

Factors Affecting Treatment Compliance of Heart Failure Patients in Sudan

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Abstract

Introduction: Heart failure is known to affect cardiovascular morbidity and mortality, the present study aimed to identify most common factors affecting compliance to treatment among Sudanese patients with heart failure. **Methods:** This cross-sectional study was conducted during January –October 2014 on all heart failure patients (132) admitted to the Sudan heart Institute. Demographic and clinical data were collected from all patients and analyzed using SPSS version 20 software. The data was analyzed by using descriptive statistics including frequency, percentage, mean with standard deviation (SD) Chi-square, P value of ≤ 0.05 was considered statistically significant. **Results:** The result of present study revealed that overall of 132 patients' compliance ranged between 7 (5.3%) and 117(88.6%) of the patients, the high rate of compliance was found in medications 117 (88.6%), and follow –up appointment keeping 108 (81.8)%. barriers or reasons of not complying with treatment compliance and life style modification were determined, the main reasons were stopping medication due to; cost of the medications 56(42.4%), lack of knowledge to comply with the dietary restrictions 102 (77.2%), lack of knowledge to weight himself daily 111(84.0%), lack of knowledge to comply with the dietary high in potassium 113(85.6%), and lack of knowledge to avoid drinking excess fluids 106(80.3%). **Conclusion:** The study showed that the knowledge seem to be main cause of non-compliance. Thus, education and counseling are extremely needed to increased patients-knowledge about their disease, in general to decreasing the level of non-compliance and to promoting of achieving the positive medical care outcomes as possible.

Keywords

Heart Failure, Treatment Compliance, Factors, Sudan

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1. Introduction

Heart failure (HF) is defined, clinically, as a syndrome in which patients have typical symptoms (e.g. breathlessness, ankle swelling, and fatigue) and signs (e.g. elevated jugular venous pressure, pulmonary crackles, and displaced apex beat) resulting from an abnormality of cardiac structure or function(1).

Therapeutic compliance not only includes patient compliance with medication but also with diet, exercise, or life style

changes. In order to evaluate the possible impact of therapeutic non-compliance on clinical outcomes, numerous studies using various methods have been conducted in the United States (USA), United Kingdom (UK), Australia, Canada and other countries to evaluate the rate of therapeutic compliance in different diseases and different patient populations (2).

Non-compliance with medication and diet contributes to

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worsening HF symptoms, in many cases leading to hospitalization (3-5).

poor compliance by patients with prescribed medication or other caregiver recommendations such as lifestyle changes is a widely acknowledged problem (6). "noncompliance" usually refers to patients' failure to follow health interventions as recommended by the health care provider, but it can also refer to the providers' failure to act according to practice guidelines or standards of care (7). Factors associated with compliance can be divided into patient-related factors, regimen-related factors, and factors related to the health care provider (8). In this study, only patient-related factors are included. Important patient-related factors that are known to be related to compliance are, knowledge on HF and the HF regimen, benefits and barriers (beliefs) about the HF regimen, and clinical and demographic factors, including age, gender, marital status, educational level, severity of the disease, and depressive symptoms (9). The complex, progressive nature of HF often results in adverse outcomes(10). Very rare, if any, data about Sudanese HF patient compliance exist, thus the present study, is the first ever study, which aimed to assess the compliance to treatment and to identify factors or barriers affecting compliance to treatment among Sudanese patients with heart failure.

2. Materials and Methods

A total of 132 Sudanese HF patients were selected from Sudan Heart Institute in Khartoum during January-March 2014. All patients were admitted. Inclusion criteria, patients above 20 years, confirm diagnosed with heart failure by the cardiologist at least 1 month and already start HF treatment, ability to communicate, Exclusion criteria were patients failed to understand the questions or refuse to participate in the study were excluded. Demographic and clinical data were collected from medical records of the patients and/or by direct interviews by the researcher. The demographic data included age, gender, educational level, and marital status, whereas clinical variables were left ventricular ejection fraction (EF), previous hospitalization in the past three months, and duration of HF (Table 1). Depends in other studies the data on factors related to compliance were collected. (11) .

To assess compliance, the revised HF Compliance Questionnaire was used (12), on a five point scale (1=never; 2= seldom; 3= half of the time; 4 =mostly;5=always:)(13).the participant's compliance to medications, diet, fluid restriction, exercise, weight, and appointment keeping was evaluated by asking patients to rate their compliance of the last week (medication, diet, fluid restriction, and exercise), the last month (daily weighing), and the last 3 months (appointment

keeping) before hospitalization. Patients were divided into two groups either compliant (if they follow medical advice or recommendations on appointment keeping, medication, diet, fluid restriction, and exercise 'always' or 'most of the time') or noncompliant (following recommendations 'half of the time', 'seldom', or 'never') which is confirmative with other studies (11;14-16) (Table 2).

