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Original Article

EFFECTIVENESS OF DISCHARGE PLAN ON QUALITY OF LIFE OF POST ANGIOPLASTY PATIENTS

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ABSTRACT

Background : Coronary artery disease is caused by deposition of cholesterol and fats in the inner lining of coronary arteries which leads to blockage of it and obstruct the flow of blood to heart muscles which lead to ischemia and necrosis of muscles of the heart. Angioplasty is one of the interventions for management of coronary artery disease.

Objectives : The objective of the study was to prepare discharge plan for post angioplasty patients and give them so they can take care of themselves at home and to evaluate the effectiveness of discharge plan on QOL of post angioplasty patients.

Methodology : Quantitative research approach with quasi experimental time series design was adopted. Total 52 post angioplasty patients were selected by using purposive sampling technique. The pretest data was collected on second post angioplasty day and post test was done one month after angioplasty by using clinical profile and standard questionnaire of QOL SF36 Discharge summary containing instructions regarding home care was given at the time of discharge from the hospital.

Results : Results showed that Discharge plan was effective in improving the quality of life of post angioplasty patients, mainly in the domains of Physical Function ($t = 4.19$, $P<0.00$), Pain (2.76, $P<0.008$), Role limitation-Mental ($t = 2.58$, $P < 0.013$) and health perceptions ($t=2.48$,$P<0.017$).

Conclusion : This study concluded that discharge plan was effective in improving the QOL of post angioplasty patients in the domains of Physical Function (PF), Pain (P), Role limitation - Mental (RLM) and health perceptions of post angioplasty patients.

Keywords : Discharge plan, quality of life, Post angioplasty patients.

Introduction

Coronary artery disease belongs to group of chronic diseases which harm the patient's working ability and quality of life.(1).

In countries which are having income low to middle, cardiovascular disease has lead to 10% of the disability-adjusted life years lost, and for countries which are in the category of high income18% of disability adjusted life years lost.(2). According to the WHO out of total deaths in India, 53% deaths were because of non communicable diseases, of which eight CVDs lead to 24% of deaths which is a have a major portion.(3) The most common and important vascular disease is coronary artery disease that, as a global epidemic, is the main reason of mortality in the world.(4) For management of coronary artery diseases, different methods including drugs, interventional treatment and surgery are used. (5,6,7) Causes of deposition of cholesterol in the inner lining of coronary arteries are hyperlipidemia, increased body weight, hypertension, smoking cigarette, male gender, and diabetes mellitus.(8,9)

For treatment of diseases of coronary artery, many modalities are available such as cardiac drugs, interventional techniques and cardiac surgeries. One of the ways of opening coronary arteries is coronary angioplasty.(10) Percutaneous Transluminal Coronary Angioplasty is the primary method of managing coronary artery disease.(11)

Quality of life as described by WHO is a condition of total physical, mental state and social welfare with lack of disease.(12)

The quality of life of patients after angioplasty depends largely on life style modification and changes in dietary pattern. The primary aim of educating patient is to change their attitude towards diet, health and life style and thereby improving their quality of life.(13)

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Need of study

Cardiovascular diseases are number one cause of death around the world. one in three deaths are as a result of CVD globally. As stated by WHO[14] every year about 17.9 million people die because of CVDs, which is an estimate of 31% of all deaths globally. In countries which are economically in the range of low and middle, more than 75 % of deaths occur due to CVD and 85% of all CVD mortality are due to heart attacks and strokes.[15]

Zhou Y, et al. (2017) conducted cross sectional study awareness on cardiac rehabilitation in patients with coronary heart disease. Results revealed that the Patients with higher education and good income had better knowledge. Patients who lived in rural area and had no jobs had less knowledge. They conclude that there was a low level of awareness on Cardiac Rehabilitation program in patients and there is a need to improve the awareness on Cardiac Rehabilitation among Chronic Heart Diseases patients by health education.

Xiao L, et.al (2018) conducted study to find out the health-promoting behaviours in patients following PTCA and survey what factors affected healthy way of life behaviours. Result showed that the (24.2%) of patients had an outstanding level of Health Promoting Lifestyle, (74.2%) had a moderate level of health Promoting Lifestyle. The spiritual growth scores were the highest, at the same time stress management and physical activity scores were the lowest. The people who had high income and diagnosed with stable angina had high intensity of health promoting way of life. They conclude that the Healthcare providers must focus on improving physical health and managing stress for patients later than Percutaneous Coronary Intervention and moreover they must observe patients from low income group and having severe ill health in order to promote a health- promoting way of life in the subsets of patients.[16]

Nurses have a major part in care of patients during post angioplasty period and their efforts enable patients to improve their health and motivate them to bring about the desired modification in their lifestyle. During clinical posting in cardiology, researcher experienced that post angioplasty patients ask many questions related self care at home. Discharge plan is useful and informative and helps the patients in improving their overall health status and wellbeing.

