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Characteristics, quality of care, and in-hospital outcomes of Asian-American heart failure patients: Findings from the American Heart Association Get With The Guidelines-Heart Failure Program

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ABSTRACT

Background: Because little was previously known about Asian-American patients with heart failure (HF), we compared clinical profiles, quality of care, and outcomes between Asian-American and non-Hispanic white HF patients using data from the American Heart Association Get With The Guidelines-Heart Failure (GWTG-HF) program.

Methods: We analyzed 153,023 HF patients (149,249 whites, 97.5%; 3774 Asian-Americans, 2.5%) from 356 U.S. centers participating in the GWTG-HF program (2005–2012). Baseline characteristics, quality of care metrics, in-hospital mortality, discharge to home, and length of stay were examined.

Results: Relative to white patients, Asian-American HF patients were younger, more likely to be male, uninsured or covered by Medicaid, and recruited in the western region. They had higher prevalence of diabetes, hypertension, and renal insufficiency, but similar ejection fraction. Overall, Asian-American HF patients had comparable quality of care except that they were less likely to receive aldosterone antagonists at discharge (relative risk <RR>, 0.88; 95% confidence interval <CI>, 0.78–0.99), and anticoagulation for atrial fibrillation (RR, 0.91; 95% CI, 0.85–0.97) even after risk adjustment. Compared with white patients, Asian-American patients had comparable risk adjusted in-hospital mortality (RR, 1.11; 95% CI, 0.91–1.35), length of stay > 4 days (RR, 1.01; 95% CI, 0.95–1.08), and were more likely to be discharged to home (RR, 1.08; 95% CI, 1.06–1.11).

Conclusions: Despite some differences in clinical profiles, Asian-American patients hospitalized with HF receive very similar quality of care and have comparable health outcomes to their white counterparts.

1. Introduction

Heart failure (HF) is a major and growing public health problem in the United States. It is estimated that 5.1 million Americans currently have HF and the prevalence of HF will increase 46% by 2030 resulting in over 8 million people with HF [1,2]. The annual total cost for HF in 2012 was $32 billion and the cost will increase 127% by 2030 reaching $70 billion [2,3]. Racial and ethnic disparities in HF care have been documented in prior studies [4–9]. For example, compared with white patients, blacks and Hispanics are at greater risk of developing HF at a younger age and are more likely to experience increased morbidity and possibly higher risk of mortality [6,8,9].

However, little is known about clinical characteristics, quality of care, and outcomes of Asian-American HF patients although they have become the fastest growing and most heterogenic ethnicities in the United States [10,11]. As President Obama signed an Executive Order calling for strategies to improve the health of Asian-Americans in 2009, the American Heart Association (AHA) released a call to action in 2010 requesting more research on cardiovascular disease in Asian-Americans [11,12]. Also, a national health agenda for Asian-Americans was urged by the commentary of a September 2010 issue of the Journal of the American Medical Association [13]. In the present study, we sought to (1) evaluate the clinical characteristics in Asian-American HF patients compared with non-Hispanic white HF patients, and (2) examine a comprehensive set of the evidence-based processes of care and

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outcome measures in Asian-American relative to white HF patients among hospitals participating in the AHA Get With The Guidelines-Heart Failure (GWTG-HF) program from January 1, 2005 to December 31, 2012.

2. Methods

2.1. Study population

The primary data source for this study was the AHA GWTG-HF registry, a hospital-based ongoing voluntary national HF registry. The details of the GWTG-HF program have been described in previous publications [14,15]. In brief, the GWTG-HF program consists of a set of evidence-based performance measures to gauge and guide the HF care quality improvement efforts at participating hospitals. At each participating hospital, trained personnel use the AHA GWTG-HF internet-based patient management tool (Quintiles Real-World & Late Research, Cambridge, MA) to collect patient level information on consecutive HF patients admitted to the hospital. HF patients were identified if they were hospitalized for HF as primary cause of admission or developed significant HF symptoms during hospitalization when HF was not the initial reason for admission. Patient level data contain demographics, socioeconomic status, medical history, diagnosis and evaluation, in-hospital treatment and events, discharge treatments and counseling, and discharge destination. Teaching and nonteaching, rural and urban, large and small hospitals from all geographic areas of the United States are well represented in the GWTG-HF program [16]. Quintiles Real-World & Late Research (Cambridge, MA) serves as data collection (through their web-based interactive Patient Management Tool) and coordination center for GWTG. The Duke Clinical Research Institute is the data analysis center and has an agreement to analyze the aggregate de-identified data for research purposes. The Institutional Review Board of the Duke University Health System approved this study.

