A Study to assess the Effectiveness of Structured Teaching Program on Knowledge Regarding Cardiac Rehabilitation Following Coronary Angioplasty among Post Myocardial Infarction (MI) Patients Attending Cardiac Outpatients Department in Selected Hospital, Bangalore

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Abstract

Background: Cardiac rehabilitation is a process where there is a multidisciplinary team of health professionals involved in encouraging and supporting patients with heart disease after cardiac events to obtain the treatment in achieving and maintaining a healthy heart by optimizing the status of patients' physical, psychological, social and vocational wellbeing.[3]

Aim of the study: The present study was attempted to assess the effectiveness of structure teaching programme on knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients attending cardiac outpatient department in selected hospital at Bangalore.

Methods: It is a pre-experimental one group pre-test post-test design which was commence on 60 post myocardial infarction patients attending cardiac outpatient department by means of non-probability convenient sampling technique and knowledge is assessed by the use of structured knowledge questionnaire. The data collected was subjected to analysis using descriptive and inferential statistics in terms of frequencies, percentage and inferential statistics like 't' test, and chi-square test for association.

Ethical Consideration: After obtaining a formal permission from the medical officer, Raja Rajeshwari hospital, the main study was conducted according to the availability of the post myocardial infarction patients attending cardiac outpatient department. The subject was assumed the anonymity and confidentiality of the information provided by them.

Results: Knowledge score of post Myocardial Infarction patients is 52(87%) in inadequate knowledge level in pretest and 54(90%) in post-test in adequate knowledge level group after Structure teaching programme. Paired 't' value of knowledge was 34.87 which is greater than the table value 1.6711 at 0.05 of significant.

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Conclusion: Hence assessing the knowledge of post myocardial infarction patients regarding cardiac rehabilitation following coronary angioplasty are important to identify the risk factors, complication and also structure teaching programme can be effective in improving the knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients attending cardiac outpatient department.

Keywords: Cardiac Rehabilitation, Effectiveness, Structured Teaching Program, Knowledge.

INTRODUCTION

Cardiovascular diseases cause more than 17.7 million deaths in the world each year, according to the World Health Organization (WHO; Geneva). They are also the major cause of death in adults.[1] Myocardial infarction or 'heart attack' is a type of acute coronary syndrome in which sudden blockage of a coronary artery, and subsequent myocardial ischemia, results in damage to the surrounding heart muscle. In a myocardial infarction, the coronary artery is usually blocked by a blood clot that has formed on an atherosclerotic plaque. Furthermore, the term myocardial infarction has major psychological and legal implications for the individual and society. It is an indicator of one of the leading health problems in the world, and it is an outcome measure in clinical trials and observational studies.[2]

Cardiac rehabilitation programs usually provide education and counseling services to help cardiac patients increase physical fitness, reduce cardiac symptoms, improve health and reduce the risk of future heart problems, including heart attack.[2] Cardiac rehabilitation and Secondary prevention programs should include advice regarding return to activities of daily living and return to work; any advice should take account of the physical and psychological status of the patient, the nature of the activity or work proposed and the work environment. Moreover it is important that advice and support is personalized and responsive to patient or caregiver needs.[4]

Creating awareness among the patients regarding cardiac rehabilitation minimizes the burden of disease and maximizes the survival rate. Hence it is the need of the hour to address this issue with an attitude of giving awareness to the patients who are in need of cardiac rehabilitation. Cardiac rehabilitation programs are effective at improving recovery; quality of life and long-term survival because they help deliver the lifestyle and medication therapies that have been shown to slow or even reverse the process of heart disease.[4]

OBJECTIVES OF THE STUDY

1. To assess the pretest level of knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients.
2. To assess the effectiveness of structured teaching program on knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients.
3. To find out association between post-test knowledge score on cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients with their selected demographic variables.

