Original Article

Predictors Of Patients With Heart Failure Who Do Not Follow To Their Prescribed Pharmaceutical Therapy

Ayaz Mir[1], Javeria[2], Abdul Bari Babar[3], Sher Muhammad[4], Syed Zafar Ahmed[5], Hussain Liaquat Memon[6]

1. Ayaz Mir, Assistant Professor of Adult Cardiology, NICVD Karachi Pakistan. email: mir_smcian@yahoo.com (Corresponding author)
2. Javeria, Resident General Surgery, Liaquat University of Medical & Health Sciences Jamshoro Pakistan. email: javeriachang.123@gmail.com
3. Abdul Bari Babar, Senior Registrar Cardiology, Hamdard College of Medicine & Dentistry, Hamdard University Karachi Pakistan. email: bari.babar2022@yahoo.com
4. Sher Muhammad, Consultant Cardiologist, Civil Hospital Karachi Pakistan. email: drshermohammad@hotmail.com
5. Syed Zafar Ahmed, Instructor Cardiology, Tabba Heart Institute Karachi Pakistan, email: xafar29@hotmail.com
6. Hussain Liaquat Memon, Assistant Professor Cardiology, NICVD Karachi Pakistan. email: doctorhussain99@gmail.com

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Abstract

Objective: Determination of the association and frequency of the social and personal factors that are responsible for the lack of medication compliance in patients with heart failure

Study design: Cross-sectional study

Place and Duration: This study was conducted at NICVD Karachi from February 2022 to February 2023.

Methodology: The patients included in the present study were already admitted to the medical ward for the treatment of cardiac failure. The basic demographic data of the patients were recorded on a proforma, including their educational level, compliance status, and self-engagement in the treatment. The patients were called non-compliant if they had not been taking their medications according to their prescription or if they had not taken one of the ACE inhibitors, diuretics, spironolactone, digoxin, or beta-blockers. The data was carefully collected and statistically analyzed.

Results: A total of 133 patients were included in the present study. Overall, 36 (27.07%) patients were compliant with their treatment, while 97 (72.93%) were non-compliant. The patients who were self-engaged in the therapy, educated, and knew the names of their medicines were seen to be more compliant than the other patients.

Conclusion: Non-compliance with medical treatment is seen very commonly in cardiac failure patients. Lack of self-engagement and literacy are important factors associated with the non-compliance of patients.

Keywords: Social factors, personal factors, cardiac failure, non-compliance

Introduction

Heart failure (HF) is a prevalent cause of death on a global level. At present, 1 to 2% of the population is suffering from the disease, with a total rise of 10% in the population above 70 years old [1]. Non-compliance with the prescribed

medication is seen commonly in these patients [2]. The American Heart Association (AHA) and the European Society of Cardiology (ESC) recommend multiple medications, including diuretics, ACE inhibitors, beta-blockers, digoxin, and spironolactone [3]. Multi-drug therapy is frequently prescribed in HF, as this regimen is most beneficial in these patients [4]. Patients' failure to take their medications has serious consequences. It leads to an increase in the hospital stay and the frequency of hospital admissions, HF exacerbations that disturb the physical functionality of the patients, and even fatalities [5]. The life expectancy, advancement of the disease, and quality of life of patients with heart failure are highly dependent on treatment compliance [6]. It has been seen in studies that almost 25% of patients with heart failure are non-compliant with their medication [7]. It has also been noticed that almost half of these patients with chronic HF are not taking the clinically recommended dosages of the prescribed medications [8].

For the patients that do not follow their instructions, different terminologies are used, such as non-compliance, non-concordance, and non-adherence [9]. The term compliance refers to an act of obeying a wish, demand, or request to follow the treatment course [10]. The present study aims to determine the factors and frequency of non-compliance with the prescribed medications in patients that are being treated for HF. The study also aims at the identification of gender, social factors, personal factors, self-engagement of the patient, education level, and recognition of the medicines by the patient. The study will help in making strategies to increase patient compliance by focusing on the main cause of non-compliance.

Methodology

The present study is a cross-sectional, observational study. The study included adult patients older than 18 who had been admitted to the medical ward for the treatment of HF. The patients had been diagnosed with HF. A questionnaire was obtained from all the patients that included information about the patients, such as biodata, self-care status, educational level, and their ability to read the names of their medications and recognise them. The diagnosis of the patients was made based on their history, examination, and echocardiography. Other baseline investigations were also performed. According to the study's exclusion criteria, patients with valvular heart disease, renal failure, severe COPS, advanced malignancy, and other severe comorbidities were excluded. The patients were considered educated if they had passed the primary level of education and if they could read a newspaper.

The patients were called non-compliant if they had not been taking their medications according to their prescription or if they had not taken one of the ACE inhibitors, diuretics, spironolactone, digoxin, or beta-blockers. The patients who were able to tell the name of their medication even without the label were said to have recognised their medication. The patients who were taking their medication on their own were said to be self-engaged in the treatment. The data of the patients was collected carefully and analysed using IBM SPSS version 26.

