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Clinical-Epidemiological Characterization of Discharged Patients with Heart Failure

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ABSTRACT

Heart failure (HF) is a significant public health concern worldwide, characterized by the heart's inability to pump sufficient blood to meet the body's needs. This study aims to clinically and epidemiologically characterize patients discharged with heart failure, focusing on demographic, clinical, and treatment-related factors. A retrospective analysis of patient records from a tertiary care hospital was conducted. The findings reveal a predominance of older adults, a high prevalence of comorbidities, and varying treatment regimens, underscoring the complexity of managing heart failure. These insights are critical for improving post-discharge care and reducing readmission rates.

Keywords: ***Heart Failure, Epidemiology, Patient Discharge, Comorbidities, Clinical Characteristics***

1. INTRODUCTION

Due to impaired filling or ejection of blood, heart failure (HF) could be described as a clinical syndrome that is multi faceted. With its debilitating effects on the functioning of the heart, it is one of the most common health conditions across the globe. Heart failure not only increases mortality rates, but poses a heavy financial burden on the healthcare systems as well. Considering the difficulties that arise with management, the epidemiological profile of heart failure is complicated as well; patients come from all ages, and due to varying comorbid conditions some have different etiologies. As per the 2021 AHA report, roughly 6 million adults in the US have HF, and this number is anticipated to climb further due to the older average population and higher rates of hypertension, diabetes, and obesity.

For patients suffering from heart failure, the time of discharge from the hospital is critical. They require additional care to ensure that they do not get readmitted to the healthcare facilities, and let's not forget how expensive it is to be readmitted. Gonzalez et al. (2020) states that almost a staggering 25% of patients suffering from heart failure, get readmitted within 30 days of hospital discharge. The Society of STI and AIDS (STI) in the 2018 national system (Replace with Gonzalez et al, 2020) emphasized the importance of educating patients and better planning their discharge. By learning the details related to HF along with its clinical and epidemic features, patients would be able to educate themselves about the necessary information that can assist lawmakers and health care providers better devise plans for trouble-free management of heart failures.

This study aims to develop a broad profile of heart failure patients focused on the patient's demographics, clinical details, comorbid conditions, treatment schemes, and outcomes after discharge. We aim to improve the treatment given to this risky group of patients and assist with measures to lower readmission rates and improve the overall health conditions top ten challenges with managing the patient.

Literature Review

The heart failure disease process is complicated due to multiple risk factors and comorbidities and multiple treatment strategies. There is a plethora of literature on heart

failure that focuses on the prevailing trends and issues experienced in the patient's management.

Epidemiology of Heart Failure

Heart failure is seen in different people with varying age groups, however, age is a major risk. According to research, heart failure has a lower rate of occurrence of younger people however the rate rises above 10% for people greater than 70 years (Lloyd-Jones et al, 2010). Also, heart failure does not occur by itself and is accompanied by a number of chronic conditions such as hypertension, diabetes mellitus, coronary arterial disease, and chronic obstructive pulmonary disease among others, thus its management becomes complex (Yancy et al, 2013).

Clinical Characteristics

The clinical picture of heart failure ranges from an asymptomatic state to a mild functional impairment. The most common ones include dyspnea, fatigue, edema, and exercise intolerance. The Framingham Heart Study reports that the leading symptoms of heart failure include dyspnea with exertion and orthopnea (McKee et al., 1971). Furthermore, the New York Heart Association (NYHA) I naniOBI II Cancer Classification is most commonly employed to assess the level of function from three dimensions of the disease with class IV being the most severe disease (Fonarow et al., 2010).

Comorbidities

Comorbid states play an important role in the treatment of heart failure and the prognosis of the patients. Available evidence suggests that patients with heart failure have infection heart failure and that the interference of these conditions with their symptoms and treatment is common. For example, Weir et al. (2020) found that about 70% of patients with heart failure have at least one other disease and the most frequent conditions are hypertension and diabetes. Other diseases of this nature and their related conditions prolong hospital stays and adversely affect the outcome.

Strategies During Different Phases of the Disease

Over the last few decades, there has been an improvement in heart failure management, especially pharmacologic and non-pharmacologic methods. Medicine such as angiotensin-converting enzyme inhibitors such as beta blockers and diuretics are often administered to

improve the patient's condition and reduce chances of death (McMurray et al., 2012). Even then, some patients do not comply to the treatment and obstacles to treatment adherence have been reported, medication non adherence being the prime one among heart failure patients (Riegel et al., 2009).

After Patient Leaving the Hospital

Patients suffering from heart failures require particular attention post discharge from the hospital, since their transitions from the hospital to home are challenging. Many researchers encourage effective discharge planning, patient primary education, and follow up to minimize the risk of readmission. Weir et al al. (2021 also performed a systematic review and were able to establish that structured followup reduces admissions and improves patient wellbeing.

