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Original Article

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Evaluation of compliance to "Discharge Instruction" among Post Myocardial Infarction Patients at Teaching Hospital Hyderabad, Pakistan"

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ABSTRACT

BACKGROUND & OBJECTIVE: Myocardial Infarction (MI) is a global health challenge and a leading cause of mortality. The objective of this study to evaluate the compliance of discharge instructions in post-MI patients.

METHODOLOGY: A cross-sectional descriptive study involved 180 participants selected through a pilot study survey. Data was collected at the Cardiology Outpatient Department (OPD) of Liaquat University Hospital, Hyderabad, over a six-month period from June 2021 to November 2021. A self-structured questionnaire was used for data collection, employing non-probability purposive sampling. Data analysis utilized Statistical Package for Social Sciences (SPSS) version, and using non-parametric test such as McNemar qualitative variables, mean and standard deviation, frequency, and percentage.

RESULTS: Following myocardial infarction, significant shifts were observed towards healthier behaviors. These included improved dietary adherence, increased consumption of fresh produce, regular physical exercise, and meticulous medication compliance. In contrast, habits like smoking and alcohol consumption persisted with minimal change. The consumption of fresh fruit, vegetables, fish, and low-fat dairy products also exhibited a significant difference (P< 0.001) between pre- and post-myocardial infarction patients, indicating a notable decline in adherence to a healthy diet following the cardiac event. Regular walking as part of physical activity showed a significant decrease post-myocardial infarction (P< 0.001), suggesting a potential change in exercise habits following the cardiac event.

CONCLUSION: Post-myocardial infarction patients show positive changes in lifestyle behavior's following discharge instructions, with improvements in diet, exercise, and medication adherence. However, challenges remain in addressing smoking and alcohol.

KEYWORDS: Cardiovascular Diseases, Myocardial Infarction, Discharge Instruction, Lifestyle Behavior.

INTRODUCTION

Myocardial Infarction is the death of the heart muscle and its irreversible condition due to poor supply of oxygen to the heart muscle, and it is the leading cause of death around the world MI is the most common type of cardiovascular diseases (CVDs) [1-3].

Approximately 16 million cases of MI occurred in China. In 2023, it is estimated that 23 million cases will occur in China. In contrast, the prevalence of MI is increased in both developed and developing countries but markedly increased in developing countries. As the developing countries are low-income countries and they do not have sufficient facilities or services to deliver discharge education in a well-organized manner [4].

Discharge instruction is one of the important factors affecting the prognosis in post-myocardial infarction (MI) patients [5-7]. Most of the patients do not show compliance to the instruction after discharge form hospital at home. It is estimated that 20% of patients make mistakes regarding discharge instructions during the first two to three weeks after discharge from the hospital. In addition, 60-80% of patients do not show compliance with discharge instructions regarding long-term treatment. Consequently, poor compliance results in recurrent MI, hospital readmission and longtime stays [8].

Discharge instruction can change and improve the lifestyle behaviors of patients and is very helpful to control as well as minimize recurrent MI, hospital readmission, and longtime stay in hospital. The reason is to provide sufficient

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knowledge to the patient about health condition and their risk factors, for example, physical activity, diet, smoking and alcohol, blood pressure, sugar and cholesterol at the time of discharge, which can impact atherosclerosis development [9-,10].

As far as rationale of the study is concerned, upon surfing the internet, it was found that national literature is not enough regarding the evaluation of compliance to discharge education to the post-MI patients. Therefore, we designed this study to evaluate the compliance to discharge instructions and its impact upon lifestyle changes among patients of MI after discharge from the hospital. Hence, this study will be helpful to the community and health care delivery system as well as policymakers to improve the health status of a population.

METHODOLOGY

It was a cross-sectional descriptive study, and a total of 180 participants, both male and female patients, were included in the study. The duration of the study was six months between June 2021 and November 2021. This study was performed at the Cardiology Outpatient Department (OPD) Liaquat University Hospital Hyderabad among post-myocardial infarction patients after the approval from the Ethical Review Committee (ERC) (ERC # NO. LUMHS/REC/-108), Liaquat University of Medical & Health Sciences Jamshoro as well as consent from Head of Cardiology Department of Liaquat University Hospital Hyderabad.

