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IMPACT OF NURSING DISCHARGE INSTRUCTIONS ON READMISSION RATE IN HEART FAILURE PATIENTS: A COMPARATIVE STUDY

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Contribution

ZI conceived the idea and designed the study. Data collection was done by MP and MA. MP did manuscript writing. Final review was done by YB and AA did review. All authors contributed equally to the submitted manuscript.

All authors declare no conflict of interest.

ABSTRACT

Objective: To assess the impact of nursing discharge instructions on readmission rate in heart failure patients at tertiary care hospital of Karachi.

Methodology: A quasi experimental study was conducted and patients suffering with heart disease admitted in National Institute of Cardiovascular Diseases were selected in the study from 1st January to 31st December 2017. Patients were divided into two groups. In intervention group, discharge instruction and teaching material was given along with follow up through for guidance a suitable interval to reduce the complications.

Readmission rate determined at 7th day and 30th day. Whereas for control group, only discharged instructions under existing routine process were given. The data was analyzed through SPSS version 21. Wilcox on Matched signed Rank test and Mann Whitney U test was used to compare the data whereas demographic data was compared through chi-square test.

Results: A total of 80 patients were included in the study, 40 in each group. interventional and control of the disease assessed at base line, at 7th day and at 30 day was found more in interventional group with less readmission rate as compared to control group (15 i.e. 37.5% in control group and 5 i.e.12.5% in interventional group). Regarding medication and proper management of their illness (self-care), the interventional group has high level of competency regarding their management for their disease and routine life caring (12.5% in control group and 70% in interventional group) and the difference was found statistically significant.

Conclusion: Educating the heart failure patients at discharge, 7th day and 30th day post discharge reduce the complication and re admissions in these patients.

Key Words: Heart failure, hospital discharge instruction, Re-admission rate, Patient education.

INTRODUCTION

Heart failure is a disease in which heart could not pump the required blood supply to the body due to certain reasons. The most reasons are heartweakness and heart muscles enlargement. Due to this, patients required immediate admission whereas it also causes high mortality in such patients.[1,2] According to a study, the worldwide burden of heart failure is around 20 million which presented as prevalence of it in general population with 2-3 %.[1] Pakistan is on 13th place for the heart disease burden in the world where heart failure cases are around 35 - 40 percent of all other disease burdens.[4,5,7] The main reason for such a high prevalence of the disease in developing countries like Pakistan are lake of health awareness and change of life style, high cholesterol diet, increase BMI, less physical activities, smoking, and high use of junk foods.[3-5]

In heart failure patients, it is estimated that around 20% of all such admitted patients get an unplanned revisit or readmission with in initial 30 days of the discharge from hospital. The main cause is poor health out come and poor quality of life which is mostly due to their unpreparedness for the discharge and did not understand and follow the discharge instructions.[5] A study concluded that hospital performance on 30-day re-admissions in HF has no or little association with risk adjusted 3-year mortality or median survival.[6] There is a compelling need to utilize more meaningful and patient-centered outcome measures for reporting and incentivizing quality care for HF.

Discharge process is a complicated one and actually starts from well before the planned discharge. The term of discharge is used for a patient's transfer from hospital to mainly home for post hospitalization care.[8] During this very important transaction period, the patient is at risk developing, readmission, poor quality of life and patient's satisfaction level for future strategies.[9] It is determined by the patient's ability to face the new situation self care, family support and understanding of the new pathway of life.[10] It has been observed in a study, that before discharge of the patient, the need of the patient did not properly identified and understand by the discharging health professional team to reduce the chances of complications and readmission.[11] However in another study, it was determined that 30 days readmission did not improved by focusing the factors of patient but it should be on the basis of individual characteristics and strategies related to reduction in re-admissions.[12]

Nursing discharge instruction is basically a plan to prepare the patients to become ready for discharge but for this purpose the health care team should consider the socio-demographic characteristic and patient's condition which could develop discharge readiness of the patient.[13] It is documented that the role of nurses is very important regarding patient's quality care and expected outcome of health in patients suffering with HF.[4] A study result showed that 40% of the HF patients above the age of 65 committed medication error and out of these 18% cases got readmission within 30 days after discharge.[15]

