEIs are used in 57% of cases, beta-blockers in 34%, and mineralocorticoid receptor antagonists in 32%. Variability adherence to guidelines is different amongst regions but remains suboptimal on average. There is a gap between clinical trials that are considered in guidelines and direct practice in the real world.[4] Most countries particularly high-income countries have national guidelines for HF largely based on international guidelines. Hopefully, the national guideline will be more adaptive for the physician in direct practice. There is a space for a physician to improve adherence to clinical practice guidelines, as shown before by the low rate of beta-blocker use in some countries e.g. Indonesia and the Philippines.[14]

HFpEF-Progression Preventing Program in Primary Care

A study from Hossain *et a.l* showed most people with HFpEF are managed in primary care in the UK, with guideline recommendations for the management of comorbid conditions and fluid overload. The 2018 NICE Guideline on Chronic Heart Failure recommends that patients with HF are managed in primary care once they are stabilized by the specialist team.[11] Surveys of the specialist in HF practices note that 60–80% report seeing patients with HFpEF and only 53% of community services follow patients with HFpEF.[11] Instead, there are consistent association between higher levels of care continuity with lower rates of hospital visits and emergency department visits, lower complication rates, and lower costs in chronic diseases such as heart failure.[5]

Progressivity of HF may be delayed or prevented by interventions aimed at modifying risk factors or treating

asymptomatic LV dysfunction. Trial), the SPRINT (Systolic Blood Pressure Intervention Trial) revealed a further reduction in incident HF associated with targeting a systolic ESC and ACC guidelines mention modifying risk factors such as exercise training for improving exercise capacity and diastolic function, also for specific cardiovascular comorbidities such as hypertension has been shown to reduce the risk of HF approximately by 50%.[8,12] The Framingham Heart Study established hypertension as one of the earliest factors of risk for coronary heart disease and subsequently also for incident HF. Several studies e.g The SHEP trial (Systolic Hypertension in the Elderly), the HYVET (Hypertension in the Very Elderly BP.[8,21]

Recently, ESC added new first-line therapy to the guideline, SGLT2-I for HF within the prior treatment option. There is an incoherent expectation of primary care practice to consider and manage HFpEF in primary care services.[18] While ESC guidelines asserting no treatment has been shown to convincingly reduce mortality and morbidity in patients with HFpEF, ESC guidelines only recommended screening for patients with high-risk factors, and giving loop diuretics for symptomatic overload patients.[15] There is still ambiguity for the physician on how to screen, diagnose, and treat HfpEF patient in the early stages while the symptoms only occur in exertion.

Prescription of evidence-based therapies recommended by international guidelines is the most effective way of ensuring that patients receive optimal care. Although physicians are encouraged to implement such guidelines in practice, it has been repeatedly observed that a proportion of HF patients do not receive evidence-based treatments. A study from Komajda *et al.* showed that good adherence to pharmacologic treatment guidelines was associated with better clinical outcomes during 6-month follow-up.[6] The challenges in HFpEF are rates of hospitalization still high, mortality, poor functioning, and low quality of life. This means community health services to follow up with HfpEF patients are still suboptimal. General practice has a key role in all parts of the HF patient pathway, from initiating diagnosis to long-term management, including prevention. In HFpEF, the need to establish the guideline is ever more pressing.[9] As Koudstaal et al. recently suggested, HF patients predominantly managed within the primary care setting have a very poor prognosis. Showing that primary care HFpEF management is still ineffective.[18]

Bridging Management Between Primary Care and Expert

HFpEF is poorly recognized and managed in the community. As HFpEF is set to become the dominant form of heart failure (HF), it is vital that effective primary care-based programs of identification and management are developed.[10] A study from Stewart *et al.* concludes a disconnection between the characteristics of HFpEF patients recruited into clinical trials and those managed in the real world, which means the contribution and consideration of primary care in current guidelines is suboptimal.[18] Hopefully, the greater integration between primary, secondary, or tertiary care could improve management for people with HFpEF.[10] A study from Hossain *et al* confirms that effective and efficient communication between primary and specialist teams impacts service delivery and affects patient satisfaction. Communication is the key to establishing clear referral pathways to support the management of people with HFpEF.[11]

It is evidence to support the development of pathways based on standardized guidelines between primary care and expert teams when managing people with HFpEF that can be delivered in primary care.[11] Physicians with access to expertise may refer to the full diagnostic approach following the guideline.[10] A gap between primary care and expert could be bridged by pathways that are supported by current guidelines which in theory should be easier to apply in primary care handling HFpEF patients. As typically occurs in primary care, this strategy is not so easily applied when a physician is faced with an atypical patient.[18] As HFpEF patient commonly comes with multiple morbidities, there is a clear need to simplify the pathways to target potentially treatable patient. With close consideration of the funding mechanisms and cost implications within different healthcare systems. For example, if a patient needs screening for BNP or echocardiography as an initial investigation, the insurance coverage will be granted for reimbursement. In particular, people in lower socioeconomic groups and older patients who are more susceptible to HF often cannot afford expensive investigations and multiple new medications, even if these are clinically superior.[18]

Multidisciplinary teams and close collaboration between primary care workers and specialists are needed.(19) With the upgrading process in collaboration, the main question does high-risk individuals can be identified and managed appropriately as gold-standard therapy, while between pathways from primary to expert, there are so many gaps from a patient perspective such as knowledge gaps, region gaps, and economic gaps.[18] With changes in health system delivery, hopefully, it will have an effect on continuity care, good quality of life, better survival rate, and, in turn, reduce costs of care.[5]

Conclusion

The incidence of HF particularly in HFpEF is raising because of uncontrolled multiple risk factors, compliance therapy, and the novelty of therapy prolonging life expectancy in heart failure patients. This will cause further increases in hospitalization rates and, consequently, in health care costs. Currently, the newest HFpEF international guideline comes from high-income countries where the typical patient and trend of managing patients is having a big difference from the low-middle income countries. Hence, the primary care physician has to catch up with the new guideline, whereas currently treatment based on prior guidelines is suboptimal. The epidemiological data on HFpEF patients in low-middle income countries is limited. Further epidemiological studies are required to better characterize the HF population. The purpose of this process is to complete the HFpEF patient data that visit primary care, determine the type of primary care that could handle the continuity program of HFpEF, arrange referral pathways between primary care and the expert team, and arrange regional/local guidelines that apply for the physician in the primary care. Hence, funding research focusing on primary care is urgently required. There is a clear need for a specific interpretation of recommendations and direct clinical algorithms that are relevant to primary care. There is also potential to develop better communication and levels of trust between physicians and experts.

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