Our analyses included patients with HF in GWTG-HF hospitals from January 1, 2005 through December 31, 2012. For the purpose of the present study, we excluded patients who were neither non-Hispanic white nor Asian-American. We also excluded patients who transferred out or whose discharge destination information was missing. Our final study population consisted of 153,023 HF patients (149,249 non-Hispanic whites, 97.5%; 3774 Asian-Americans, 2.5%) enrolled at 356 sites participating in the GWTG-HF program (Fig. 1).

2.2. Variables of interest and outcomes

The major goals of this study were to compare clinical profiles, use of evidence-based care processes and outcomes in Asian-American versus non-Hispanic white HF patients using the GWTG-HF dataset (2005–2012). Information on race and ethnicity was obtained from patient self-designation as recorded by administrative personnel during the registration process, admitting providers in the medical record, or nurses in nursing intake forms. Race and ethnicity were collected as separate questions as recommended by the Office of Minority Health. We then classified the responses into the categories reported in non-Hispanic white patients and non-Hispanic Asian-Americans. The achievement measures were: (1) use of angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) for HF patients with left ventricular systolic dysfunction (LVSD) at discharge, (2) use of evidence-based beta blocker at discharge, (3) measure of left ventricular function (LVF) with documentation in the hospital record, (4) post-discharge appointment for HF patients, (5) smoking cessation counseling, and (6) composite measure of "defect-free care" defined as the proportion of patients who received all of the GWTG-HF program's achievement measures for which they were eligible. The quality measures included: (1) aldosterone antagonist prescribed at discharge for patients with LVSD with no contraindications or documented intolerance, (2) anticoagulation therapy prescribed at discharge for atrial fibrillation or atrial flutter, (3) hydralazine nitrate prescribed at discharge for patients with LVSD with no contraindications or documented intolerance, (4) deep vein thrombosis (DVT) prophylaxis for non-ambulatory patients, (5) cardiac resynchronization therapy defibrillator (CRT-D) or cardiac resynchronization therapy pacemaker (CRT-P) placed or prescribed at discharge, (6) implantable cardioverter defibrillator (ICD) counseling, or ICD placed or prescribed at discharge, (7) influenza vaccination prior to discharge during flu season, (8) pneumococcal vaccination prior to discharge, and (9) follow-up visit within 7 days or less (this measure applied to the period starting from February 1, 2009). Outcome measures contained in-hospital mortality, whether discharged home or not, and whether length of stay greater than 4 days or not.

2.3. Statistical analyses

Descriptive analyses were performed to compare patient baseline characteristics, comorbidities, vitals and laboratory data, achievement measures, quality measures, and outcome measures as well as hospital

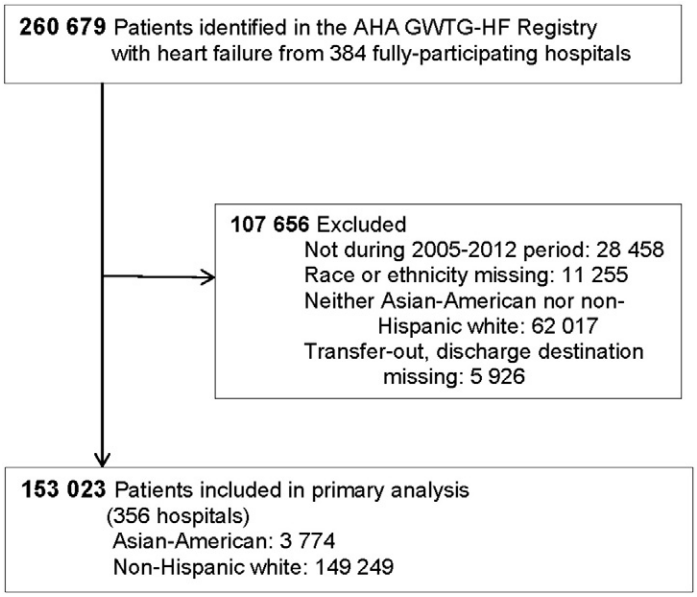

Fig. 1. Selection of study population. AHA GWTG-HF indicates American Heart Association Get With The Guidelines-Heart Failure.