METHODOLOGY

Pre experimental one group pre-test & post-test design was used to collect the data. The main study was conducted in selected hospital, Bangalore using convenient sampling technique on 60 post myocardial infarction patients attending cardiac outpatient department regarding cardiac rehabilitation following coronary angioplasty. The tool consists of demographic variables and Structured knowledge questionnaire. The investigator conducted the pilot study on 6 samples by and found the feasibility, practicability and possibility of conducting main study.

RESULTS

Section A: Analysis of socio-demographic variables

With reference to age the majority of subjects 26 (43%) were between 51–60 years of aged, 24 (40%) were between 41-50 years of aged and 10 (17%) were between 30-40 years of aged. With regarding to sex the majority of subjects 32 (53%) were male and 28 (47%) were females. With reference to religion majority of subjects 27 (45%) were Hindus,

17 (28%) were Muslim and 16 (27%) were Christian.

With respect to the educational status the majority of subjects 20 (33%) were primary school, 18 (30%) were undergraduate, 12 (20%) were higher secondary school and 10 (17%) were postgraduate. According to the occupational status majority of subjects 28 (46%) were working as an officer, 12 (20%) were as a farmer and 10 (17%) were working as a business man and laborer.

Based on the monthly Income the majority of subjects 18 (30%) had monthly income above 25000, 16 (27%) had monthly income 10001 - 15000, 14 (23%) had monthly income below 10000 and 12 (20%) had monthly income 15001 – 25000. with regard to dietary pattern the majority of subjects 36 (60%) were non vegetarian and 24 (40%) were vegetarian. Based on personal habits the majority of subjects 20 (33%) were having habit of smoking and alcohol consumption and 10 (17%) were having habit of drinking coffee/tea and beetle leave chewing.

With regard to duration of exercise the majority of subjects 26 (43%) were doing exercise 30 minutes / day, 24 (40%) were doing exercise 20 minutes / day and 10 (17%) were doing exercise 10 minutes / day. Based on the family history the majority of subjects 18 (30%) were having hypertension, 16 (27%) were having diabetes mellitus, 14 (23%) were having hypocholesteremia and 12 (20%) were having myocardial infarction. With reference to duration suffering from CAD majority of subjects 26 (43%) were suffering from CAD below 1 year, 15 (25%) were suffering from CAD above 5 years, 10 (17%) were suffering from CAD 1–3 years and 9 (15%) were suffering from CAD 3–5 years.

With reference to duration after angioplasty majority of subjects 18 (30%) were undergone angioplasty 4-8 weeks, 17 (28%) were undergone angioplasty 8-12 weeks, 13 (22%) were undergone angioplasty >12 weeks and 12 (20%) were undergone angioplasty < 4 weeks.

Section B: Mean, Mean % and Standard deviation of Pre-test and Post-test of knowledge score.

The result shows the following findings in each aspect of knowledge:

Structure and function of heart: The mean % was 26% with a Standard deviation of 0.78 in the pre-test and in the post-test it was 78.66% with standard deviation of 0.86. Hence reveal that the improvement in structure and function of heart mean was 3.93 in post-test as compared to 1.3 in pre-test.

Cardiac rehabilitation: The mean % was 30% with a Standard deviation of 0.49 in the pre-test and in the post-test it was 88.33% with standard deviation of 0.42. Hence reveal that the improvement in cardiac rehabilitation mean was 1.76 in post-test as compared to 0.6 in pre-test.

Exercise: The mean % was 24.66% with a Standard deviation of 0.50 in the pre-test and in the post-test it was 81% with standard deviation of 0.79. Hence reveal that the improvement in exercise mean was 8.1 in post-test as compared to 2.46 in pre-test

Diet: The mean % was 26.66% with a Standard deviation of 0.50 in the pre-test and in the post-test it was 83.33% with standard deviation of 0.47. Hence reveal that the improvement in diet mean was 1.66 in post-test as compared to 0.53 in pre-test

Smoking: The mean % was 26.66% with a Standard deviation of 0.65 in the pre-test and in the post-test it was 81.11% with standard deviation of 0.67. Hence reveal that the improvement in smoking mean was 2.43 in post-test as compared to 0.8 in pre-test.

