Clinical and echocardiographic characteristics and outcomes in congestive heart failure at the Hospital of The State University of Haiti

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Background This study aimed to evaluate the clinical and epidemiologic profile of congestive heart failure at the principal free-care hospital in Haiti. Cardiovascular disease represents the most prevalent cause of admissions to the medical service of the University Hospital of the State of Haiti. No previous study has examined the demographics of congestive heart failure in urban Haiti.

Methods Two hundred forty-seven patients presented to the inpatient service between May 2011 and May 2013. Evaluation included history and physical, CBC, renal/metabolic profile, serum glucose, anti-HIV antibody, ECG, chest radiograph and echocardiogram. Treatment included angiotensin converting enzyme inhibitors, furosemide and spironolactone, carvedilol, digoxin and anticoagulation.

Results Women (62.4%) outnumbered men; patients were relatively young (mean age 50.1) and from the lowest socio-economic levels of the population. Nearly all (98.8%) presented with NYHA III-IV status, with correspondingly high mortality (23.3%). Echocardiography showed 73% dilated cardiomyopathy; 83% showed moderate to severe LV systolic dysfunction (mean EF 36.5 +/– 15%) and 17% preserved LV systolic function. The three principal etiologies were dilated cardiomyopathy (29%) hypertensive cardiomyopathy (27%) and peripartum cardiomyopathy (20%). Ischemic cardiomyopathy was rare (3.4%). At 27 months follow-up, 76.7% of the patients were alive and well. Among those who died, mean survival time was 113 days. Readmission carried a poor prognosis.

Conclusions This congestive heart failure study from Haiti shows an unusually high proportion of young women, primarily due to peripartum cardiomyopathy. Ischemic cardiomyopathy is rare, as in Africa. Further study is warranted to address the particular problem of the high frequency of peripartum cardiomyopathy in this population. (Am Heart J 2016;178:151-60.)

Throughout the history of Haiti, major infectious diseases – malaria, tuberculosis, bacterial and viral pneumonias and more recently Human Immunodeficiency Virus (HIV)-associated disease – have constituted the major public health menaces, causing the gravest tolls of morbidity and mortality in this country. Over the past years we have witnessed the progressive emergence of chronic and degenerative non-communicable diseases – cardiovascular disease, hypertension, diabetes and cancer – which have comprised an increasing proportion of pathologies affecting the Haitian population. Summary statistics (internal, unpublished) from the University Hospital of the State of Haiti (l'Hôpital de l'Université d'Etat d'Haiti – HUEH) for the period October 2005 through September 2006 have confirmed this impression, showing that for this period,

- Cardiovascular disease represented the primary cause of hospitalization on the medical service (30%) followed by infectious diseases (22.2%)
- Advanced heart failure (NYHA IV) was responsible for nearly all (92.7%) cardiovascular admissions during the study period

Faced with these findings, the medical service opened a congestive heart failure (CHF) unit in May 2011. The primary aim of this publication is to present the initial

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findings of this CHF management program, and to describe the demographic, clinical and laboratory profile of the patients. It is a prospective, descriptive cohort study.

Methods

Study setting

Our prospective cohort study was performed at the HUEH. This hospital is the main public hospital in Haiti, and functions as a charity hospital allowing access to its services at minimal charge to all patients. This is the primary teaching hospital for the Faculty of Medicine and Pharmacy of the University of the State of Haiti, with over 300 residents in training and 750 beds prior to the 2010 earthquake, now reduced to ~450. The hospital was severely damaged during the 2010 earthquake, and the nursing staff and resident staff sustained large casualties. The internal medicine block survived with minimal damage and remained usable. This was the site for the CHF unit. The unit was composed of 2 physicians (one cardiologist), 2 nurses, and a data analyst dedicated to the management of patients admitted with CHF.