Aim

The main motive of the research study was to prepare discharge plan for Patients who had angioplasty so they can take care of themselves at home and assess its effects on their quality of life.

Conceptual framework

The aim of this research was to assess the effectiveness of discharge plan on self care practices and quality of life of post angioplasty patients. The conceptual frame work selected for the research was based on Dorthea Orem's self care deficit theory and supportive educative nursing system.The concepts in this theory are- self care , self care agency, self care deficit, therapeutic self care demand and nursing system.[17]

Self care It refers to all activities which a person does for himself / herself in order to maintain her/his health and well being. [17]

In the present study self care is all activities performed by post angioplasty patients that is taking medication as per schedule, taking proper diet, performing exercise, managing stress, Smoking and alcohol cessation to maintain their health and well being.

Self care agency It refers to the ability of a person to do their care in order to fulfill their daily need to promote life, their health, and their welfare.[17] In the present study the self care agency is several factors of basic condition - demographic variables; age, gender, occupation, education living area and clinical variable;-medical diagnosis, type of angioplasty, percentage (%) of blockage and co morbidity which affect the post angioplasty patients in carrying out self care.

Self care deficit It is the relation between abilities of persons and their requirement for care of self.[17] In the present study after angioplasty procedure patient need some assistance in pain management and educative support regarding life style modification to improve self care practice in medication, diet, exercise, rest and sleep, alcohol and smoking and to improve quality of life among post angioplasty patients.

Therapeutic self care demand Are the actions that people require while they are undergoing treatment to meet their needs related to care of self in order to be healthy and promote being well.[17] In the present study therapeutic self care demand of post angioplasty patients need to learn about self care practices in the areas of medication , diet, exercise, stress management, smoking and alcohol.

Nursing system Nursing system is required when a person's self care demands related to treatment is more than the capability of the patient.[17] In supportive educative system nurse assists supports and educates person to

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carryout self care practices. In the present study researcher educated post angioplasty patients regarding self care practices which directly affects his health such as -medication, diet, exercise, rest and sleep, stress management, alcohol and smoking.

Material and method

Quantitative research approach and Quasi-experimental research with time series design was adopted. Current study was carried out in cardiac care unit of Himalayan hospital, Dehradun Uttarakhand India. This is a multispecialty tertiary care center. Judgmental sampling technique was used to enroll the patients in the study. Sample size was 52 patients who had undergone coronary angioplasty. The study included both male and female patients with Age group between 20 to 80 years. The Study excluded Patients who had undergone angiography for diagnostic purpose only and critically ill patients. Tools used for data collection were clinical profile of patients and quality of life SF 36.

Ethical consideration and data collection procedure

Ethical and administrative permission was obtained from the Swami Rama Himalayan University and Himalayan Hospital. The eligible study subjects were identified. Purpose of the study was explained to the study participants and informed on paper consent was taken.. An interview technique was used to assess clinical profile and quality of life. Pre test was done on the 2ndpost angioplasty day, On 3rdpost angioplasty day discharge plan which included the information regarding medication, diet, exercise, rest and sleep, stress management and alcohol and smoking was given to the study participants along with teaching about care of self at home. On 30th day of angioplasty post test was done on QOL using standard questionnaire of QOL SF36 by face to face interview at the time of 2nd follow up in the cardiac out patient department.

Data analysis

The data was analysed by using descriptive and inferential statistics, that is frequency and percentage for clinical profile of patients and for quality of life paired sample t-test was used.

Result

Description of clinical variables Table 1: Shows that majority (98.07%) of the post angioplasty patients were diagnosed with myocardial infarction, majority (78.8%) of them underwent angioplasty in emergency, majority (96.15%) of them had LAD left descending artery blockage, majority (96.15%) of them having single vessel disease, majority (90.38%) of them having blockage more than 90%, more than half (59.%) of them had history of MI (myocardial infarction), only (19.2%) had history of angioplasty in the past, majority (96.2%) of them had no history of CABG in past, half (55.8%)of them were on cardiac medication, half (55.8%) of them had co-morbidity , 34.62%of them having hypertension, (11.34%)of had diabetes mellitus, half (48.1%) of them were on medication for co-morbidity, majority (96.1%) of them had present history of MI, About all patients (100%) had chest pain, more than half (53.85%) of them were having chest pain radiating to left arm, some (15.38%) of the patients had sweating and least (3.85%) of patients had symptoms of breathing difficulty and indigestion.