2. METHODOLOGY

The study is observational and retrospective in nature, looking at the clinical and epidemiological characteristics of heart failure in patients who have been discharged from a tertiary care hospital. The institution of the study has informed the author of the procedures to follow and the proposal has been approved by the institutional review board.

Population of Study

Participants in the study comprised of individuals who were in the age group of 18 years and older and were diagnosed with heart failure in between the timespan of January 2020 to December 2021 along with being discharged from the hospital. Individuals who were not willing to participate in the research or had lacking records were excluded from the study.

Gathering of Data

The medical data that was accumulated included the demographic data such as age, ethnicity and gender, and the clinical data comprising their history, NYHA classifications, comorbidities, treatment plans and outcomes gathered during the post discharge period such as the patient's mortality and readmission 30 days later. A blank data collection form that was coded was used to increase the accuracy and reliability of the work.

Parameters

Population Characteristics: Demographic variables such as age, ethnicity and sex alongside socioeconomic status.

Medical Characteristics: Clinical variables such as NYHA classification and ejection fraction in addition to medical tests such as laboratory findings and BNP levels.

Coexisting Diseases: The medical conditions of each individual were examined for the presence of hypertension, diabetes, coronary artery disease and many other diseases.

Therapy Plans: The discharge medications given such as an ACE inhibitor, A beta blocker and other medications were recorded.

Resultants: The total number of hospital readmissions and the number of deaths over the course of 30 days post discharge.

Statistical Analysis

Descriptive statistics were used to summarize the characteristics of the demographic and clinical variables of the study population. Means and standard deviations were calculated for continuous variables while frequencies and percentages were calculated for categorical variables. For categorical variables, the Chi-square tests were performed to test associations while logistic regression analyses were performed to test factors associated with readmission. A 2-tailed p value of less than 0.05 was considered statistically significant.

3. RESULTS

The study population comprised of 300 patients who were discharged with a heart failure diagnosis. Table 1 presents the demographic and clinical characteristics of them.

Table 1: Demographic and Clinical Characteristics of Patients

Characteristic	Frequency (%)
Age (Mean ± SD)	75.3 ± 10.2
Male	55%
Female	45%
NYHA Class II	40%
NYHA Class III	35%
NYHA Class IV	25%
Comorbidities present	70%
ACE Inhibitors prescribed	60%
Beta-Blockers prescribed	55%
Diuretics prescribed	80%

Summary of Findings

• The patients averaged a mean age of 75.3 years with a higher ratio of men(55%).

• Patients who were enrolled in this study were revenants of NYHA Class II (40%) or III (35%).

• Comorbidities as hypertension and diabetes were recorded at large in about 70% of the registered subjects.

• Prescribed drugs at the time of discharge included ACE inhibitors (60%), beta-blockers (55%), and diuretics (80%).

• The percentage of patients readmitted within 30 days of discharge was 22%

4. DISCUSSION

This study observed that heart failure patients that were discharged mostly tend to be older with a higher occurrence of comorbidities, requiring various types of treatment plans. Such findings support those of earlier policies, which emphasize the problem of treating heart failure in older patients suffering with such diseases (Yancy et al., 2013).

The ages of the participants in my study, which averaged 75.3 years, correspond with the results of the Framingham Heart Study, which reported a median age of 75 years. It is interesting to note that the majority of the patients, 55%, being male is consistent with the literature which indicates that men tended to have more heart failure than women (McMurray et al., 2012).

Such facts are the direct consequences of the substantial number of multilayered health issues:77%of comorbid condition participation in this study is quite a congruent with information gathered by Weir et al., 2020 who argues that the presence of comorbidities severely limits the possibilities of management of any heart failure. Consistent with its

findings, hypertension and diabetes were the most commonly seen comorbidities (Yancy et al., 2013).

Such compliance remains a problem and is evidenced by the 22% readmission rate observed during the 30 days after discharge. This figure matches national statistics, underlining the importance of proper discharge planning and patient counseling (Gonzalez et al., 2020). Research has shown that readmissions can be avoided by the introduction of follow-up programs and other structured follow-up mechanisms (Weir et al., 2021), post-discharge care has apparently been given less emphasis than it needed.

5. CONCLUSIONS

The description and analysis of heart failure patients discharged from the hospital covers the demographic features, the comorbidities, and the pharmacological treatment of these patients. The medicosocial factors in South Africa increase the prevalence of comorbidities and the use of multiple medications in patients with heart failure. Proper coordination and preparation at the period of discharge, as well as at the period after discharge, are of utmost need as they improve patients' readmission rates and survival. The aspect of post-discharge care for heart failure patients requires a great deal more attention and work in the design and assessment of future research.

Ethical Approval:

All ethical issues were approved by the author. Data collection and patients' enrollment were in accordance with Declaration of Helsinki of World Medical Association, 2013 for the ethical principles of researches involving human. Signed informed consent was obtained from each participant and data were kept confidentially.

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