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Temporal Trends and Factors Associated With Cardiac Rehabilitation Referral Among Patients Hospitalized With Heart Failure

Findings From Get With The Guidelines–Heart Failure Registry

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ABSTRACT

BACKGROUND Current guidelines recommend cardiac rehabilitation (CR) in medically stable outpatients with heart failure (HF); however, temporal trends and factors associated with CR referral among these patients in real-world practice are not entirely known.

OBJECTIVES The purpose of this study was to assess proportional use, temporal trends, and factors associated with CR referral at discharge among patients admitted with decompensated HF.

METHODS Using data from a national Get With the Guidelines–Heart Failure registry, we assessed the temporal trends in CR referral among eligible patients with HF with reduced ejection fraction (HFrEF) and HF with preserved ejection fraction (HFpEF) at discharge after HF hospitalization between 2005 and 2014. On multivariable analysis, we also assessed patient- and hospital-level characteristics that are associated with CR referral.

RESULTS Among 105,619 HF patients (48% with HFrEF, 52% with HFpEF), 10.4% (12.2% with HFrEF, 8.8% with HFpEF) received CR referral at discharge. A significant increase in CR referral rates was observed among both HFpEF and HFrEF patients over the study period ($p_{trend} < 0.0001$ for HFrEF, HFpEF, and overall). Compared with patients discharged without CR referral, patients referred for CR were younger, predominantly men, and more likely to receive evidence-based HF therapies at discharge. On multivariable analysis, younger age, fewer comorbid conditions, and in-hospital procedures such as coronary artery bypass grafting, percutaneous coronary intervention, and cardiac valve surgery were most strongly associated with CR referral.

CONCLUSIONS Only one-tenth of eligible HF patients received CR referral at discharge after hospitalization for HF. The proportional use of CR referral is increasing over time among both HFrEF and HFpEF patients. Further strategies to improve physician and patient awareness in regard to the benefit of CR should be used to increase CR referral among patients with HF. (J Am Coll Cardiol 2015;66:917–26) © 2015 by the American College of Cardiology Foundation.

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ABBREVIATIONS AND ACRONYMS

CABG = coronary artery bypass grafting

CAD = coronary artery disease

CMS = Centers for Medicare & Medicaid Services

COPD = chronic obstructive pulmonary disease

CR = cardiac rehabilitation

CVA = cerebrovascular accident

EF = ejection fraction

GWTG-HF = Get With the Guidelines-Heart Failure

HF = heart failure

HFpEF = heart failure with preserved ejection fraction

HFrEF = heart failure with reduced ejection fraction

MI = myocardial infarction

PCI = percutaneous coronary intervention

TIA = transient ischemic attack

Over the past decade, heart failure (HF) has emerged as a major cause of morbidity, mortality, and health care expenditures in the United States. Currently, it affects >6.5 million Americans, and >650,000 patients are newly diagnosed with HF each year (1). Despite significant advancements in pharmacological therapies for HF management over the past 2 decades, HF continues to be a major cause of hospitalizations in the Medicare age group, with >1 million admissions annually (2–11). Furthermore, it contributes to >43% of annual Medicare spending (12).

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Cardiac rehabilitation (CR) has been shown to be effective in improving fitness and quality of life, and it reduces hospitalizations among HF patients with reduced ejection fraction (HFrEF) and HF patients with preserved ejection fraction (HFpEF) (13–22). Current American College of Cardiology/American Heart Association guidelines recommend CR as a class IB recommendation for HFrEF patients with New York Heart Failure Association class II to III symptoms (23). In addition, the U.S. Centers for Medicare & Medicaid Services (CMS) recently approved coverage for CR for stable outpatients with HFrEF (24). Despite the existing evidence and guidelines in favor of CR in patients with HF, the proportional use of CR in this patient population and its temporal trends in contemporary clinical practice have not been evaluated to date (25). Therefore, we used the Get With The Guidelines-Heart Failure (GWTG-HF) database to determine the contemporary proportional use, temporal trends, and major factors associated with referral for CR at discharge among patients admitted with acute decompensated HF (26). We also aimed to evaluate the difference in proportional use of evidence-based HF therapies among patients with or without CR referral at discharge.

METHODS

DATA COLLECTION. The ongoing observational, prospective GWTG-HF registry and quality improvement program, initiated in January 2005 by the American Heart Association, has been described in detail previously (26). Hospital participation is voluntary and includes various institutions from all U.S. geographic regions, representing community hospitals and tertiary-care referral centers. The registry enrolls adults hospitalized with new or worsening HF as the primary diagnosis or with significant HF symptoms that developed during hospitalization for which HF was the primary discharge diagnosis. Data collected include demographics; clinical characteristics; medical history; admitting diagnosis; inpatient medical therapies and procedures; ejection fraction (EF); hospital characteristics; compliance with HF-related performance measures, including use of and contraindications for evidence-based medical therapies; CR referrals; and in-hospital outcomes. Referral to CR is recorded as yes, no, not documented, or not applicable. If none of the fields is filled out, then the field is considered missing.

Participant hospitals use the point-of service, interactive, Internet-based patient management tool to submit clinical information of consecutive eligible patients to the database and are required to comply with local regulatory and privacy guidelines. In addition, hospital personnel are trained to use standardized definitions. Because data are primarily collected for quality improvement purposes, all sites are granted a waiver for informed consent under the common rule; however, approval from the local institutional review board is essential before participation. Quintiles is the data collection and

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