It is essential for the HF patients to attend the education provided to them to prevent complications after discharge. Through this, their chances to got readmission reduced significantly.[16] According to a study, heart failure is increasing in developing countries. In Peshawar, there is an increase in such patients from 14.5 to 22.87 percent. It is also noted that in these patients the hospital stay was much longer (1-18 days) as compared to USA (1-6 days). 30 days readmission was 25% out of which 32% were due to non compliance of diet and drugs. Out of the readmitted patients, 53% could be prevented through proper discharge education of the patients.[17]

In a study, it was concluded that more readmission are shown due to poor coordination of discharge instructions by health care team. The readmission rate of heart failure patients reported in this study was 13 percent for 15 days, 25 percent for one month in the USA.[18]

In another study, it was reported that Home based intervention reduced the unplanned readmission and mortality rate of patient with congestive heart failure. Furthermore study results showed fewer unplanned admission and death in home based interventional group as compare to control group those who received routine care. Home based intervention reduced the readmission rate of elder patients. Trained nurses play an important role in discharge planning. Readmission rate among control group reported 37% as compare to intervention group 6.2%. Decrease in hospital stay and increased in the duration of readmission in intervention group was found significant.[19]

The objective of the study was to assess the impact of nursing discharge instructions on readmission rate in heart failure patients and tertiary care hospital of Karachi.

METHODOLOGY

A quasi experimental study was conducted through non probability convenient sampling technique to determine the Impact of nursing discharge instructions on readmission Rate in Heart Failure Patients at Tertiary Care Hospital of Karachi from 1st January to 31st December 2017. Before collection of data, study was approved by Scientific Committee, IRB and BSR of Dow University of Health Sciences. On the basis of inclusion criteria and sample size of the study, patients were selected with primary diagnosis of heart diseases admitted in National Institute of Cardiovascular Diseases. A written consent from all the participants were taken after explaining them the purpose of the study. Participated patients were divided into two groups, control and interventional group. In intervention group, discharge instruction and material was given along with follow up through telephone with a suitable interval to improve perceived readiness for discharge, to reduce the complications and readmission rate. In control group, only discharged instructions under existing routine process were given. A structured questionnaire was used having questions regarding demographic and base line information, questions related to determine the level of perceived readiness and readmission rate among the patients. Instructional material provided critical information on the disease, diagnosis, sign and symptoms, medication, diet and weight management, life style (controlled physical activity), any special instruction, early sign of complication, discharge and follow up instruction, husband and wife relationship and warm up exercises. The patients were guided for the availability of medicine, transport facility for follow up, health care services facility in the community and identification of available support at home for care. The data was collected through telephone or at attending the hospital on follow up at one week of post discharge, feeling of preparedness

from one week to 30 days. The data was analyzed through SPSS version 21. Before and after follow up was Compared through Wilcox on Matched signed Rank test where as groups were compared through Mann Whitney U test. The demographic data was compared through chi-square test.

RESULTS

Total of 80 patients with 40 on each group were included. The collected data was analyzed through different aspects of the study. According to demographic data age, gender, education and nature of admission was found almost equal in both the group. The purpose of discharge instruction was well understood by the interventional group as compared to control group and the different was found statistically significant at p<0.000. Similarly, family history of heart disease was also more in control group as compared to interventional group (p<0.026). However, severity of illness, nature of care financing and discharge destination did not get any statistical significant difference in both the groups. (Table 1)