Patients arrived at the unit both from Port-au-Prince, the capital city, which accounts for a third of the population, and from the surrounding area as well as the remainder of the country. The hospital is only partially financed by the Ministry of Health, and patients must pay part of the cost of their treatment. On admission, a fee of 25 Haitian gourdes ($0.46) is assessed. In addition, patients must defray the cost of their medications. The cost of testing is low at 1950 gourdes ($35.69) for all admission testing. Echo- and electrocardiograms were provided for by the hospital. The patients were followed in the outpatient clinic that meets three days a week in the main foyer of the hospital and is staffed by a senior cardiologist as well as a senior internist, two nurses, and a resident.

The program and collection of anonymous data on the patients was approved by the executive structure of the hospital functioning in lieu of a formal institutional review board.

Study participants

From May 11, 2011, through May 10, 2013, 247 patients 15 years or older were admitted to the inpatient CHF unit. Inclusion criteria were clinical signs of left, right or bi-ventricular heart failure: dyspnea with pulmonary rales, fluid retention with edema, congestive hepatomegaly, jugular venous distension and hepatojugular reflux. Patients with concomitant end-stage renal failure requiring dialysis were excluded from this analysis since the hospital did not have the financial resources to adequately care for these patients.

Evaluation

On entry, all patients were given a full general medical examination and a 12-lead electrocardiogram (ECG). 231 (93.5%) underwent echocardiography; 223 (90.3%) had a chest X-ray; 201 (81.4%) complete blood count; 209 (84.6%) basic metabolic profile; 122 (49.4%) serum glucose; 99 (40.1%) HIV enzyme-linked immunosorbent assay antibody.

Echocardiograms (Aloka model SSD 4000) were performed per clinical routine. LV dilatation was defined as LVIDd >52 mm for women and >58 mm for men. LVH was defined as diastolic wall thickness >11 mm. LV Ejection Fraction (EF) was measured by the Teicholz method using the Aloka software. Patients were categorized echocardiographically as heart failure with reduced left ventricular (LV) systolic function with an ejection fraction (EF) less than 50%, or heart failure with preserved LV systolic function – diastolic heart failure was assumed among those patients presenting with clinical signs of heart failure as defined above, along with significant cardiomegaly (cardiothoracic ratio >1:2 on PA chest radiograph), or abnormal findings on ECG (atrial fibrillation, left ventricular hypertrophy with strain, complete left bundle branch block) with a preserved echocardiographic ejection fraction (EF) ≥50%. Echocardiographic findings of LVH in the absence of aortic stenosis or classic hypertrophic cardiomyopathy were criteria for the classification of hypertensive cardiomyopathy. The lack of an available echo did not exclude those patients presenting with clinical, and radiographic evidence of heart failure along with an abnormal ECG.

Etiologic criteria

Dilated cardiomyopathy was diagnosed in patients without specific other etiology in which LV dilatation (left ventricular internal dimension diastolic (LVIDd) ≥58 mm for men and 52 mm for women) with reduced LVEF <50% was manifest on echocardiogram. Hypertensive cardiomyopathy was diagnosed as noted in patients with a history of or presentation with hypertension (systolic BP >140 or systolic BP >90 mmHg) in those patients presenting with clinical heart failure, LVH and preserved EF by echocardiography and no valvular heart disease. Peripartum cardiomyopathy was diagnosed in women who showed signs of heart failure in the third trimester of or in the first 5 months after pregnancy, and who had no other etiology to explain heart failure and no previous cardiac history. Valvular heart disease was diagnosed in patients with clear signs of overt valvular heart disease on ausculatation and echocardiography involving one or more of the cardiac valves. Right heart failure was diagnosed in patients presenting clinically with signs of elevated systemic venous pressure without pulmonary congestion, with a normal LV on echo along with elevated pulmonary artery systolic pressure and RVH on echo and/or ECG. Ischemic cardiomyopathy was diagnosed in presence of a history of angina pectoris or prior myocardial infarction or an ECG characteristic of previous myocardial infarction along with a regional wall motion defect consistent with myocardial