Description of Table 2 quality of life pre and post test:- showed the domains wise quality of life of study participants

Physical Function (PF) :- The pre-test mean of physical function of quality of life was 52.31±19.7 and post test mean of physical function of quality of life of was 66.63±17.56 mean difference was 14.327 t=4.19, P= 0.000. Paired t test was performed to search out the variation between pre tests mean score and posttest means score assessment.

Social Function (SC) :- The pre-test mean of social function of quality of life was 71.46±21.8 and post test mean of social function of quality of life of was 73.79±21.65 mean difference was 2.327 t=0.68, P=0.501. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

Mental Health (MH) :- The pre-test mean of mental health of quality of life was 64.69±19.8 and post test mean of social function of quality of life of was 73.79±21.65 mean difference was 2.327 t=1.88, P=0.065. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

Pain :- The pre-test mean of pain of quality of life was 60.04±34.9 and post test mean of pain of quality of life of was 75.50±22.52 mean difference was 15.462 t=2.76, P=0.008. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

Change in health (CIH) :- The pre-test mean score of change in health of quality of life was 48.08±25.9 and post test mean of change in health of quality of life of was 44.71±24.43 mean difference was 3.365 t=0.69, P=0.491. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

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Role limitation - Physical (RLP) :- The pre-test mean score of role limitation - physical of quality of life was 45.19±39.7 and post test mean of role limitation - physical of quality of life of was 49.71±30.86 mean difference was4.519 t=0.72, P=0.478. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

Role limitation - Mental (RLM) :- The pre-test mean score of role limitation- mental of quality of life was 49.19±40.5 and post test mean of role limitation- mental of quality of life of was 67.81±34.38 mean difference was 18.615 t=2.58, P=0.013. Paired t test was performed to search out the variation between the pre tests mean score and posttest means score assessment.

Energy / Vitality (EV) :- The pre-test mean score of energy/ vitality of quality of life was 66.15±21.0 and post test mean of energy/ vitality of quality of life of was 66.85±20.07 mean difference was 0.692 t=0.191, P=0.849. Paired t test was performed to search out the variation between the pre experimental mean score and post experimental means score assessment.

Health perceptions (HP) :- The pre-test mean score of health perceptions of quality of life was 59.33±18.123 and post test mean of physical function of quality of life of was 66.06±18.586 mean difference was 6.731 t=2.48, P=0.017. Paired t test was performed to search out the variation between pre test mean score and posttest mean score assessment.

This table revealed that there was considerable perfection in the QOL of post angioplasty patients in areas such as - Physical Function (PF), Pain (P), Role limitation - Mental (RLM) and health perceptions. However there is no significant improvement in domains such as Mental Health (MH), Social Function (SC), and Change in health (CIH, Role limitation -Physical (RLP), Energy / Vitality (EV).

Therefore it could be concluded that discharge plan was helpful in improving the QOL of post angioplasty patients in the domains of Physical Function (PF), Pain (P), Role limitation - Mental (RLM) and health perceptions.

Discussion

Clinical variables of post angioplasty patients:

Out of 52 patients, majority (65.4%) of the post angioplasty patients were diagnosed with myocardial infarction, majority (78.8%) of them underwent angioplasty in emergency, majority (96.15%) of them had LAD left descending artery blockage, majority (96.15%) of them having single vessel disease, majority (90.38%) of them having blockage more than 90 percent, more than half (59.%) of them had history of MI, majority (88.8%,) of them had history of CAD, majority (96.2%) of them had no history of angioplasty and CABG in past, more than half (55.8%)of them were on cardiac medication, half (55.8%) of them had co-morbidity, (34.62%) and (11.34%) of them having hypertension and diabetes mellitus, half (48.1%) of them were on medication for co-morbidity, majority (96.1%) of them had MI and about all patients (100%) had chest pain, majority (53.85%) of them have pain radiating to left arm, some (15.38%) of the patients had sweating and least (3.85%) of patients had symptoms of breathing difficulty and indigestion.