Regarding one week post discharge information on different aspects, 55% of interventional participants rate the discharge education excellent or very good as compared to control group home only 25% said the discharge education as excellent or very good. About 60% of the interventional group and 30% of the control group said that they were provided discharge goals in their early hospital stay. Whether these discharge instruction were remain helpful in your preparation for discharge, the reply was extremely or very much by 60% of the interventional group as compared to 37.5% of the control group. About 77.5% and 62.5% of the interventional group and 37.5% and 45% of the control group found that interdisciplinary team adequately addressed the goals or barriers they identified on admission or hospital stay respectively. About 65% of the interventional group rates it excellent or very good for providing opportunity to express their needs and opinion during discharge planning as compared to only by 37.5% of the control group. Majority of the interventional group (57.5%) were either prepared or very prepared for return home where as only 25% of the control group were either prepared or very prepared for return home. Regarding discharge process in the community living center, 12.55 of the control group and 47.5% of the interventional group rate it as excellent or very good. The main weak point of both the group were understood for taking medication at home as only 7.5% of the control group and 37.5% of the interventional group rate it excellent or very good where as majority were not properly understand it. In interventional group majority (55.0%) were think it excellent or very well to understand their diet and restrictions if any where as no one in the control group was understand it properly. The main health problem of the participant of both the groups was either somewhat or very slightly understands. Regarding experience of any adverse event or problem faced by them at home, 37.5% of the control group and 255 of the interventional group find it so. However, majority of both the groups faced no adverse event during these one-week period. (Table 2)

On 30th day all the participants of the study of both of the group were re-contracted and education effects were determined. In reply to a question that how well were you prepared to return home after your hospital stay, 50% of the interventional group and 25% of the control group said they were either prepared of very prepared for it. The difference was found statistically significant at p<0.001. Comparing to the unplanned or unexpected visits to their health care provider, 55% of the control group and only 12.5% of the interventional group said yes. However this difference did not found significant. Majority of both the groups who returned to visit the same health care provider were suffering with the problem for which they stay in the hospital however it was found statistically significant comparing to both the groups. (p<0.043). Similarly adverse effect was experienced less in interventional group (20%) as compared to control group (37.5%). Regarding a question that how well you managing your illness now , 82.5% of the interventional group and only 12.55 of the control group is doing so excellent or very well and this difference was also found statistically significant (p<0.001). The post discharge readmission rate was tripled in control group as compared to interventional group showing the positive education effect to reduce the readmission rate. Out of the re admissions, 66.7% of the control group and only 20% of the interventional group were admitted with unplanned admission. In reply to last question whether you were given written discharge instruction or any other educational material for all these at the time of discharge, 100% of the interventional group and only 55% of the control group said yes to it. The difference was found statistically significant at p<0.001) (Table 3) .

Table1: Demographic Data and Admission Related Characteristics of Both Groups.

Groups	Control group		Interventional group		Chi-square test	P-value
Characteristics	n	%	n	%		
Age	Mean age 57.8 years		Mean age 58.2 years			
Gender					0.827	.363
Male	32	80.0%	35	87.5%		
Female	8	20.0%	5	12.5%		
Marital Status						
Unmarried	5	12.5%	5	12.5%		
Married	29	72.5%	29	72.5%		
Widow	6	15%	6	15.0%		
Language						
Sindhi	5	12.5%	6	15.0%		
Punjabi	6	15.0%	5	12.5%		
Pashto	2	5.0%	3	7.5%		
Balochi	17	42.5%	14	35.0%		
Urdu	10	25.0%	12	30.0%		
Education Level					1.140	.768
Primary	25	62.5%	29	72.5%		
Middle	8	20.0%	5	12.5%		
Matriculation and above	7	17.5%	6	15.0%		
Nature of Admission						0.241
Emergency	37	92.5%	34	85.0%		
OPD	3	7.5%	6	15.0%		
Know the purpose of discharge instruction					32.916	.000
Yes	12	30.0%	37	92.5%		
No	28	70.0%	3	7.5%		
Severity of illness					5.955	.051
Low	5	12.5%	7	17.5%		
Moderate	18	45.0%	26	65.0%		
High risk	17	42.5%	7	17.5%		
Nature of care Financing					1.27	.260
Government	15	37.5%	20	50.0%		
Private	25	62.5%	20	50.0%		
Discharge Destination						.241
Home alone	0	.0%	3	7.5%		
Home with spouse/family member	40	100.0%	37	92.5%		
Family history of heart disease					0.4943	.026
Yes	16	40.0%	7	17.5%		
No	24	60.0%	33	82.5%		

