



Original Article

Reasons for Non-compliance with medication and Disease severity among heart failure patients at Benazir Bhutto Hospital Rawalpindi

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ABSTRACT

Heart failure is a silent epidemic that is growing exponentially among both genders. **Objectives:** To determine the reasons for non-compliance with medication and severity of illness among heart failure patients. **Methods:** A cross-sectional descriptive study was done among 277 heart failure patients who visited Cardiology department of Benazir Bhutto Hospital during 2020 and enrolled in study through consecutive non-probability sampling. Data was gathered pertinent to demographics, hospital stay, comorbidities, drug compliance, physical activity and reasons for expiry. Severity of disease was categorized by using NYHA classification. Variations in mean age of the both genders and length of hospital stay between recovering and expiring patients were statistically determined by independent sample t-test. P-value ≤ 0.05 was taken significant. 95% CI were also computed. **Results:** Of the 277 patients, 56% and 44% were males and females respectively with mean age 56.5 ± 15.9 years. Most (65.7%) were illiterate. There was significant difference (P 0.003) (95%CI (1.85 – 9.35) in mean age of both genders. About 71.8% and 25.6% patients belonged to low and middle social class respectively and 68% of them were non-compliant with medication. 59.3% were non-compliant due to unawareness while 23.4% and 15.9% had non-compliance due to non-affordability and adversity of medicines respectively. Out of 15 expiring cases, 13 succumbed to cardiac arrest. Mean length of hospital stay was 5.92 ± 3.7 days. About 122 and 112 cases were in NYHA heart failure class III and IV respectively. **Conclusion:** Incognizance about the medication was the prime reasons for non-compliance.

INTRODUCTION

Heart failure is determined to be the speedily perpetuating epidemic with elders constituting the main chunk of the sufferers [1]. This epidemic might be attributed to longer life expectancy of the people and availability of better treatment options for Coronary Artery Disease (CAD) and cardiac arrest [2]. The expenditure of hospitalization with decompensated heart failure constitutes 60% of total heart failure treatment cost [3]. Most of the acute decompensated heart failures cases are identified with deterioration of chronic malady [4]. Non-compliance with medication has commonly been reported among heart failure patients and is determined as the most frequent cause for hospital admissions due to resultant

emergencies and fatalities [5]. Approximately 80% compliance rate is required in order to make the treatment efficacious [6]. About 125,000 preventable deaths worldwide are attributed to medication non-adherence [7]. Apart from deteriorating the patients' health, non-compliance also radically affects the healthcare system. Barriers to medication adherence have prodigious impact on patients as well as healthcare services; apt identification and prompt rectification of which is remarkably important in order to refrain from grave consequences [8]. There are numerous determinants of non-compliance with medication particularly miscommunication between patient and doctor, non-

involvement in decision making, ignorance of drug's adversity and constrained resources [9]. Being asymptomatic has also been identified as the commonest precipitating factor for non-compliance among patients of a teaching hospitals [10]. The present study is intended to scrutinize the underlying reasons for non-compliance with medication among decompensated heart failure cases who visited the Cardiology department of Benazir Bhutto Hospital Rawalpindi during 2019 and 2020 for their respective ailments. Knowing the contributing factors would guide us towards mitigating their role in non-compliance with medication and hence would be beneficial in improving the healthcare outcome of cardiac failure patients.

METHODS

A cross-sectional descriptive study was carried out among 277 heart failure patients who consulted the cardiologist via OPD or Emergency department at Benazir Bhutto Hospital Rawalpindi during 2020. The patients were enrolled in the study through consecutive non-probability sampling. Data was collected regarding demographics, length of hospital stay, history of hypertension, diabetes, medication, symptoms associated with cardiac failure and limitations of physical activity by using structured questionnaire. Moreover, reasons for non-compliance with medication were also inquired. The data was collected by interviewing the patients and their attendants and gathering the responses. Reasons for expiry among the patients succumbing to heart failure were also scrutinized. The severity of heart failure among our patients was stratified by considering New York Heart Association (NYHA) classification which is an essential tool to decide the need for cardiac intervention or medication in accordance with general condition. It is of paramount significance to identify the risk among patients presenting in outpatient cardiology clinics [11]. This classification is revealed below in Table 1.

NYHA Class	Symptoms* / Clinical impairment
Class I	Cardiac disease but no symptoms and no limitations in ordinary physical activity
Class II	Mild symptoms and slight limitation during physical activity
Class III	Significant limitation in activity due to symptoms, comfortable only at rest
Class IV	Severe limitations, symptoms while at rest

Table 1: NYHA classification of severity of heart failure
*Symptoms – dyspnea, chest pain, fatigue, palpitations

Statistical significance of gender-based variation in mean age of heart failure cases and difference in mean hospital stay duration between surviving and dying patients was determined by independent sample t-test. $P < 0.05$ was considered significant.

