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Readmission rates and related factors in heart failure patients: A study in Lebanon[☆]



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KEYWORDS

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Summary

Background: Heart failure is the leading cause of hospitalization among older adults in the United States and other developed countries. Readmission rates of heart failure patients is one of the key outcome performance measures used in evaluating the quality of care of these patients. In Lebanon, there are no published data on readmission of heart failure patients. The aim of the study was to examine the readmission rates of heart failure patients within 30, 60 and 90 days of discharge from the hospital, and factors associated with readmission.

Methods: The medical records of all 187 patients admitted with heart failure to Rafic Hariri University Hospital in Beirut between January 1, 2010 and December 31, 2010 were reviewed. Data on demographic and relevant clinical variables were retrieved.

Results: Readmission rates were 15%, 22.2%, and 27.8% at 30, 60 and 90 days following discharge, respectively. The majority of readmissions (73.61%) were due to heart failure exacerbations. Significant predictors of readmission were: history of diabetes mellitus, coronary artery disease, length of stay at the index admission and gamma glutamyl transpeptidase levels. Management of the patients did not always conform to the evidence based guidelines.

Conclusion: The findings suggest the need for better adherence to clinical guidelines in caring for heart failure patients and improved documentation of discharge instructions.

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Introduction

Heart failure is a complex, chronic condition that affects millions of people every year. Diagnosis of new cases has tripled annually in the United States (US), Australia, and most countries of the world (Riegel et al., 2010). This pace of rising incidence is parallel with the rise in the aging population around the world (Riegel et al., 2010). The extensive

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cost of hospital management of this health condition has been well documented in the United Kingdom (Tansey, 2009), Australia (Krum et al., 2006), and the US (Russo et al., 2008). The estimated cost of treating heart failure patients was \$32 billion dollars in 2013 in the US (Go et al., 2013). Heart failure requires continuous care and follow-up; failure to do so causes hospital readmissions and increased financial burden on patients and governments.

Heart failure is the number one cause of hospital admissions in the US in those older than 65 years of age (Roger et al., 2004). Moreover, readmission rates are higher in the heart failure population (24.5–27.9% within 30 days of discharge) when compared to other patient groups such as myocardial infarction (18.2–24.8%) or pneumonia (18.2–23.7%), as noted in two studies of Medicare patients in the US (Joynt, Orav & Jha 2011; Schneider, 2009). This fact makes it the number one cause of hospital readmissions as well (Jencks, Williams & Coleman 2009). The same trend persists when looking at readmissions beyond 3 months after discharge, where among Medicare patients, readmission rates of heart failure patients were up to 60% within 6–9 months of the primary discharge. These readmissions, accounted for 28% of all hospital readmissions, followed by pneumonia at only 4.2% (Aranda, Johnson & Conti 2009). Heart failure exacerbations account for the majority of readmissions among heart failure patients, with reported frequencies of 88.89% within 30 days of discharge, 93.55% within 60 days, and 90.24% within 90 days of discharge, respectively (Van Such, Naessens, Stroebel, Huddleston, & Williams, 2006).

With readmission rate a key outcome indicator for evaluating the quality of care in the heart failure population (Joynt et al., 2011), investigators examined factors related to readmission. A number of predictors of readmission in heart failure patients were identified: being single, male sex, receipt of medical assistance, frequent home address changes, history of cocaine use, multiple previous hospital admissions and emergency presentation between 6 am and 6 pm for the index admission (Amarasingham et al., 2010). Co-morbidities also were reported to be associated with readmission, including renal insufficiency, atrial fibrillation and coronary artery disease (Sherer, Crane & Abel 2011); diabetes, peripheral vascular disease and stroke (Van Such et al., 2006). On the other hand, patients receiving the combination of beta blockers, aldosterone antagonists and either angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) were found to be at a significantly lower risk of readmission compared to those patients who are not given these drug combination (Annema, Luttik & Jaarsma 2009).

Among strategies to reduce readmission rates in heart failure patients, discharge education about lifestyle, symptom monitoring and medications was associated with significantly lower heart failure and all cause readmissions ($p=0.035$ and $p=0.003$, respectively) in a study by Van Such et al. (2006). In addition, Jacobs (2011) attained a 30% reduction in readmission in the first 6 months of implementation of discharge planning protocol in HF patients discharged to nursing facilities reaching a readmission rate of 11.32% ($p=0.013$). A recent survey of 599 hospitals on successful strategies they use to reduce readmission rates of HF patients showed lower risk adjusted 30 day readmissions

rates associated with the following strategies: collaboration with community physicians, making nurses take responsibility for medication reconciliation, arranging for follow up appointments prior to discharge, communicating patients' data directly to the patient's primary physician and assigning staff to follow up on any lab results that arrive after discharge. Yet the magnitude of the effects of these strategies is modest, reflecting the complexity of the disorder (Bradley et al., 2013).

There are no published data about readmission rates of heart failure patients in Lebanon. The aim of this study was to identify the prevalence and causes of readmission among patients admitted with heart failure at Rafic Hariri University Hospital, a large tertiary government hospital in Beirut. Another aim was to identify demographic and clinical predictors of readmission and possible gaps in management that may contribute to these readmissions.

Methods

A retrospective descriptive design was used for this study. The method included medical record review of all consecutive heart failure patients admitted to Rafic Hariri University Hospital in Beirut between January 1st, 2010 and December 31st, 2010. The study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki. Approval was secured from the institutional review boards (IRB) of the university and the hospital administration. Inclusion criteria were: (a) patients admitted with a diagnosis of heart failure to the cardiology unit, as referred by a cardiologist from outside clinics or the emergency department; (b) age over 18 years; (c) admission during the year 2010. Patients who passed away during the index hospitalization were excluded.

Sample

The total number of patients admitted under the care of an attending cardiologist during the study period was 2285. These patients were admitted for any cardiac condition including myocardial infarction (MI), angina, heart failure or procedures such as percutaneous coronary interventions, cardiac catheterization or pace maker or implantable cardioverter defibrillator (ICD) insertion. Patients who were admitted for open heart surgery were excluded, thus yielding 2191. Out of the 2191 patients, those who were admitted for a period of less than 24 h, including those who underwent cardiac catheterization, angioplasty or insertion of a pacemaker or an implantable cardioverter defibrillator (ICD) were excluded, leaving 1097 patients. Of the remaining 1097 patients admitted under the care of a cardiologist, 187 were patients with history of heart failure documented in their medical records or were diagnosed for heart failure in this index admission as identified by their symptoms and their diagnostic tests, thus the final sample size was 187 heart failure patients admitted in 2010.

Setting

This study was conducted at Rafic Hariri University Hospital, a 430-bed tertiary care center that is the largest

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