Table 2:One Week Post Discharge Telephonic Questionnaire

Groups	Control group		Interventional group	
QUESTIONs	n	%	n	%
Ho w would you rate the discharge education you received?				
Excellent	5	12.5%	12	30.0%
Very good	5	12.5%	10	25.0%
Fair	10	25.0%	13	32.5%
Poor	12	30.0%	5	12.5%
Very poor	8	20.0%	0	.0%
You were provided with discharge goals early in your hospital stay				
Strongly agree	0	.0%	5	12.5%
Agree	12	30.0%	19	47.5%
Fair	17	42.5%	16	40.0%
Somewhat disagree	7	17.5%	0	.0%
Strongly disagree	4	10.0%	0	.0%
How much did you knowing your discharge goals early in your hospitalization prepare you for discharge?				
Extremely Prepared Me	0	0%	6	15%
Very Much Prepared Me	15	37.5%	18	45%
Somewhat Prepared Me	7	17.5%	9	22.5%
Helped a Little Bit	12	30%	4	10%
No help at all	6	15%	3	7.5%
The interdisciplinary team adequately addressed the goals you identified early in your hospital stay				
Excellent	3	7.5%	11	27.5%
Very good	12	30%	20	50.0%
Fair	9	22.5%	7	17.5%
Poor	9	22.5%	2	5.0%
Very poor	7	17.5%	0	.0%
The interdisciplinary team adequately addressed the barriers you identified on admission				
Excellent	3	7.5%	7	17.5%
Very go od	15	37.5%	22	55%
Fair	5	12.5%	6	15%
Poor	11	27.5%	4	10%
Very poor	6	15%	1	2.5%
You were given an opportunity to express your needs and opinions when planning your discharge				
Excellent	8	20%	15	37.5%
Very good	7	17.5%	11	27.5%
Fair	8	20%	9	22.5%
Poor	12	30%	3	7.5%
Very poor	5	12.5%	2	5.0%
How well prepared were you to return home after your hospital stay?				
Very Prepared	2	5%	7	17.5%
Prepared	8	20%	16	40%

Somewhat prepared	7	17.5%	10	25%
Somewhat Unprepared	12	30%	7	17.5%
Very Unprepared	11	27.5%	0	0%
How would you rate the discharge process in the Community Living Center?				
Excellent	0	0%	5	12.5
Very good	5	12.5%	14	35
Fair	10	25%	15	37.5
Poor	19	47.5%	4	10
Very poor	6	15%	2	5
How well did you understand how to take your medications when you left the hospital?				
Excellent	0	0%	9	22.5%
Very well	3	7.5%	6	15.0%
Some what	12	30%	15	37.5%
Slightly	18	45%	5	12.5%
Not at all	7	17.5%	5	12.5%
How well did you understand your diet and restrictions, if any, when you left the hospital?				
Excellen t	0	.0%	14	35.0%
Very well	0	.0%	8	20.0%
Some what	5	12.5%	6	15.0%
Slightly	35	87.5%	12	30.0%
How ell did you understand your main health problem when you left the hospital?				
Excellent	7	17.5%	8	20.0%
Very well	5	12.5%	6	15.0%
Some what	18	45.0%	17	42.5%
Slightly	10	25.0%	9	22.5%
Did you experience any adverse Events/ problems after you returned home				
Adverse event	15	37.5%	10	25.0%
No Adverse event	25	62.5%	30	75.0%