RESULTS

Of the total 277 heart failure patients enrolled in this research, about 155 (56%) were males while 122 (44%) patients were females. Most (65.7%) were illiterate. About 13.7%, 12.6%, 6.5% and 1.4% of patients were educated up to primary, matriculation, intermediate and graduation level respectively. Mean age of the study participants was found to be 56.5 ± 15.9 years. Statistically significant difference was observed in mean age of male and female heart failure patients as illustrated below in Table 2.

Mean age of heart failure patients (n = 252)		P-value (95% CI)
Males (n = 155)	Females (n = 122)	
59.1 ± 14.6 years	53.5 ± 17.1 years	0.003 (1.85 - 9.35)

Table 2: Difference in mean age of males and females diagnosed with heart failure

Most (65.7%) of our study subjects were older than 50 years as illustrated in Figure 1.

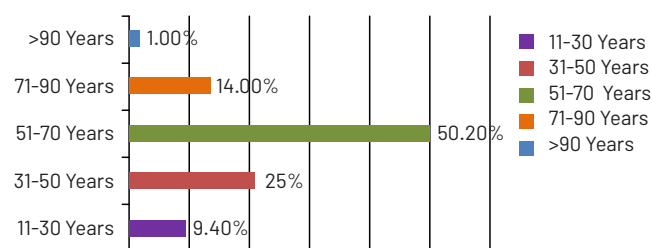


Figure 1: Age Demographics

About (199) 71.8% of the patients belonged to lower social class while 71 (25.6%) and 7 (2.6%) had middle and upper socioeconomic status respectively. Of the total 277, about 167 (60.3%) were non-diabetic while rest of the 110 (39.7%) were diabetic. Only 53 (48.2%) out of 110 diabetics were compliant with anti-diabetics. Of the total 277 heart failure patients in our research, 74 were hypertensive and among them only 12 were compliant with anti-hypertensive. About 183 patients out of 270 belonging to lower and middle social class were non-compliant with medication. Lack of proper counseling was determined to be the commonest reason for non-compliance to anti-diabetics and anti-hypertensives among our study participants as shown below in Figure 2.

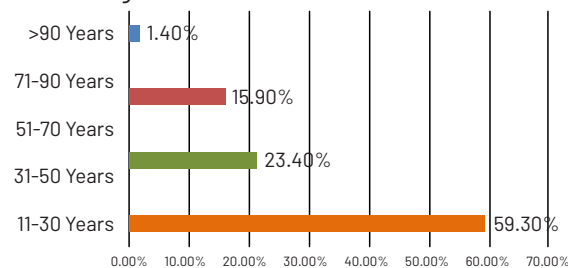


Figure 2: Reasons for non-compliance to medication (anti-hypertensives & anti-diabetics)

About 15 out of 277 heart failure patients expired and among them there were 9 males and 6 females. Of the 15

expiring cases, 01 died due to Left Ventricular Failure (LVF) and 01 succumbed to Ventricular Tachycardia (VT). Rest of the 13 patients died of cardiac arrest. However, 02 out of 262 discharging patients were later on shifted to Rawalpindi Institute of Cardiology (RIC) on personal request. Severity of illness among heart failure cases in accordance with NYHA classification is depicted below in Figure 3.

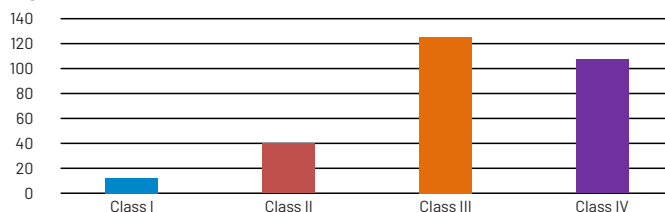


Figure 3: NYHA classification of heart failure cases (n=277)

Mean length of hospital stay was 5.92 ± 3.7 days. Difference in mean length of hospital stay between survived and discharged patients was statistically insignificant ($P=0.20$) as shown below in Table 3.

length of hospital stay (Mean \pm SD)	Discharged / survived (n = 262)	Died (n = 15)	P-value (95%CI)
	5.86 \pm 3.62 days	7.1 \pm 4.3 days	0.20 (-0.67 - 3.15)

Table 3: Mean length of hospital stay among heart failure cases (n = 277)