Data was presented using descriptive statistics including frequency, percentage, mean with standard deviation (SD) and P-value of ≤ 0.05 was considered statistically significant.

Ethical approval was obtained from Al Neelain Ethical committee at Al Neelain University. All patients signed an informed consent before participate in the study.

3. Results

Of the 132 patients, 55.4% were male and 39.6% were female; the mean age was 62.2 (± 12.8) years .The analysis of education level showed that 30.3 % of patients were illiterate, 31.8 % had completed primary school, 22.0% secondary school, and 15.9 % had university graduation (Table 1). The result of present study revealed that overall of 132 patients' compliance ranged between 14 (10.6%) and 117(88.6%) of the patients, the high rate of compliance was found in medications (88.6%) and follow –up appointment keeping (66.6%). In general most patients showed low compliance are found in fluid restriction 14 (10.6%), and exercise 16 (12.12%), and daily weighing 22 (16.6%) (Table2).

Factors or barriers of Non-compliance

Table 3 below shows the pattern of reasons of non-compliance to treatment regimen among heart failure Sudanese patients. About 13% reported sometimes stop medication due to fear of side effects, 42.4% of respondents reported stopped medication due to because of expenses, 37.1%reportedbelieved that ineffective of the medicine to stabilize his/her heart failure, 58.3% reported lack of motivation because his/her cannot be cured, 77.2%reported lack of knowledge to comply with the dietary restrictions,84% reported lack of knowledge to weight himself daily, 85.6% reported lack of knowledge to comply with the dietary High in potassium, 80.3% lack of knowledge to avoid drinking excess fluids. Table 3.

4. Discussion

The non-compliance of HF patients is a major problem and remains to be a continuous source of concern for patients and treating doctors due to the inevitable consequences, worsening symptoms and leading to hospital readmission. The highest rates of non-compliance are found in diet and

fluid restriction, daily weighing and activity.

Although, several studies on compliance of HF patients have been performed worldwide, to our knowledge this is the first ever study conducted in Sudanese HF patients.

The result of present study revealed that overall of 132 patients' compliance ranged between 7 (5.3%) and 117(88.6%) of the patients, the high rate of compliance was found in medications 117 (88.6%) and follow-up appointment keeping 108 (81.8%). The highest rates of non-compliance are found in fluid restriction 7 (5.3%), and 16 (12.12%), and daily weighing 22 (16.6%). The result of the present study showed low compliance compared with other previous studies. Study conducted by van der Wal in which the compliance with medication (98.6%), appointment keeping, salt restriction (79%), fluid restriction (73%), exercise (39%), and weighing (35%) were all higher compared with the results of the present study (11). Also the compliance level of present study is lower to study done by Evangelista which found higher levels of compliance (> 90%) were noted for (follow-up appointments, medications, smoking, and alcohol cessation), low compliance dietary 71% and exercise recommendations 53% (14). Medication compliance in the present study result is higher to the study done by Kamlovi Yayhd which found 74.7% that compliance to medication (17).

Distribution of HF patients participated in the present study by barriers or reasons of not complying with treatment compliance and life style modification were determined, the reasons were stopping medication due to; believe that ineffective of the medicine to stabilize my heart failure 49 (37,12%); cost of the medications 56(42.4%), lack of knowledge to comply with the dietary restrictions 102(77.2%), lack of knowledge to weight myself daily 102(77.2%), lack of knowledge to comply with the dietary High in potassium 113(85,6%), and lack of knowledge to avoid drinking excess fluids 106 (80.3 %). Study done by Almas et al, 2005; Hashim et al 2007; support the points above that knowledge deficit is seem the most important reason of non-compliance.

Study done by van der Wal, M.H.; Jaarsma, T. The aims of this systematic literature review to describe the consequences of non-compliance in HF patients; a literature search database from 1988 to June 2003 was performed. The study concluded that non-compliance with medication and other lifestyle recommendations is a major problem in patients with HF, the study recommended interventions need to be developed and tested which might be can increase compliance and prevent HF related readmissions in order to improve the quality of life of patients with HF (18).

Study done by Cline, C.M.; Bjorck-Linne, A.K. to determine

the extent of non-compliance to prescribed medication in elderly patients with heart failure and to determine to what extent patients recall information given regarding their medication, Non-compliance and knowledge of prescribed medication was studied in 22 elderly heart failure patients result of the study Only 12 (55%) patients could correctly name what medication had been prescribed, 11 (50%) were unable to state the prescribed doses and 14 (64%). In the overall assessment six (27%) patients were found non-compliant and 16 (73%) patients were considered as possibly being compliant with their prescribed medication. At end of the study they conclude that, Non-compliance was common in elderly heart failure patients, as were shortcomings in patient's knowledge regarding prescribed medication, despite efforts to give adequate information. There exists a need for alternative strategies to improve compliance in these patients (19).