Table 3: 30 Day Telephone Post Discharge Information

30 Day Telephone Post Discharge information						
	Control group		Interventional group		Chi-square test	P-value
	n	%	N	%		
How well prepared were you to return home after your hospital stay?					16.446a	0.001
Very Prepared	0	.0%	6	15.0%		
Prepared	10	25.0%	14	35.0%		
Somewhat prepared	5	12.5%	11	27.5%		
Somewhat Unprepared	25	62.5%	9	22.5%		
Have you returned to your provider for any unplanned or unexpected visits since our last phone conference?					2.990a	0.084
Yes	22	55.0%	5	12.5%		
No	18	45.0%	35	87.5%		
If so (referring to Question 2), were your concerns related to your recent hospital stay?					4.107a	0.043
Yes	15	68.2%	3	60.0%		
No	7	31.8%	2	40.0%		
Have you experienced any adverse events or problems surrounding your discharge since our last phone conference?					.464a	0.496
Yes	15	37.5%	8	20.0%		
No	25	62.5%	32	80.0%		
How well are you managing your illness now?					17.968a	< 0.001
Excellent	0	0.0%	19	47.5%		
Very well	5	12.5%	14	35%		
Some what	20	50.0%	5	12.5%		
Slightly	15	37.5%	2	5%		
Were you readmitted with Any adverse events within the 30 days of Post Discharge?					2.650a	0.104
Yes	15	37.5%	5	12.5%		
No	25	62.5%	35	87.5%		
Readmission in past 30 days					.235a	.628
Planned	5	33.33%	4	80.0%		
Unplanned	10	66.66%	1	20.0%		
You were given written discharge instructions or other educational material at discharge addressing all of the following					23.226a	<0.001
Yes	22	55.0%	40	100.0%		
No	18	45.0%	0	.0%		

DISCUSSION

The heart diseases burden in Pakistan is around 35-40% of all disease burdens. Out of which more than 70% who got readmission within 30 days could be prevented by proper discharge instructions and correlation between care providers and the patient. [8] According to another study, 30 days of post discharge, 20% patients got readmission. However, the patients, who understand the discharge instruction have 30% less chances for readmission compare to other patients. In our study these points were also addressed and the patient in control group has less base line knowledge and readiness to discharge in heart failure cases as compared to interventional group patients. At 7 day and 30 days of discharge, the interventional group show high level of competency regarding their management for their disease and routine life caring.

In a study, it was noted or observed that educating patients before discharge promotes self-care, reducing readmission and help patients spot problems early.[20] The patient, who learned about their conditions and medication and understands when to seek medical treatment, helps them in their self care management. Nurses mostly understand the barriers to self-care of the patient and help patient to overcome on these barriers. Our study results also showing the same as educating patients before discharge and follow-up through telephone have got 25% less readmission as compared to controls.

According to a study, the 30-day readmission rate declined from 19.56% (3852 of 19,694) to 13.76% (1420 of 10,317, $p < 0.0001$) with an adjusted odds ratio of 30-day readmission in 2013 (vs 2006) of 0.66 (95% CI: 0.66 to 0.76)[21]

A study concluded that proper discharge instructions and understanding them by the patient prevent around 8% of the readmission.[22] In another study, the rate of readmission was calculated as 14.2%for HF patients whereas it was 7.5% in ACS patients.[23] Readmission rate was comparable following the intervention but patient have received appointment 0.374 times lower odds of being readmitted ($p < 0.004$).

In a study, it was concluded that 30-day all-cause readmission patients with HF after discharge from index hospitalization the cardiovascular and non-cardiovascular co-morbidities were similar.[24] In another studies, it was concluded that there is a solid impact of transition on post discharge out come through the proper discharge education and in between communication by the health team[25,26]. In another study discharge additional education reduce readmission by 28.2%.[27] These results are much improved in our study where 80.0 % of interventional group patients were prevented and did not get unplanned re-admission through improving the communication with additional instructions by the nurses through telephone.

In a study 16% patients got readmission within 30 Days with no difference in ready or unready patients for discharge.[28] In another study it was noted that no readmission was recorded in the interventional group as compared to 20 % in the control group.[29] In our study, Overall 20/80 i.e. 25% get readmission within 30 days of their discharge in both the groups. Readmission within 30 days of discharge was mainly in control group in which 15 i.e. 37.5% get readmission where as in interventional group only 5 patients i.e.12.5% get readmission. It clearly shows that in patients whom education regarding self-care was provided made impact much more on their readmission.

CONCLUSION

Our study concludes that through nursing intervention by educating heart failure patients at discharge, on follow up day, at 7th day and 30th day at continuous guidance on telephone for one month reduce the unplanned readmission rate as well as readmission with complication. It clearly shows that in patients whom education regarding self-care was provided before discharge impact much more and they got minimum readmission which save the hospital bed occupancy and minimize the cost at the part of the patient.

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