Outcome of the study were similar to Gomaa NA, El-Senousy T, Salameh O (2012).Most (30.8%) of the participants had history of MI, most (47.7%)had history of hypertension, majority (95.4%) had previous family history of cardiac intervention, (52%)of them were smokers.[37]

Another study Conducted by Xiao L, Wang P, Fang Q, Zhao Q(2018) showed that most(69.2%) of them were diagnosed with CAD, (58.3%) and (20%) of them were having hypertension and diabetes mellitus,(10.8%) had underwent angioplasty previously.[24]

2. To assess the effectiveness of discharge plan on QOL of post angioplasty patients:

Discharge plan was effective in improving the quality of life of post angioplasty patients in the domains of Physical Function (t = 4.19, P<0.00), Pain (2.76, P<0.008), Role limitation - Mental (t = 2.58, P < 0.013) and health perceptions (t=2.48,P<0.017) domains on the basis of result. Similarly Rezapoor P, ShahriariM, Hamid Sanei H, MoeiniM, (2015) reported that collaborative care model was effective in improving QOL of post angioplasty patients in all the physical, mental and social domains after three months of study.[34]

Another study conducted by Salameh B, Gomaa NA, El-Senousy T, Salameh O (2012) reported that an e-learning program was effective in significant improvement in the bodily

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pain, role limitation physical, mental health, general health and social functioning of patients having coronary heart disease.[41]

Table .1 Frequency and Percentage distribution of clinical characteristics of study participants. N= 52

S. No.	Clinical Characteristics	Frequency	Percentage %
1.	**Medical Diagnosis**		
	Coronary Artery Disease	18	34.61
	Myocardial Infarction	51	98.07
	Acute Coronary Syndrome	34	65.38
	Multiple responses*		
2.	**Type of Angioplasty**		
	Planned	11	21.2
	Emergency	41	78.8
3.	**Coronary Artery involved**		
	Left Descending artery (LAD)	50	96.15
	Left circumference artery (LCX)	1	1.9
	Right coronary artery (RCA)	1	1.9
4.	**No of vessels involved**		
	Single vessel disease	50	96.15
	Double vessel disease	2	3.85
5.	**Percentage of blockage**		
	< 70 %	4	7.69
	71%- 80%	1	1.92
	81%- 90%	26	50
	91%-100%	21	40.39
6.	**Past History of MI**		
	Yes	21	40.4
	No	31	59.6
7.	**History of angioplasty in past**		
	Yes	10	19.2
	No	42	80.8
8.	**History of CABG in past**		
	Yes	2	3.8
	No	50	96.2
9.	**On medication for CAD**		
	Yes	29	55.8
	No	23	44.2
10.	**Co-morbidity**		
	Yes	29	55.8
	No	23	44.2
11.	**Name of co-morbid**		
	Diabetes mellitus	6	11.34
	Hypertension	18	34.62
	Sleep disorder	2	3.85
	CA throat	1	1.9
	BPH	1	1.9
	Hypothyroidism	1	1.9
12.	**Taking Medication for Co-morbidity**		
	Yes	24	46.15
	No	5	9.62
13.	**Present history of MI**		
	Yes	50	96.2
	No	2	3.8
14.	**Sign and symptoms of MI experienced***		
	Chest pain	52	100
	Sweating	8	15.38
	Pain radiating to left arms	28	53.85
	Breathing difficulty	2	3.85
	Indigestion	2	3.85
	* multiple responses		

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Table .2 Domains wise Comparison of pretest mean and post test mean of QOL of post angioplasty patients. N=52

S.No.	Quality of life Domain	Maximum score	Pre-experiment Mean±SD	Post-experiment Mean ±SD	Mean Difference	t*	P
1.	Physical Function (PF)	85	52.31±19.7	66.63±17.56	14.327	4.19	0.000**
2.	Social Function (SC)	100	71.46±21.8	73.79±21.65	2.327	0.68	0.501
3.	Mental Health (MH)	100	64.69±19.8	70.46±16.73	5.769	1.88	0.065
4.	Pain (P)	100	60.04±34.9	75.50±22.52	15.462	2.76	0.008**
5.	Change in health (CIH)	75	48.08±25.9	44.71±24.43	3.365	0.69	0.491
6.	Role limitation -Physical (RLP)	100	45.19±39.7	49.71±30.86	4.519	0.72	0.478
7.	Role limitation - Mental (RLM)	100	49.19±40.5	67.81±34.38	18.615	2.58	0.013**
8.	Energy / Vitality (EV)	100	66.15±21.0	66.85±20.07	0.692	0.191	0.849
9.	Health perceptions (HP)	95	59.33±18.123	66.06±18.586	6.731	2.48	0.017**

*Paired sample t- test,**significant p<0.05

Limitation : Study conducted in with small size because of unavailability of patients therefore limits the generalization of the research findings

Recommendations for future research

1. A similar research study can be done with bigger sample size.
2. A follow up study can be carried out on effect of discharge plan on the long term outcome of patients.
3. Similar study can be carried out in patients after other surgeries.

Conclusion

The present study concluded that discharge plan was helpful in improving the quality of life in the domains of physical function, pain and role limitation- mental and health perception of post angioplasty patients.

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