The result of the present study may be a reflection of lack of knowledge and training programs offered to HF patients in Sudan. Although knowledge is important to improve compliance, increasing patients' knowledge, and changing non healthy beliefs about the regimen. Therefore, interventions that can improve perceptions of benefits and reduce barriers to the HF regimen need to be developed and tested.

Collaborative efforts are needed to improve compliance to treatment in Sudanese HF patients. Patients understanding their drug regimens help to improve compliance to treatment thereby preventing complications and the debilitating outcomes (Kumar & Halesh, 2010). Lack of compliance to health-promoting advice challenges the successful prevention and management of many conditions. This may be a reflection of lack of knowledge and training programs offered to HF patients in Sudan. Although knowledge is important to improve compliance, increasing patients' knowledge, and changing on healthy beliefs about the regimen. Therefore, interventions that can improve perceptions of benefits and reduce barriers to the HF regimen need to be developed and tested.

Limitation of the current study was that self-reported questionnaires were used to measure the concepts of interest. It is possible that patients overestimated their compliance because of a tendency to give socially desirable answers.

5. Conclusion

In this study, the researcher found that total compliance was poor for HF Sudanese patients, compliance with medication and appointment keeping was high but still in an unacceptable level. Compliance with diet, fluid restriction, activity and daily weighing was low, based on result of

present study, education and counseling are extremely needed to more therapeutic compliance of HF Sudanese patients. to increased patients-knowledge about their disease, leading

Table 1. Demographic and clinical characteristics of the study population (n=132).

Characteristic	Mean(SD)	Frequency	(%)
Age	62.2 (±12.8)	132	
Sex	Male	83	62.8%
	Female	49	37.1 %
Marital status	Married	104	78.8%
	Single	9	6.8%
	Widowed	16	12.1%
	Divorced	3	2.3%
Employment Status	Employed	36	27.3%
	Unemployed	65	49.2%
	Retired	31	23.5%
EducationalLevel	Illiterate	40	30.3%
	Primary	42	31.8%
	Secondary	29	22.0%
Duration Of Disease	University/ Graduate	21	15.9%
	Less than one year ago	51	38.6%
	One to threeyears	66	50%
NYHA class	Four years and above	15	11.3%
	Class I	5	3.8%
	ClassII	18	13.6%
	ClassIII	61	46.2%
Ejection Fraction	Class IV	48	36.4%
	Mean SD (35.6 ±14)	132	
Previous HF Emergency admissionsin the past three month	No admission	29	21.9%
	1-3 times	59	44.6%
	>3 times	44	33.3%

Table 2. Compliance (Medications, diet, Fluid restriction, Exercise, weight, and appointments keeping).

How often	Compliant Frequency (%)	Non-compliant Frequency (%)
Do you take your medications exactly as directed?	117 (88.6%)	15 (11.3%)
Do you weigh yourself daily? Or at least three times a week?	22 (16.6 %)	110 (83.3%)
Do you follow a low sodium diet?	27 (20.45%)	105 (79.5.5 %)
Do you avoid drinking excess fluids?	7 (5.3%)	125 (94.6 %)
Do you get regular exercise?	16 (12.12%)	116 (87.87%)
Do you Keep follow-up appointments?	108 (81.8%)	24 (18.2%)

Table 3. Barriers or treasons of not complying with medication and life style changes.

Item	Strongly disagree Freq. (%)	Disagree Freq. (%)	Agree Freq. (%)	Strongly Agree Freq. (%)
Stop medicine becauseFear side effects	16(12.1%)	89(67.4%)	18(13.6%)	9 (6.8%)
Stop medicine because of expenses	21(15.9%)	45(34.09%)	56(42.4%)	10(7.5%)
Believethat Ineffective of the medicine to stabilize my heart failure	10(7.5%)	34(25.7%)	49(37.1%)	39(29.5%)
Lack of motivation because I cannot be cured	21(15.9%)	29(21.9%)	77(58.3%)	5(3.7%)
Lack of knowledgeto comply with the dietary restrictions	5(3.7%)	10(7.5%)	102(77.2%)	15(11.3%)
Lack of knowledge to weight myself daily	7(5.3%)	8(6.0%)	111(84.0%)	6(4.5%)
Lack of knowledgeto comply with the dietaryHigh in potassium	3(2.2%)	7(5.3%)	113(85.6%)	9(6.8%)
Lack of knowledge to avoid drinking excess fluids	66(4.5%)	12(9.0%)	106(80.3%)	10(7.5%)
Not having enough time to exercise	9(6.8%)	96(72.7%)	17(12.8%)	10(7.5%)

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