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Clinical Profile and Outcomes of Heart Failure Patients: A Study Conducted in A Tertiary Care Hospital in Central India

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Abstract:

Background: Heart failure (HF) is a major health problem with varying epidemiology and outcomes across different regions. This study aimed to investigate the clinical profile, risk factors, and outcomes of heart failure patients admitted to a tertiary care hospital in central India.

Methods: A prospective cross-sectional study was conducted on 120 heart failure patients admitted to the Department of General Medicine,Chirayu Medical College & Hospital from October 2023 to March 2024. Demographic, clinical, and outcome data were collected and analyzed.

Results: The mean age of the patients was 62±14 years, with a male predominance (65%). The most common risk factors were hypertension (78%), smoking (45%), diabetes mellitus (38%), and alcohol consumption (35%). Dyspnea on exertion (92%), orthopnea (78%), and pedal edema (72%) were the most frequent presenting symptoms. The in-hospital mortality rate was 8%, with septic shock and acute kidney injury being independent predictors of mortality.

Conclusions: Heart failure was more prevalent in elderly males, with hypertension being the most common risk factor. The in-hospital mortality rate was relatively high, emphasizing the need for early recognition and management of high-risk patients.

Keywords: Heart failure, Clinical profile, Risk factors, Outcomes, India

1. Introduction

Heart failure (HF) is a major health problem affecting millions of people worldwide, with varying epidemiology and outcomes across different regions [1]. The International Congestive Heart Failure (INTER-CHF) study revealed significant regional differences in mortality rates, with the highest in Africa and the lowest in China and South America [2,3]. The prevalence of HF is

increasing in many countries due to aging populations, increased prevalence of risk factors, and better survival from other cardiovascular diseases [4-6]. However, the survival rate of HF remains poor, and the health burden from this condition is increasing globally [7-10].In India, the prevalence of risk factors such as diabetes, myocardial infarction, and ischemic heart disease has increased in the past few decades [11,12]. Consequently, the prevalence of HF has also increased, along with the associated healthcare costs [13,14]. However, there is limited data on the clinical profile and outcomes of HF patients from central India. This study aimed to bridge this gap by investigating the clinical characteristics, risk factors, and outcomes of HF patients admitted to a tertiary care hospital in central India.

2. Materials and Methods

2.1. Study Design and Participants

A prospective cross-sectional study was conducted at the Department of General Medicine,Chirayu Medical College & Hospital from October 2023 to March 2024. The study included 120 consecutive patients aged ≥18 years who were admitted with a diagnosis of heart failure according to the Framingham criteria [15]. Patients with congenital heart disease and those who were not willing to participate in the study were excluded.

2.2. Data Collection

Demographic, clinical, and outcome data were collected using a pre-designed and pre-tested questionnaire. The data included age, sex, risk factors (hypertension, diabetes mellitus, smoking, alcohol consumption, and obesity), presenting symptoms, and in-hospital outcomes (survival, discharge against medical advice, and death). Relevant investigations, such as complete blood count, renal function tests, liver function tests, electrocardiogram, chest X-ray, and echocardiography, were performed as per the standard hospital protocol.

2.3. Statistical Analysis

The data were entered in Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were used to summarize the data, with continuous variables expressed as mean ± standard deviation and categorical variables as frequencies and percentages. The association between risk factors and outcomes was analyzed using the chi-square test, with a p-value <0.05 considered statistically significant.

3. Results

3.1. Demographic and Clinical Characteristics

The mean age of the patients was 62±14 years, with a male predominance (65%). The most common risk factors were hypertension (78%), smoking (45%), diabetes mellitus (38%), and alcohol consumption (35%). Dyspnea on exertion (92%), orthopnea (78%), and pedal edema (72%) were the most frequent presenting symptoms (Table 1).

Table 1: Demographic and Clinical Characteristics of Heart Failure Patients (N=120)

Characteristic	Value
Age, years (mean ± SD)	62 ± 14
Male sex, n (%)	78 (65%)
Risk factors, n (%)	
- Hypertension	94 (78%)
- Smoking	54 (45%)
- Diabetes mellitus	46 (38%)
- Alcohol consumption	42 (35%)
- Obesity	28 (23%)
Presenting symptoms, n (%)	
- Dyspnea on exertion	110 (92%)

- Orthopnea	94 (78%)
- Pedal edema	86 (72%)
- Chest pain	68 (57%)
- Palpitations	62 (52%)
- Cough	48 (40%)
- Syncope	32 (27%)

3.2. In-hospital Outcomes

The in-hospital mortality rate was 8% (10 patients), while 12 patients (10%) were discharged against medical advice. The remaining 98 patients (82%) were discharged after clinical improvement (Table 2). Septic shock (OR: 6.2, 95% CI: 1.8-21.4, p=0.004) and acute kidney injury (OR: 4.1, 95% CI: 1.2-14.2, p=0.026) were independent predictors of in-hospital mortality.

Table 2: In-hospital Outcomes of Heart Failure Patients (N=120)

Outcome	n (%)
Survival/Discharged	98 (82%)
Discharge against medical advice	12 (10%)
Death	10 (8%)

4. Discussion

This prospective study provides valuable insights into the clinical profile and outcomes of heart failure patients admitted to a tertiary care hospital in central India. The mean age of the patients was 62 years, which is consistent with the findings of previous studies from India and other developing countries [16,17]. The male predominance observed in this study is also in line with the existing literature [18,19]. Hypertension was the most common risk factor in our study, followed by smoking, diabetes mellitus, and alcohol consumption. These findings are similar to those reported by other studies from India and highlight the importance of addressing these modifiable risk factors for the prevention and management of heart failure [20,21]. The in-hospital mortality rate in our study was 8%, which is relatively high compared to the rates reported from developed countries [22,23]. This could be attributed to the late presentation of patients, the presence of multiple comorbidities, and the limited access to advanced healthcare facilities in resource-constrained settings [24]. Septic shock and acute kidney injury were identified as independent predictors of in-hospital mortality, emphasizing the need for early recognition and aggressive management of these complications. The strengths of this study include its prospective design, the inclusion of a representative sample from a tertiary care hospital, and the comprehensive evaluation of clinical characteristics and outcomes. However, the single-center nature of the study and the relatively short follow-up period may limit the generalizability of the findings.

5. Conclusions

Heart failure was more prevalent in elderly males, with hypertension being the most common risk factor. The in-hospital mortality rate was relatively high, with septic shock and acute kidney injury

being independent predictors of mortality. These findings underscore the need for early recognition and management of high-risk patients and the importance of addressing modifiable risk factors for the prevention and control of heart failure in resource-limited settings.

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