

Heart Failure

Pathophysiology, Diagnosis, Medical Treatment Guidelines, and Nursing Management



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KEYWORDS

- Heart failure • Nursing management of heart failure • Heart failure nursing
- Heart failure pathophysiology • Heart failure therapy

KEY POINTS

- Heart failure (HF) is a chronic, debilitating disease that impairs the ability of the heart to respond to increase demands for cardiac output.
- The incidence and prevalence of HF increase sharply with age and the most common cause of HF is coronary artery disease.
- The American College of Cardiology Foundation/American Heart Association and the New York Heart Association functional classification systems are the most commonly used HF classification systems.
- The main aims of HF medical treatment include alleviating or controlling symptoms and enhancing quality of life.

INTRODUCTION

Heart failure (HF) is a chronic, progressive disease affecting 5.7 million Americans and contributes to nearly 300,000 deaths each year.¹ HF is the leading cause of hospital admissions for individuals older than 65 years and contributes to the rising health care costs in the United States.^{2,3} The incidence and prevalence are rising as we face major demographic changes in the United States as our population ages. Today many people who have suffered tissue damage from myocardial infarction (MI) survive only to develop HF.⁴ Patients with HF usually require numerous hospitalizations. The most common causes of hospitalization in patients with HF are noncompliance with medication, diet, and activity routines, and failure to report worsening symptoms.³ Because of the aging population and the convenience of effective treatments to

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prolong survival in patients with acute coronary syndromes, the incidence of HF is growing and the number of patients at risk of developing this condition is projected to rise dramatically.⁴ Nurses in all settings play a pivotal role in managing and educating patients with HF.

Chronic HF develops because of left ventricular (LV) systolic and/or diastolic dysfunction. HF is the only cardiovascular disease with increasing incidence and prevalence, and it has been projected that the occurrence of HF may soon reach epidemic percentages nationally.⁵ With HF, the heart muscle becomes enlarged as it attempts to compensate for inefficiency.² Some of the general causes of HF include long-term hypertension, coronary artery disease (CAD), poor lifestyle choices, inactivity, obesity, valve disorders, arrhythmias, and some metabolic disorders.^{6,7}

HF is a clinical syndrome characterized by a constellation of signs and symptoms.⁸ Although medical treatment is aimed at reversing neurohormone and other pathologic responses to decreased cardiac output, the major focus of treatment is HF symptom reduction. With most patients with HF, medical treatment is only partially effective in relieving symptoms.⁸ HF is diagnosed by the presenting symptoms and through diagnostic testing.⁶ There is a strong need for complementary and nonpharmacological interventions that could be included in palliative care programs to decrease symptoms in patients with HF. The purpose of this article is to provide the nurse with a greater understanding of the pathophysiology of HF, treatment of HF, and nursing management of HF using evidence-based guidelines.

INCIDENCE AND PREVALENCE

HF is largely a disease of the geriatric population and represents the leading hospital diagnosis in older adults. Both the incidence and the prevalence of HF increase sharply with increasing age such that patients older than 75 face a much larger risk of developing this condition. It is the only cardiovascular disease that is increasing in incidence and prevalence.⁹ As age is an important risk factor for HF, the burden of this disease on health care systems in Western societies increases as these populations age. In individuals aged 55 years, 30% will develop HF during their remaining life span; that is, almost 1 of 3 individuals. HF continues to be a fatal disease, despite advances in treatment, with only 35% surviving 5 years after the first diagnosis. Prevention of the development of HF in high-risk patients is therefore essential.⁹

It has been estimated that there are currently 5.7 million people in the United States with HF, and these numbers are increasing because of the aging of the global population and the ability of increasing numbers of individuals to survive to an age when HF is likely to become a problem.^{2,9} Furthermore, the availability of improved medical technologies has supported more effective treatment of acute coronary syndromes and has conferred better survival rates in patients after myocardial infarction (MI), which is the most powerful predictor of LV systolic dysfunction and risk of HF. As a result, the absolute number of individuals living with compromised cardiac function and clinical HF is expected to rise dramatically over the next few decades.⁴

HF affects more men than women, and its prevalence greatly increases with advancing age.¹⁰ Studies estimate the overall prevalence of HF in the population to be approximately 2% to 3%. From self-reported data obtained by the National Health and Nutrition Examination Survey, the prevalence in the United States was 2.6% in 2006. Studies with validated diagnoses of HF include cohort studies, such as the Rochester Epidemiologic Project in Olmsted County, MN, where the prevalence of HF was found to be 2.2%. Here, prevalence increased with age, reaching 8.4% in those aged 75 years or older compared with 0.7% in those 45 to 54 years of age.

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