Psychological rehabilitation: The mean % was 17.77% with a Standard deviation of 0.56 in the pre-test and in the post-test it was 84.44% with standard deviation of 0.62. Hence reveal that the improvement in psychological rehabilitation mean was 2.53 in post-test as compared to 0.53 in pre-test.

Vocational rehabilitation: The mean % was 28.33% with a Standard deviation of 0.49 in the pre-test and in the post-test it was 85% with standard deviation of 0.53. Hence reveal that the improvement in vocational rehabilitation mean was 1.7 in post-test as compared to 0.56 in pre-test.

Sexual rehabilitation: The mean % was 26.66% with a Standard deviation of 0.65 in the pre-test and in the post-test it was 83.33% with standard deviation of 0.50. Hence reveal that the improvement in sexual rehabilitation mean was 2.5 in post-test as compared to 0.8 in pre-test.

Overall knowledge: The mean % was 12.66% with a Standard deviation of 7.15 in the pre-test and in the post-test it was 82.22% with standard deviation of 2.62. Hence reveal that the improvement in overall mean was 24.66 in post-test as compared to 3.8 in pre-test.

Section C: Data on assessment the knowledge scores of post myocardial infarction patients regarding cardiac rehabilitation following coronary angioplasty

Finding reveals that 52 (87%) participants were in inadequate knowledge level group in pre-test and in post-test that is 0 (0%), 8 (13%) were in moderate knowledge level group in pre-test and it was 6 (10%) in post-test moderate knowledge level and 0 (0%) were in adequate knowledge level group in pre-test, but it was increased in post-test 54 (90%) participants were in adequate knowledge level group after structure teaching programme.

Section D: Paired 't' test fortestingeffectiveness of structure teaching programme on knowledge regarding cardiac rehabilitation following coronary angioplasty

Paired't' test revealed that the Pre- test vs. post-test 't' value was 34.87 which is greater than the table value 1.6711 at 0.05 of significant. Therefore, 't' value is found to be highly significant, so research hypothesis (H_1) is accepted. It means there is an improvement in knowledge of post myocardial infarction patients attending cardiac outpatient department on cardiac rehabilitation following coronary angioplasty.

Section E: This section deals with association between post-test knowledge and selected demographic variables.

As test statistics are less than critical value for variables i.e. age in years, gender, religion, education, type of occupation, monthly income, dietary pattern, personal habits, time spending for doing exercise per day, family history and duration of suffering from CAD respectively, so there is no significant association of post-test level of knowledge with these demographic variables. Therefore H_2 is rejected and as test statistics is more than critical value for variable i.e. duration after angioplasty respectively, so there is significant association of post-test level of knowledge with this demographic variables. Therefore H_2 is accepted.

Section C: Data on assessment the knowledge scores of post myocardial infarction patients regarding cardiac rehabilitation following coronary angioplasty

Level of knowledge	Respondents			
	Pre-test		Post-test	
	Number	%	Number	%
Inadequate (0–33%)	52	87	0	0
Moderate (34–67%)	8	13	6	10
Adequate (68-100)	0	0	54	90
Total	60	100	60	100

Section E: This section deals with association between post-test knowledge and selected demographic variables

Demographic Variables		Knowledge Level				$x2$
		F	I	M	A	
Age	21 – 30 years	10	0	2	8	1.34
	31 – 40 years	24	0	2	22	NS df =4
	40 – 50 years	26	0	2	24	Tab= 9.49
Gender	Male	32	0	2	30	1.07, NS
	Female	28	0	4	24	df =2 Tab=5.99
Religion	Hindu	27	0	2	25	5.44
	Muslim	17	0	4	13	NS df=4
	Christian	16	0	0	16	Tab=9.49
Education	Primary school	20	0	2	18	
	Higher secondary school	12	0	2	10	0.99 NS
	Undergraduate	18	0	1	17	df =6 Tab=12.59
	Postgraduate	10	0	1	9	

table cont....

