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Nursing research in heart failure care: a position statement of the american association of heart failure nurses (AAHFN)

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ABSTRACT

Background: Heart Failure (HF) is a public health problem globally affecting approximately 6 million in the United States.
Objectives: A tailored position statement was developed by the American Association of Heart Failure Nurses (AAHFN) and their Research Consortium to assist researchers, funding institutions and policymakers with improving HF clinical advancements and outcomes.
Methods: A comprehensive review was conducted using multiple search terms in various combinations to describe gaps in HF nursing science. Based on gaps described in the literature, the AAHFN made recommendations for future areas of research in HF.
Results: Nursing has made positive contributions through disease management interventions, however, quality, rigorous research is needed to improve the lives of patients and families while advancing nursing science.
Conclusions: Advancing HF science is critical to managing and improving patient outcomes while promoting the nursing profession. Based on this review, the AAHFN is putting forth a call to action for research designs that promote validity, sustainability, and funding of future nursing research.

Introduction

Nursing research is driven by a vision toward optimizing the health and wellbeing of individuals, families and the community. When considering heart failure (HF), nurse scientists bring a unique perspective of the human condition that contributes greatly to the areas of wellness, disease prevention and management. Nurse scientists use interdisciplinary, bio-behavioral and translational approaches to promote health, advance quality healthcare delivery and optimize health outcomes in HF. With aging of the population and increasing prevalence of HF, it is more important now than at any other time in history for nursing research in HF to be robust and focused on areas of inquiry that promote the best patient outcomes. The American Association of Heart Failure Nurses (AAHFN) and the AAHFN Research Consortium recognizes the need for a tailored position statement to assist researchers, funding institutions and policymakers to contribute to our knowledge base in HF, and to move HF clinical advancements and outcomes forward. The AAHFN Research Consortium comprises of nurse scientists from around the world who came together to write this position statement that support the mission, values and directive goals of the AAHFN directors and organization. The aims of this statement are to: 1) describe epidemiological changes in HF over time and the societal impact of HF today; 2) describe global advancements and outcomes in HF nursing research and effects on clinical care; 3) discuss the direction of HF nursing research, the incorporation of precision care and potential new developments and gaps; and 4) put forth a call for action with recommendations for types of research designs that

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should be used to promote validity, sustainability and funding of future HF nursing research.

Epidemiology and impact of heart failure

The clinical syndrome of HF is a common and severe result of several other cardiovascular and extra-cardiovascular diseases. HF is a progressive syndrome that typically develops over the course of many years and is associated with impaired physical functioning and quality of life as well as high symptom burden.[1] The worldwide prevalence of HF is rising,[1–3] and despite improvements in available therapies, HF affects millions of people and continues to be associated with frequent healthcare utilization and premature mortality. In secular trends in HF epidemiology, patients are more likely to have multi-morbidity (i.e. co-occurrence of 2 or more chronic conditions), such as diabetes, kidney disease, obesity, and are increasingly more likely to have a cause of death from non-cardiovascular causes.[4]

Incidence and prevalence

Globally and in the United States (U.S.), HF incidence rates can vary depending on the study population and diagnostic criteria used to estimate parameters.[5] Over the last decade, however, similar trends were found in HF incidence and prevalence rates between the U.S. and Europe.[6] For example, a large cross-sectional study of more than 2 million people living in the greater Stockholm region of Sweden in 2010 found the adjusted incidence of HF was 3.7 per 1000 person years among men and women,[7] which represented about a relative 24% decrease from 2006.[7] Using data from private and Medicare Advantage health plans (>100 million persons) in the U.S., the incidence of HF was 2.1 per 1000 person years between 2006 and 2014.[8] In the Olmsted County Minnesota cohort, age- and sex-adjusted incidence of HF was 2.19 per 1000 in 2010,[2] representing a decline in the incidence of HF with reduced ejection fraction (HFrEF) (–45.1%; 95% CI, –33.0% to –55.0%) and HF with preserved ejection fraction (HFpEF) (–27.9%; 95% CI, –12.9% to –40.3%) compared with data from 2000. Slower HFpEF decline may be attributed to the high rates of uncontrolled hypertension, diabetes and obesity that are predominant risk factors for HFpEF.[2]

