Geriatric Cardiology
A Fellow’s Perspective
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“Why would I need to learn geriatric cardiology?
All of my patients are old.
It’s what I practice every day.”
—Anonymous general cardiologist

Is the term geriatric cardiology redundant? Technically, geriatric cardiology refers to cardiovascular care of patients 65 years of age or older. The United States Census Bureau predicts that by the year 2050, almost 81 million Americans will fall into this demographic. The geriatric population is further broken down into elderly (between ages 75 and 84 years) and very elderly (85 years of age or older), with numbers reaching 40 million and 13 million people, respectively (1). Not surprisingly, a recent survey found that almost 60% of patients who visited cardiologists over the last year would be considered geriatric on the basis of age alone (2). The inevitable conclusion is that any fellow-in-training entering the field of general cardiology will, by default, practice a considerable amount of geriatric cardiology. But, is there reason to believe that cardiovascular management of these older adults differs from that of younger cardiovascular patients? In other words, does geriatric cardiology have more specific implications for practice and for fellows-in-training preparing to enter the general cardiology clinical arena? A clue comes from the mission statement of the geriatric cardiology member section of the American College of Cardiology (ACC), which states that the practice of geriatric cardiology should consider “all matters related to cardiovascular care-giving in relation to aging” (3).

Due, perhaps, to the hospital-based location of most training programs, cardiology fellows are trained to react quickly in urgent situations, using guideline-directed algorithms to address a wide array of cardiovascular diseases and conditions. Focused problems provoke immediate reactions: ST-elevation myocardial infarction = percutaneous coronary intervention; ventricular fibrillation = defibrillation; and massive pulmonary embolism = thrombolysis. Training in action-reaction medicine can undoubtedly save lives, and easy-to-follow algorithms provide helpful guidance, as when deciding between medical therapy and potentially complex surgical interventions. After completing general cardiology fellowship, most graduates are prepared to safely and effectively manage patients with a diversity of common cardiovascular problems.

However, elderly patients present with more than just cardiovascular diagnoses, which creates complexities that challenge this algorithmic approach to cardiovascular care. In older adults, multiple medical problems lead to polypharmacy, and varying levels of frailty, cognitive and functional impairment, and inadequate social support complicate treatment plans that would otherwise be easily instated in younger patients with fewer comorbidities. As a result, elderly adults are typically under-represented in clinical trials as compared with registry populations (4). Therefore, recommendations based on trial results are presented with the caveats and uncertainties inherent in any subgroup analysis. Consider this statement from the 2014 ACC/American Heart Association guidelines on blood cholesterol: “In select individuals [older than 75 years of age], additional factors may be considered to inform treatment decisions [for the primary prevention of atherosclerotic cardiovascular disease]” (5). Likewise, the 2007 ACC/American Heart Association Focused Guideline Update for Percutaneous Coronary Intervention states, “Complications such as bleeding and stroke mandate careful consideration of...
the benefits and risks of PCI in the elderly” (6). To interpret vague statements such as these and provide appropriate care for older patients, cardiologists must embrace the complexity of disease in this population. Recommendations require thoughtful individualization, based not just on a given cardiovascular diagnosis, but with respect to each patient’s aging experience.

To address the needs of this growing population and ensure that future cardiologists are equipped to practice cardiology “in relation to aging,” fundamental elements of geriatric medicine must be incorporated into the cardiology fellowship core curriculum. Although various geriatric-specific concepts are considered when caring for older patients, 3 educational topics are crucial: the comprehensive geriatric assessment, altered pharmacokinetics in aging, and the concept of frailty. The geriatric assessment survey, a cornerstone of the patient-centered care practiced by geriatricians, is a multidimensional tool that looks beyond aspects of disease (number of diagnoses, number of medications) to address physical and mental well-being, quality of life, social support, and long-term life expectations. By learning to evaluate patients with this tool, cardiology fellows will gain a better understanding of how seemingly small changes in mental and physical health status impact quality of life, a perspective of the utmost importance to this population.

Fellows also must understand the complexities of medication management in elderly patients. Polypharmacy, defined as the concurrent use of 5 or more medications, occurs in up to 40% of older patients (7). Absorption, bioavailability, and volume of distribution of pharmacologic agents change dramatically with age, significantly increasing the risk of drug interactions, particularly in patients with polypharmacy (7). Consider, then, the clinical practice guidelines for systolic heart failure, which recommend at least 4 medications to optimize quality of life and improve mortality; if a patient with heart failure also requires treatment for common comorbidities such as diabetes, hyperlipidemia, acid reflux, and osteoarthritis, then prescribed medication numbers may easily rise into the teens. Importantly, the risk of adverse drug effects is about 50% in patients on 4 chronic medications and approaches 100% in those taking more than 7 (8). Moreover, almost one-half of hospitalizations related to adverse drug events are attributable to cardiovascular medications (particularly diuretics, warfarin, beta-blockers, and angiotensin-converting enzyme inhibitors) (8). The challenge is to prioritize treatments, minimize dangerous interactions, and optimize quality of life, a process that is not yet addressed in current practice guidelines.

Frailty, a term that embraces the colloquial “older-than-stated-age,” is a syndrome defined by a lack of physiological reserve across multiple organ systems that impairs tolerance for stressors. Characteristics include unintentional weight loss, slow gait speed, reduced grip strength, and impairment of activities of daily living. Risk factors for frailty overlap with those for cardiovascular disease and include diabetes, hypertension, and hyperlipidemia. Estimates of the prevalence of frailty in the elderly population range from 10% to 60% (9). Frail patients face a greater risk of hospitalization, procedural complications, and mortality across all medical and surgical domains, including cardiology. Indeed, the increased morbidity and mortality risk driven by frailty exceeds that predicted by conventional risk stratification schemes for a number of cardiovascular diseases, including stable ischemic heart disease and heart failure, as well as for those facing cardiac surgical procedures or percutaneous interventions (9). Cardiology fellows must, therefore, be trained not only to assess for frailty in individual patients, but also to recognize potential complications based on that assessment and tailor management strategies accordingly.

The prevalence of systolic and diastolic heart failure, atrial fibrillation, aortic stenosis, and electrical conduction defects increases with age, resulting in a significant burden of cardiovascular disease. To address the needs of a growing geriatric population, future cardiologists require education specifically directed at appropriate evaluation and risk stratification of elderly patients. Incorporating comprehensive geriatric assessments, aging pharmacokinetics, and frailty into the core curriculum will arm fellows with the ability to interpret guideline phrases such as “in select individuals” and “careful risk benefit analysis” as they relate to older patients. Ultimately, fellows will understand that the term geriatric cardiology is not redundant and will begin their cardiology careers equipped to practice cardiovascular care in relation to aging.

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