Informed written consent was taken from all the patients. The patient who had a history of first-time heart attack with stable angina and age 30 to over 60 years were included in the study. The patients with unstable angina, recurrent MI, and previous history of MI were not entertained in this study. Data was collected by purposive non-probability sampling technique through a self-structured questionnaire. The questionnaire was divided into two sections; one was about demographic characteristics, shown in table 1and the other about lifestyle changes, as shown in table 2. The study tool was reviewed by expert cardiologist and reliability of tool was 0.80 by using test Cronbach's Alpha.

The data was analyzed by using Statistical Package for Social Sciences (SPSS) version 19 and used a McNemar test for qualitative variables and also for comparison with pre and post-observations.

RESULTS

Of the 180 participants in this study, 93 (51.7%) were female, while 87 (48.3%) were male. The majority, 174 (96.7%) were married, and 141 (78.3%) resided in urban areas. Approximately three-quarters of the participants had either primary or secondary education. In terms of occupation, 66 (37%) were employed in private services. Notably, 91(50.5) of the participants identified as middle class, as detailed in Table-I.

Table-I: Demographical characteristics of study participants (n=180).

Variables	Response	n (%)
Gender	Male	87(48)
	Female	93(52)
Age group	30-40	21 (12)
	40-50	79(44)
	50-60	56(31)
	60orover	24(13)
Residency	Rural	39(22)
	Urban	141(78)
Educational Level	Primary	63(35)
	Secondary	70(39)
	Bachelor	14(8)
	Master	2(1)
	Uneducated	31(17)
Marital Status	Married	174(97)
	Single	6(3)
Occupation	Government Service	49(27)
	Private Service	66(37)
	Self-employed	28(16)
	Not working	37(21)
Economic status	Upper-class	29 (16.2)
	Middle-class	91 (50.5)
	Lower-class	60 (33.3)

In table -II depicts the results of the study comparing pre- and post-myocardial infarction patients across various lifestyle and healthcare-related variables. The analysis reveals statistically significant differences in several factors. Firstly, in terms of smoking habits, all patients, both pre- and post-myocardial infarction, exhibited no significant change (P=0.999), indicating that smoking behavior remained consistent before and after the event.

Similarly, the consumption of alcohol did not show a significant difference between pre- and post-myocardial infarction patients (P= 0.999), suggesting that alcohol intake did not vary significantly before and after the cardiac event. On the other hand, maintaining a routine diet showed a highly significant difference between the two groups (P< 0.001), with a substantial decrease in patients adhering to a routine diet post-myocardial infarction. This emphasizes the potential impact of the event on dietary habits.

The consumption of fresh fruit, vegetables, fish, and low-fat dairy products also exhibited a significant difference (P<0.001) between pre- and post-myocardial infarction patients, indicating a notable increase in adherence to a healthy diet following the cardiac event. Regular walking as part of physical activity showed a significant decrease post-myocardial infarction (P<0.001), suggesting a potential change in exercise habits following the cardiac event.

Checking Body Mass Index (BMI) did not show a significant difference between pre- and post-myocardial infarction patients (P=0.999), indicating that BMI monitoring remained consistent before and after the event.Sleep patterns did not show a significant difference (P=0.9999), indicating that sleep habits remained unchanged post-myocardial infarction.

Medication-related variables demonstrated significant differences post-myocardial infarction. Patients were more likely to maintain compliance with prescribed medicine (P<0.001), take medicine properly (P<0.001), and avoid using medicine without prescription (P<0.001) post-event, highlighting an improvement in medication adherence. Finally, the maintenance of sexual activity did not show a significant difference between pre and post-myocardial infarction patients (P = 0.999), indicating that sexual activity remained consistent across both groups.

Table-II: Relationship between Pre-Myocardial Infarction patients' and Post Myocardial Infarction Patients' Life style changing characteristics after discharge from hospital (n= 180)