In contrast to declining HF incidence, prevalence of HF is rising. Based on data from the U.S. National Health and Nutrition Examination Survey (NHANES) between 2009–2012, approximately 6.5 million individuals are living with HF.[9] This represents an 11% increase from a similar report in 2013.[10] Because the risk of HF rises with age and there is an increase in the aging population, patients with HF are living longer,[1–3] likewise it is anticipated that most European nations will experience a similar rise in HF prevalence.[6] In 2012 and based upon the NHANES database, HF prevalence in individuals greater than 20 years of age was 3.2% for Black women, 2.8% for Black men, 2.2% for both White men and women and 2.1% for Hispanic men and women.[9] In studies that included Asian Americans, authors reported low HF incidence, HF related hospitalization and mortality rates compared to Black, White and Hispanics.[8] The NHANES data demonstrates that sex differences appear to be reversing and compared to men, more women (≥20 years) are living with HF, are hospitalized for HF and have greater mortality rates.[9] In other databases, higher hospitalization rates for women with HF living in the community compared to men were reported.[8] Finally, changing trends in HF incidence and prevalence apply to HF patients with HFrEF and those with HFpEF, however data regarding secular trends in incidence and prevalence of HFpEF were less widespread. It is important to note that clinical characteristics are different between these groups, with HFpEF more often being older, female, having comorbidities such as hypertension, diabetes, obesity and atrial fibrillation, all the latter impacting rates of mortality and hospitalization.[11]

Etiology and risk factors

Although hypertension and coronary artery disease remain leading causes of HF, diabetes mellitus and obesity are now common elements of HF etiology.[5] The occurrence and contributions of different etiologies to the development of HF can vary across populations and racial/ethnic groups. Importantly though, the contemporary patient with HF will have multiple risk factors and the burdens of these increases over time.[5] In addition, the contemporary patient with HF will have multi-morbidity: the number of patients with 5 or more chronic conditions increased from 42.1% in 1988–94 to 58.0% in 2003–2008.[5]

In summary, the incidence of HF is declining but prevalence is increasing because of the aging population worldwide, with predictions that in the U.S. by 2030 there will be nearly 8 million adults with HF.[9] A few important changes in the epidemiology of HF include multi-morbidity, increased hospitalization rates due to non-cardiovascular causes and increased use of long-term care facilities. Disparities continue to prevail based on race with Black individuals experiencing an increased risk for HF, increased rate of hospitalizations and more chronic conditions such as kidney disease. Although some changes in epidemiology were positive, there are still areas where further exploration is necessary.

Nursing research contribution in advancing HF care

Nurse scientists have made strong contributions to improving the care of patients with HF. Advancements most prominently have been in areas of organization of care (e.g., disease management, person-centered care), understanding mechanisms and related factors to facilitate the participation of patients in their care (self-care), and nursing interventions to improve outcomes in patients with HF.

Organization of care

In a series of randomized trials worldwide, effectiveness of HF disease management approaches were demonstrated, such as, home-based interventions and multidisciplinary clinics.[12] In a Cochrane collaboration, several models were effective: (1) case management intervention (intense monitoring of patients following discharge often involving telephone follow up and home visits); (2) clinic interventions (follow up in a HF clinic) and (3) multidisciplinary interventions (holistic approach bridging the gap between hospital admission and discharge home delivered by a team).[13] Among patients with HF who were previously hospitalized, case management interventions led by HF nurses reduced readmissions and length of stay.[14]

A variety of HF management models have been evaluated. A single model that would universally fit all health care systems and patient populations is unrealistic. Further, in recent large scaled studies, some HF models were unsuccessful at improving outcomes; authors suggested a need for a unique approach to HF management.[15,16] In a recent meta-analysis, comparative effectiveness of transitional care services after hospital discharge for HF were described. Nurse home visits and HF clinics decreased all-cause mortality. Along with nurse case management, the three program types also reduced all-cause readmissions, with no significant difference in comparative effectiveness.[12] The three programs use a person-centered approach; and this approach was found to advance concordance between care providers and patients on treatment plans, and to improve health outcomes and patient satisfaction.[17]

Transitional care programs vary widely. Programs typically begin prior to hospital discharge and include the nurses' role in HF