DISCUSSION

Due to the propensity of heart failure to affect more than 10% of the elders in any community, world is confronted with a prime public health challenge [11]. Despite the recent advancements in treatment of this ailment, 50% of the diagnosed cases have been reported with poor survival rate [12]. Non-compliance with medication has been recognized as one of the reasons for poor prognosis [13]. Mean age of acute decompensated heart failure patients in our study was 56.5 ± 15.9 years. However, females fell victim to this sickness at relatively younger age than those of males ($P<0.003$). On the other hand, Framingham heart study from United States illustrated heart failure prevalence of about 0.8% among 50-59 years old males and females that can likely be escalated to 6.6% and 7.9% among 80-89 years aged females and males respectively [14]. Diagnostic and interventional procedures pertinent to cardiovascular disease have been carried out relatively less among females; this aspect also directs our attention toward sex-related variations in physiology of cardiovascular system [15]. A similar study by Maas et al., among 64-85 years old people revealed age, ischemic heart disease and 2-3 comorbidities as the factors among males linked with heart failure; however; females in addition to age also had accompanying hypertension, obesity and indulgence in smoking and alcoholism [16]. Many heart failure biomarkers are not assessed among the patients in

consideration with gender based biological differences; searching this aspect might help scientists to spot the fundamental cause for this variation [17]. Such studies across multiple nations should be conducted for conceptual clarification regarding sex linked disparities pertinent to heart failure. About 71.8% and 25.6% of decompensated heart failure patients in our study had low and middle socioeconomic status. As Benazir Bhutto Hospital is location on main Murree Road Rawalpindi and is a public sector teaching hospital, it is quite convenient for the general public to get consultation for their ailments here and get free medications from its pharmacy as well [18]. About 68% of these cases belonging to low and middle social class were non-compliant with medications deemed necessary for their better health and sustainability. This non-compliance can be linked with categorization of most (84.5%) of our patients as NYHA class III and IV cases. Likewise, a study by Wu et al., carried out among western heart failure cases revealed significant statistical association of medication non-compliance with poor survival rate ($P=0.006$) [19]. This non-adherence to medication among our study subjects was mostly (59.3%) attributed to non-awareness or lack of counseling by healthcare providers. About 23.4% of our heart failure patients were non-compliant due to non-affordability while 15.9% and 1.4% were poorly compliant with medication due to side effects and non-availability of drugs respectively. On the other hand, heart failure patients of Netherlands had substantial compliance with medication but their adherence with healthy life style was remarkably low, so the recommendation of that study was to counsel the patients for lifestyle modification [20]. Non-adherence with medication is one of the hindrances in achievement of desirable outcomes with recommended drugs [21]. According to an international study, intentional non-compliance with medication among heart failure patients was linked with their own beliefs that seems to be one of the major motives for disregarding the healthcare providers' advice [22]. Beliefs of the patients can well be molded undoubtedly by proper counseling sessions and adequate awareness pertinent to their illness and its prognosis. As majority of the patients visiting our public sector healthcare facilities are illiterate or less educated, counseling and awareness by healthcare providers can prove valuable in improving the well-being of our patients in broad spectrum by adhering them to the prescribed medicines. In current study, mean length of hospital stay among heart failure patients was 5.92 ± 3.7 days with comparatively longer duration of stay among expiring cases than those who survived (Table 2); however, this difference was determined to be statistically insignificant ($P=0.20$). On the other hand, mean hospital stay duration

among heart failure cases admitted in a University Hospital of Ethiopia was 17.29 ± 7.27 days [23]. In a similar study carried out by Mitani et al., among Japanese heart failure hospitalized cases revealed median length of hospital stay equivalent to 17 days during which patients were also subjected to diagnostic procedures [24]. The length of hospital stay in our study was comparatively shorter than those reported among Ethiopian and Japanese heart failure hospitalized cases. Staying in hospital for longer period during initial heart failure is known to be associated with poor healthcare outcome and is determined as the leading cause of subsequent readmission [25]; the scenario is different among patients identified with severity of their ailment [26]. Nation-wise variations in duration of hospital stay among heart failure cases should thoroughly be studied with an intention to improve their prognosis.

CONCLUSIONS

Non-awareness about the need for medication and its benefits was the key contributing reason for non-compliance among heart failure patients. Non-affordability was attributed to their Poor socio-economic status. Proper counseling of the patients by consultants and facilitating them in procuring medicines can prove valuable in mitigating the magnitude of cardiac failure in our set up.

Conflicts of Interest

The authors declare no conflict of interest.

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