Cardiovascular Issues in Older Adults

Leslie L. Davis, PhD, RN, ANP-BC, FAANP, FAHA

KEYWORDS

• Cardiovascular • Critical care • Elderly • Nursing care • Heart failure
• Myocardial infarction • Hypertension

KEY POINTS

- Nurses need to assess older adults carefully because signs and symptoms are more likely to be more subtle or atypical in elders as compared with younger patients.
- Nurses should monitor elderly patients for side effects of medications, especially if underlying kidney or liver impairment exists.
- Patients in their advanced years have the most benefit to gain with use of guideline-directed medical therapy.

INTRODUCTION

Patients who are 65 years and older make up nearly half of intensive care unit (ICU) admissions and approximately 60% of the ICU hospital days in the United States.[1] Cardiovascular (CV) conditions are commonly the first or second diagnosis on admission to the ICU. Furthermore, even if an elderly patient is not admitted for a CV condition, the physiologic stress of any acute illness challenges the heart, often producing structural or functional compromise. For example, acute ischemia or dysrhythmias may be the primary condition *or* a consequence of an initial physiologic insult.

Critically ill elders are a physiologically diverse group. Their heterogeneity sometimes makes it difficult to separate physiologic aging from the pathology of disease.[2] Moreover, as individuals age, comorbid conditions become more prevalent, making diagnosis and treatment of acute illnesses more challenging. In addition, medications used to treat underlying conditions further predispose elders to physiologic compromise during an acute illness.

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School of Nursing, University of North Carolina, 308 Moore Building, PO Box 26170, Greensboro, NC 27402-6170, USA
E-mail address: LLDavis4@uncg.edu

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The most common CV conditions that nurses encounter when caring for critically ill elders include hypertension (HTN), acute coronary syndromes (ACS), heart failure (HF), conduction disorders (eg, atrial fibrillation [AF]), and valvular heart disease. This article focuses primarily on the first 3 conditions because they have the highest prevalence in the elderly population. In all the conditions, however, there are common threads among elderly patients hospitalized in the ICU. First, cognitive decline among some elderly patients makes history taking challenging for health care providers, regardless of the presenting condition. Second, because symptoms in elders are often subtle, it is frequently difficult to tease out new symptoms from symptoms related to an acute exacerbation of a chronic CV condition. In addition, some elders have underlying conditions that have not been formally diagnosed or treated in the past, making interpretation of diagnostic testing difficult because baseline comparisons are unavailable. Finally, as individuals age, they experience decline in kidney and liver function, which influences laboratory findings (eg, cardiac biomarkers, such as troponin or brain natriuretic peptide values) and the way that individuals are treated medically.

PHYSIOLOGIC CHANGES TO THE HEART

Age-related changes to the CV system affect both the physiologic functioning of the heart *and* the way elderly individuals respond to medical therapy to treat CV conditions. These changes occur progressively over time; however, some individuals decline more rapidly than others.[1] Some of the physiologic changes are related to chronologic age itself, whereas others are related to lifestyle. As a result of these physiologic changes, over time, there are decreases in maximal heart rate (HR), ejection fraction (EF), and cardiac output (CO). **Table 1** gives a summary of age-related physiologic changes to the heart.[1–4]

Hypertension

Burden of the condition

Approximately two-thirds of adults age 65 and older have HTN, and this figure increases to nearly 80% among those 75 and older. This is primarily because as individuals age, systolic blood pressure (SBP) tends to steadily increase, regardless of whether the individuals are being treated for HTN.[5] Diastolic blood pressure (DBP), on the other hand, peaks in the fourth or fifth decade of life, then steadily decreases over time.[5] Therefore, when considering baseline blood pressure (BP) readings outside the hospital, it is common for most elders to have isolated systolic HTN.[4]

Unfortunately, only about three-fourths (71%) of adults age 65 and older are aware that they have the HTN.[6] Furthermore, among those diagnosed with HTN, only about 69% receive treatment and fewer than half (48.8%) reach BP treatment goals.[6] Control rates are worse for elders age 80 and older, with only 38% of men and 23% of women meeting BP treatment goals.[6] For these reasons, elders are more likely to have complications related to uncontrolled HTN.

Hypertension crisis

One of the complications of uncontrolled HTN is an HTN crisis, which occurs in approximately 1% to 2% of those with HTN.[7] Although this percentage is low compared with the high prevalence of HTN in elders, the consequences of having an HTN crisis can be devastating. Formerly referred to as malignant HTN or accelerated HTN, currently an HTN crisis may be classified as HTN urgency or HTN emergency. Distinguishing between an urgent and an emergent HTN crisis is not based solely on BP measurement; instead, it is based on whether end-organ damage exists.[7] Specifically, HTN urgency is defined as an abrupt rise in BP *without* signs of end-organ