Variables	Categories	Pre Myocardial Infarction patients n (%)	Post Myocardial Infarction patients n (%)	P-Value
Did you smoke/ Have you smoked	Yes	78(43.33)	78(43.33)	0.999
	No	102 (56.66)	102(56.66)	
Did you take alcohol/Have you taken alcohol	Yes	29(16.11)	29(16.11)	0.999
	No	151(83.89)	151(83.89)	
Did you consume alcohol / Have you quit taking alcohol	Yes	28(15.55)	29(16.1)	0.999
	No	152(84.45)	151(83.9)	
Do you have maintained your diet in routine/ Did you have maintained your diet in routine	Yes	25(13.88)	174(96.7)	<0.001
	No	155(86.12)	6(3.3)	
Do you eat fresh fruit, fresh vegetables, and fish and low-fat dairy products/ Did you eat fresh fruit, fresh vegetables, and fish and low-fat dairy products	Yes	3 (1.67)	175(97.2)	<0.001
	No	177(98.33)	5(2.8)	
Do you go for a Walk regularly/ Did you go for a walk regularly	Yes	14(7.78)	33(18.3)	<0.001
	No	166(92.22)	147(81.7)	
Do you have checked BMI/ Did you have checked BMI	Yes	162(90.0)	161(89.44)	0.999
	No	18(10.0)	19(10.56)	
Do you sleep normally/ Did you sleep normally	Yes	161(89.44)	162(90.0)	0.9999
	No	19(10.56)	18(10.0)	
Do you have compliance towards medicine/ Did you have compliance towards medicine	Yes	52(28.88)	171(95.0)	<0.001
	No	128(71.11)	9(5.0)	
Do you take medicine properly/ Did you have taken medicine properly	Yes	79(43.9)	171(95)	<0.001
	No	101(56.1)	9(5)	
Do you have used medicine without prescription/ Do you skip your medicine.	Yes	127(70.56)	25(13.9)	<0.001
	No	53(29.44)	155(86.1)	
Do you have Maintained sexual activity	Yes	164(91.12)	164(91.1)	0.999
	No	16(8.9)	16(8.9)	

DISCUSSION

In our research, we focused on post-MI patients who experienced their first heart attack and exhibited stable angina. Notably, 141(78.3%) of the participants resided in urban settings, suggesting that the place of residence significantly impacts health conditions. This observation might be attributed to the potential lack of awareness or knowledge among urban dwellers regarding the disease and its risk factors. Another study also corroborated that geographical areas can influence health outcomes [14].

Most of the patients in our research had primary or secondary education and were aware of their health conditions and associated risks—for instance, understanding that both smoking and alcohol consumption are detrimental to health. While not all participants had ceased their smoking and alcohol habits, efforts were being made to quit. Our findings align with several other studies indicating that even mild to moderate alcohol consumption can elevate the risk of cardiac complications by 40 to 70%. Both smoking and alcohol act as exacerbating factors for atherosclerosis [15-16].

"Both pre-myocardial infarction (MI) and post-MI patients, 25(13.88%) adhered to their prescribed diets.(with a significance of P<0.001) Yet, only 3 out of 180 patients (1.67%) consumed fruits, fresh vegetables, fish, and low-fat dairy products.(P<0.001). Only 6 (3.3%), had their Body Mass Index (BMI) assessed. (P-value=0.999) A study from Sweden conducted in 2016 highlighted the potential negative impact of a BMI greater than 25kg/m2 or less than 18.5kg/m2 on MI patients [17].Moreover, 14 patients (7.78%), pre- and post-MI patients reported regular walking. (P<0.001). A separate Swedish study underscored the importance of exercise as secondary prevention, noting its potential to decrease mortality rates among post-MI patients [18]. Both exercise and BMI play crucial roles in the health of pre and post-MI patients, influencing the progression of atherosclerosis [19,20].

The findings of this study align with previous research by Hanumanthu [21], West [22], and Kostis et al [23]. These researchers have indicated that structured discharge education can effectively reduce hospital readmissions, decrease the duration of hospital stays, and mitigate the recurrence of MI.

These observations are consistent with previous studies, which indicate that a hospital discharge within 48-72 hours carries a lower associated risk (10, 23). Given the critical nature of Myocardial Infarction [24], there's a pressing need to refine discharge protocols, booster discharge education strategies, and potentially undertake significant overhauls in the hospital system [22].

CONCLUSION

Following a myocardial infarction, we observed a noteworthy shift towards healthier behaviors, encompassing areas like dietary adherence, increased consumption of fresh products, regular physical exercise, and meticulous medication compliance. In contrast, the habits such as smoking and alcohol intake persisted with little to no change. This dichotomy suggests that although cardiovascular events might prompt heightened health-awareness in some domains, entrenched habits like smoking and alcohol use remain resistant to change.

Our study underscores the pivotal role of discharge education for cardiac patients, particularly those recovering from an MI. A well-organized and structured discharge educational program has the potential to elicit positive behavioral responses post-MI, thereby reducing the likelihood of recurrent attacks, subsequent hospitalizations, and frequent hospital revisits.

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