



African Americans Are Less Likely to Receive Care by a Cardiologist During an Intensive Care Unit Admission for Heart Failure

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ABSTRACT

OBJECTIVES This study sought to determine whether the likelihood of receiving primary intensive care unit (ICU) care by a cardiologist versus a noncardiologist was greater for Caucasians than for African Americans admitted to an ICU for heart failure (HF). The authors further evaluated whether primary ICU care by a cardiologist is associated with higher in-hospital survival, irrespective of race.

BACKGROUND Increasing data demonstrate an association between better HF outcomes and care by a cardiologist. It is unclear if previously noted racial differences in cardiology care persist in an ICU setting.

METHODS Using the Premier database, adult patients admitted to an ICU with a primary discharge diagnosis of HF from 2010 to 2014 were included. Hierarchical logistic regression models were used to determine the association between race and primary ICU care by a cardiologist, adjusting for patient and hospital variables. Cox regression with inverse probability weighting was used to assess the association between cardiology care and in-hospital mortality.

RESULTS Among 104,835 patients (80.3% Caucasians, 19.7% African Americans), Caucasians had higher odds of care by a cardiologist than African Americans (adjusted odds ratio: 1.42; 95% confidence interval: 1.34 to 1.51). Compared with a noncardiologist, primary ICU care by a cardiologist was associated with higher in-hospital survival (adjusted hazard ratio: 1.20, 95% confidence interval: 1.11 to 1.28). The higher likelihood of survival did not differ by patient race (interaction $p = 0.32$).

CONCLUSIONS Among patients admitted to an ICU for HF, African Americans were less likely than Caucasians to receive primary care by a cardiologist. Primary care by a cardiologist was associated with higher survival for both Caucasians and African Americans. (J Am Coll Cardiol HF 2018;6:413–20) © 2018 by the American College of Cardiology Foundation.

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ABBREVIATIONS AND ACRONYMS

CI = confidence interval

HF = heart failure

ICU = intensive care unit

ICD-9-CM = International
Classification of Diseases-9th
Revision-Clinical Modification

OR = odds ratio

African Americans have the highest risk of heart failure (HF) compared with other races/ethnicities (1) and have the highest overall mortality from HF (2). Yet, compared with Caucasians, African Americans are less likely to receive device therapies (3) and are less often treated with advanced therapies for HF (4). In an observational study of 5 centers from nearly 2 decades ago, African Americans hospitalized

with HF were less likely to receive care by a cardiologist than Caucasians (5,6). It is unknown whether these differences in care persist in contemporary settings across the United States.

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Multiple studies have demonstrated associations between care by a cardiologist and improved outcomes after an HF hospitalization (7-9). In-patient care by a cardiologist has been associated with a greater likelihood of receiving evidence-based treatments, reduced readmissions, and increased survival (7-10). However, these studies do not isolate outcomes for the highest-risk group: those requiring admission to an intensive care unit (ICU). It is unknown whether the improved outcomes associated with cardiology care in other settings holds true in the ICU setting. Furthermore, racial differences in the ICU are unknown.

Using a national observational database, Premier, we sought to evaluate the relationships between patient race and care by a cardiologist among HF patients admitted to the ICU. We hypothesized that: 1) the likelihood of receiving primary care by a cardiologist versus a noncardiologist would be greater for Caucasians than for African Americans; and 2) primary care by a cardiologist compared with a noncardiologist would be associated with higher in-hospital survival irrespective of race.

METHODS

DATA SOURCE. The Premier database retrospectively collects administrative data on over 700 U.S. hospitals, accounting for 20% of all in-hospital U.S.

discharges (11). Hospital participation in the fee-based Premier database is voluntary and is done to improve hospital quality, outcomes, and efficiency (12). The data used for this analysis were from the subset of patients receiving ICU care at any time during their hospitalization. The database includes patient demographics, comprehensive billing, and procedure data, and is relied upon for quality outcomes research by organizations like the Centers for Medicare and Medicaid Services (11).

STUDY COHORT. Adults 18 years of age or older admitted to any ICU with a primary discharge diagnosis of HF (denoted by discharge International Classification of Diseases-9th Revision-Clinical Modification [ICD-9-CM] 428.x, 414.8, 402, 398.91, 404.11, 404.13, 404.91, 404.93) between 2010 and 2014 were identified (n = 132,428). Race was captured in hospital administrative data (11). Patients with African-American or Caucasian race were included. Other races/ethnicities were excluded due to low representation (Hispanic n = 1,485; other n = 20,677). Patients who received consultative or procedural nonprimary ICU care by a cardiologist were excluded in the primary analysis (n = 5,431) and were included in the sensitivity analysis. The final cohort included 104,835 patients.

ICU admissions for HF occurred in 571 hospitals. Hospitals with <10 admissions to an ICU (n = 29) were excluded to reduce random variation. Hospitals lacking cardiologists were excluded (n = 45). The final hospital cohort included 497 hospitals.

OUTCOMES OF INTEREST. The primary outcome was receipt of primary ICU care by a cardiologist during ICU hospitalization for HF according to race. Primary care by a cardiologist was identified by denotation of both admission care by cardiologist and attending care by a cardiologist in the Premier Healthcare Database. Cardiologist care was defined by billing as cardiovascular disease or cardiac electrophysiology. The secondary outcome was in-hospital survival according to primary ICU care by a cardiologist with stratification by race. Death was defined by an expired status at discharge in the Premier database.

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