Results

A total of 133 patients were included in the present study. Out of these, 82 (61.65%) were male patients, and the remaining 51 (38.35%) were female patients. Overall, 41 (30.82%) patients were educated, and 92 (69.17%) were uneducated. A total of 58 (43.61%) patients were taking the medications without being asked, while 75 (56.39%) were given medication by their caretakers. Overall, 42 (31.58%) patients were able to tell the name of their medication with and without the label on, while 91 (68.42%) patients were unable to recognize their medication. All this information has been represented in tabulated form in Table 1. The frequency of using different medications for HF was 78.4% for aspirin, 62% for diuretics, 57% for ACEIs, 38.3% for digoxin, 45% for beta blockers, and 44% for spironolactone. A total of 36 (27.07%) patients were compliant with their treatment, while 97 (72.93%) were non-compliant.

Table 1. Baseline data of the study population		
Characteristics	**Frequency**	**Percentage**

Gender		
Male	82	61.65
Female	51	38.35
Education		
Educated	41	30.82
Uneducated	92	69.71
Recognition of the medication		
Yes		31.58
No	42	68.42
	91	
Self-engagement in the treatment		
Yes		
No	58	43.61
	75	56.39
Compliance		
Yes	36	27.07
No	97	72.93

It can be seen from the data that the level of compliance is significantly associated with the level of education. Only 21 (22.82%) of the uneducated patients were compliant with the medication, whereas the remaining 70 (76.09%) were non-compliant. On the other hand, 15 (36.58%) of the educated patients were compliant, while the remaining 26 (61.9%) were non-compliant. Patients who were not self-engaged in the treatment were significantly non-compliant. Among those patients, only 15 (20%) were compliant, and 60 (80%) were non-compliant. A total of 21 (36.2%) of the patients that were self-engaged were compliant, whereas the remaining 37 (63.79%) were non-compliant. Overall, 8 (19%) patients that were not able to recognize the name of the medication were compliant with the medication, and the remaining 34 (80.95%) were non-compliant. The most significant association with non-compliance was seen in this group. Overall, 40 (43.96%) patients that were able to recognize the medication were compliant with the medication, and 41 (45.05%) of this group were non-compliant. The data for these patients has been represented in Table 2.

Table 2. Association of compliance with the variables of the study

Variables	**Compliance**	**Non-compliance**	**P-value**
Gender			
Male	23 (28.04%)	59 (71.95%)	6.315
Female	13 (25.49%	38 (74.51%)	
Self-engagement			
Yes	21 (36.2%)	37 (63.79%)	0.002
No	15 (20%)	60 (80%)	
Education			
Educated	15 (36.58%)	26 (61.9%)	0.37
Uneducated	21 (22.82%)	70 (76.09%)	
Recognition of the medication			
Yes	40 (43.96%)	41 (45.05%)	0.001
No	8 (19%)	34 (80.95%)	

Discussion

In a recent study, it was found that 60% of all prescribed medications are not taken correctly, or even not taken at all in some cases [11]. Non-compliance with medication in patients with cardiac failure results in low quality of life and also increases the risk of mortality. The disease is one of the major reasons for repetitive hospitalization [12]. The rate of non-compliance with medication was 72.93%. Gender was not a significant factor related to the non-compliance. The present study shows a significant association between non-compliance and the level of education.

The study of van et al. focuses on similar goals as that of the present study. They not only tried to look into the factors responsible for non-compliance, but they also described the consequences of non-compliance with medication in patients with heart failure. They reviewed the relevant literature from 1988 to 2003. They concluded that non-compliance with medication is a major problem seen in patients with heart failure. Strict compliance can increase the life expectancy of such patients [13]. In another study by Van et al., they studied patients with heart failure and the factors associated with non-compliance. They included 501 patients with HF in their study. The study was a cohort. The patients were given questionnaires to fill out to acquire information regarding their beliefs, compliance, knowledge, and self-care. They saw that compliance was 72% in elderly patients. They concluded that compliance with weight reduction and exercise was lower. They also concluded that proper counselling of the patient and a higher level of education can improve complications [14]. Their study showed similar results compared to the present study, which also found a significant association between the level of education and compliance with medication.

The study of Hauptman et al. considers non-compliance a huge hurdle in the treatment and positive outcomes of treatment in patients with HF. According to their study, the drug intake behaviour of the patient, initiation of medication during the hospital stay, simplification of dosing, use of long-acting formulas, and improvement in communication between patient and doctor can help in better treatment outcomes [15].

Sen et al. conducted a study to evaluate the factors related to non-compliance in HF patients and their solutions. They included 112 patients with HF in their study. They observed that only 54.5% adhered to the medication prescribed by the doctors. The factors that were associated with medication adherence were gender, comorbidities, knowledge of the patient regarding the disease, cognitive function of the patient, and level of education. Improvement of all these factors can help in the prevention of fatal outcomes from heart failure [16].

Conclusion

Compliance with medication is crucially important for patients with cardiac failure. Non-compliance has lethal consequences. Non-self-engagement of the patients and low education levels are significantly correlated with the non-compliance of the medication.

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