Consensus Statement

Heart Failure in Non-Caucasians, Women, and Older Adults: A White Paper on Special Populations From the Heart Failure Society of America Guideline Committee

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ABSTRACT

The presentation, natural history, clinical outcomes, and response to therapy in patients with heart failure differ in some ways across populations. Women, older adults, and non-Caucasian racial or ethnic groups compose a substantial proportion of the overall heart failure population, but they have typically been underrepresented in clinical trials. As a result, uncertainty exists about the efficacy of some guideline-directed medical therapies and devices in specific populations, which may result in the under- or overtreatment of these patients. Even when guideline-based treatments are prescribed, socioeconomic, physical, or psychologic factors may affect non-Caucasian and older adult patient groups to a different extent and affect the application, effectiveness, and tolerability of these therapies. Individualized therapy based on tailored biology (genetics, proteomics, metabolomics), socioeconomic and cultural considerations, and individual goals and preferences may be the optimal approach for managing diverse patients. This comprehensive approach to personalized medicine is evolving, but in the interim, the scientific community should continue efforts focused on intensifying research in special populations, prescribing guideline-directed medical therapy unless contraindicated, and implementing evidence-based strategies including patient and family education and multidisciplinary team care in the management of patients. (*J Cardiac Fail 2015;21:674−693*)
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Heart failure (HF), as a clinical syndrome, is the culmination of pathophysiologic changes precipitated by different disease processes. The clinical presentation, natural history, and response to therapy differ to some extent across populations. Although non-Caucasian ethnic groups, women, and older adults (herein stated as special populations) account for a substantial proportion of the HF population, the number of special population patients enrolled in clinical trials and registries is small.[1–4] Thus, it is uncertain if the results of these trials can be accurately applied to patients in these special populations. Treatment uncertainty may contribute to underuse of guideline-directed medical therapy in these groups.[5,6] Furthermore, in the absence of data, it is not possible to assess whether some treatments assumed to be broadly effective might be ineffective or deleterious in subgroups. This paper highlights the challenges of HF management in special populations and provides recommendations for advancing patient care (Table 1).

Epidemiology, Risk Factors, and Characteristics of Heart Failure

Overview

Approximately 5.7 million Americans over the age of 20 years have HF,[7] a figure expected to rise to >8 million by 2030.[8] An estimated 23 million people have HF worldwide. Annually, 870,000 new HF cases are diagnosed in the United States (US).[7] Data from the Framingham Heart Study indicate that 20% of men and women 40 years old will develop HF during their lifetime. The incidence of HF approaches 10 per 1,000 population after the age of 65 years.[7] Major HF risk factors include coronary artery disease (CAD), cigarette smoking, hypertension, overweight, diabetes, and valvular heart disease.

Non-Caucasian Ethnic Groups

HF disproportionately affects African Americans. In the Multi-Ethnic Study of Atherosclerosis (MESA), African Americans had the highest risk of developing HF, followed by Hispanic, Caucasian, and Chinese Americans (4.6, 3.5, 2.4, and 1.0, respectively, per 1,000 person-years).[9,10] Other reports estimate a higher prevalence of HF among African-American adults compared with Caucasians,[10,11] and indicate that HF develops at a younger age in African Americans than in Caucasians.[12,13] The incidence of pediatric dilated cardiomyopathy is also higher among African-American children than among Caucasian children.[14] HF presents at an earlier age in African Americans, and the degree of left ventricular (LV) dysfunction and apparent disease severity tends to be worse at the time of diagnosis.[4] Functional and structural cardiac changes precede the presentation of symptoms by ~10 years.[12]

Nonischemic cardiomyopathy is relatively more prevalent than ischemic cardiomyopathy in African Americans compared with Caucasians.[9,11–13] In the Washington DC Dilated Cardiomyopathy study, African-American adults had an increased risk of dilated cardiomyopathy (relative risk [RR] 2.6, 95% confidence interval [CI] 1.6–4.3) compared with Caucasians.[10,15] The relative prevalence of heart failure with preserved ejection fraction (HFpEF) compared with heart failure with reduced ejection fraction (HFrEF) varies depending on the population studied. In the Atherosclerosis Risk in Communities (ARIC) study, HFpEF composed 73% of the HF cases among middle-aged African Americans.[16]

No single proven causative theory explains the increased prevalence of HF among African Americans. Most likely, many factors contribute to the differences in prevalence and presentation of HF among African Americans, including comorbidities (eg, diabetes, obesity, uncontrolled hypertension,[12] and atrial fibrillation), health literacy, care disparity, and socioeconomic factors. Race provides limited information regarding biologic differences; however, certain trends may be identified within a population. For example, the prevalence of CAD is lower in African-American patients with HF; consequently, nonischemic cardiomyopathy is more common.[9,10,13] Hypertensive heart disease is more common in African Americans than in Caucasian patients. Possible explanations for the increased prevalence of hypertension in African Americans include increased salt sensitivity, reduced nitric oxide (NO) bioavailability, increased oxidative stress,[17] impaired vascular function, and increased large artery stiffness, factors that could result in a greater propensity for developing HF.[18–20] African Americans with hypertension have a more malignant course, with frequent target end organ damage, including LV hypertrophy (LVH), a finding that may provide a potential pathophysiologic link to the higher prevalence of HF in African Americans.[21]

Genetic polymorphisms have been identified that influence the risk of HF, and several polymorphisms may potentially explain some of the pathophysiologic differences noted in African Americans (Table 2), although genetic differences in HF in other non-Caucasian ethnic groups are not as well described. For example, the natriuretic peptide

Table 1. Outline of Topics*

- Epidemiology, Risk Factors, and Characteristics
- Heart Failure–Related Morbidity and Mortality
- Representation in Clinical Trials
- Special Issues in Management
  - Diagnosis and Management in the Older Adult
  - Access to Care in Non-Caucasian Ethnic Minorities
  - Comorbidities
  - Response to Pharmacologic Therapy
  - Response to Rhythm Device Therapy
  - Response to Mechanical Circulatory Support and Transplant
  - Response to Exercise in Women and Older Adults
  - Polypharmacy
  - Disability, Frailty, and Loss of Independence in Older Adults
  - Quality of Life
  - Patient Preferences in Older Adults
  - Peripartum Cardiomyopathy in Women
- Future Directions

*Unless otherwise indicated, all 3 special population categories are discussed in a topic category.