Heart failure in the elderly: a U.S. perspective

Michael W. Rich

Washington University School of Medicine, St. Louis, MO 63110, USA

Heart failure (HF) affects 5 million Americans, of whom three-fourths are over age 65 and half are over age 75. HF is currently the leading cause of hospitalization among older adults in the U.S., and it is the most costly medical illness by a factor of almost two. In addition, it is anticipated that the number of older people with HF will double over the next 20-25 years due to the progressive aging of the U.S. population.

Despite the fact that HF is predominantly a disorder of the elderly, most clinical trials have enrolled primarily middle-aged patients, and many major trials have excluded patients over 75-80 years of age. This is of great clinical importance, because HF in older adults differs in many important respects from HF occurring during middle age. For example, while most middle-aged patients with HF are men, the majority of elderly HF patients are women. In middle-aged patients, coronary artery disease is the most common cause of HF, whereas hypertension is the most common cause among the elderly. Indeed, in elderly women, hypertension is the primary etiology in up to 60% of HF cases. Older patients often present with atypical symptoms, such as confusion or anorexia. In addition, the physical examination and laboratory findings, including B-type natriuretic peptide, are less reliable for diagnosing HF in older compared to younger patients.

Perhaps the most important difference between older and younger HF patients is the proportion of cases that occur in the setting of preserved left ventricular (LV) ejection fraction. Among patients less than 65 years of age, HF is associated with reduced LV systolic function in about 90% of cases. In contrast, 50% or more of older HF patients have normal LV ejection fraction, and the principal pathophysiologic abnormality in these cases is impaired LV diastolic filling. This syndrome, often referred to as diastolic HF, is discussed in detail in the article by Drs. Barsuk and Cotts. Of particular note is the fact that although angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers, beta-blockers, and digoxin have all been shown to improve symptoms and reduce HF hospitalizations in patients with diastolic HF, none of these agents have been associated with improved survival.

Another important difference between HF in middle-aged compared to older patients is the marked increase in the prevalence of non-cardiac comorbid conditions among the elderly. Most older HF patients have 2 to 6 coexisting medical illnesses and about 25% of patients have more than 6 comorbid conditions. Moreover, many of these comorbidities have direct implications for managing the older HF patient. For example, arthritis, which is the single most common chronic disabling condition in the elderly, is usually treated with nonsteroidal anti-inflammatory drugs (NSAIDs). These agents increase renal sodium and water retention; antagonize the effects of diuretics, ACE inhibitors, and other anti-hypertensive medications; and may worsen renal function, especially in patients with pre-existing chronic kidney disease. Thus, from the HF perspective it is clear that NSAIDs should be avoided. Conversely, for many older patients arthritic symptoms have a greater impact on day-to-day quality of life and functional status than does HF; as a result, optimal management of these two frequently coexisting conditions often presents a clinical challenge.

What are the implications of these differences between younger and older HF patients? First, it must be recognized that the published clinical trials in HF – which largely enrolled middle-aged men with systolic HF and few noncardiac comorbidities – offer limited guidance for the management of the elderly HF patient, who is most often a woman with diastolic HF and multiple coexisting illnesses. As a result, treatment of the elderly patient is infrequently “evidence-based”, and must be individualized, employing sound clinical judgment after careful consideration of each patient’s unique clinical, psychological, and socioeconomic circumstances, in conjunction with the patient’s personal preferences regarding intensity of care (e.g., appropriateness of implanting a defibrillator or biventricular pacemaker) and quality of life issues.

A second implication arising from the above discussion is that there is a compelling need for additional research into the pathogenesis, diagnosis, and treatment of HF in older adults. In particular, as discussed by Drs. Klein and O’Connell, the prognosis of established HF in the elderly is very poor, so that strategies aimed at preventing HF in older adults are likely to have the greatest impact in
reducing the societal burden of HF, not only in the U.S., but also in China and most other countries around the world. In this regard, since the number of older people in China greatly exceeds the number in other countries, there is a tremendous opportunity for collaboration between Chinese and U.S. investigators, as well as researchers in other countries, in an effort to stem the tide of the rapidly emerging HF epidemic.

References