Demographic Variables		Knowledge Level				χ^2
Type of occupation	Business	10	0	2	8	
	Farmer	12	0	1	11	1.40 NS df =6 Tab=12.59
	Officer	28	0	2	26	
	Laborer	10	0	1	9	
Monthly income	< 20000	14	0	2	12	
	20001 – 25000	16	0	2	14	2.99 NS df =6 Tab=12.59
	25001- 30000	12	0	2	10	
	>30000	18	0	0	18	
Dietary habits	Vegetarian	24	0	4	20	1.97, NS df= 2 Tab 5.99
	Non vegetarian	36	0	2	34	
Personal habits	Smoking	20	0	1	19	
	Alcohol consumption	20	0	3	17	1.11 NS df= 6 Tab=12.59
	Coffee/Tea	10	0	1	9	
	Beetle leave chewing	10	0	1	9	
Time spending for doing exercise per day	10 minutes / day	10	0	3	7	7.5 NS df=4 Tab=9.49
	20 minutes / day	24	0	3	21	
	30 minutes / day	26	0	0	26	
Family history of	Myocardial infarction	12	0	1	11	
	Diabetes mellitus	16	0	1	15	0.59 NS df =6 Tab= 12.59
	Hypertension	18	0	2	16	
	Hypocholesteremia	14	0	2	12	
Duration of suffering from CAD	Below 1 year	26	0	2	24	
	1-3 years	10	0	2	8	4.43 NS df=6 Tab=12.59
	3-5 years	9	0	2	7	
	Above 5 years	15	0	0	15	
Duration after angioplasty	<4 weeks	12	0	0	12	
	4-8 weeks	18	0	3	15	17.75 S df=6 Tab=12.59
	8-12 weeks	17	0	3	14	
	>12 weeks	13	0	0	13	

DISCUSSION

The present study was attempted to assess the effectiveness of structure teaching programme on knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients attending cardiac outpatient department in selected hospital at Bangalore. It is a pre-experimental one group pre-test post-test design which was commence on 60 post myocardial infarction patients attending cardiac outpatient department by means of non-probability convenient sampling technique and knowledge is assessed by the use of structured knowledge questionnaire.

A study was conducted on different effects of cardiac rehabilitation in CABG and PCI patients. 194 PCI and 149 CABG patients participated in a three month CR program while 245 PCI and 89 CABG patients received standard care. After the completion of CR during a two year follow-up. Data on cardiovascular risk factors, medication and cardiovascular events (repeat coronary revascularization, acute myocardial infarction and death) were collected from hospital files. Both CABG and PCI patients included into CR showed a significantly lower mortality as compared to control patients (0.6% Vs 4.2%, $p<0.05$). However total cardiovascular disease incidence was significantly lower as a result of CR in CABG patients (4.7% Vs 14.0%, <0.05) but not in PCI patients (19.1% Vs 22.4%, $p>0.05$).[9]

A quantitative approach and one group pretest posttest study was undertaken to evaluate the effectiveness of planned teaching program on knowledge of staff nurses regarding cardiac rehabilitation. 100 staff nurses by convenient sampling technique were selected. Findings of study revealed that in pretest (76%) of samples had good knowledge, (13%) had average knowledge (11%) had excellent knowledge. The study findings depict that planned teaching program is effective strategy to improve knowledge of staff nurses regarding cardiac rehabilitation. There is significant association between knowledge scores and Socio demographic variables.[10]

CONCLUSION

Myocardial infarction or 'heart attack' is a type of acute coronary syndrome in which sudden blockage of a coronary artery, and subsequent myocardial ischemia, results in damage to the surrounding heart muscle.

Cardiac rehabilitation is a process where there is a multidisciplinary team of health professionals involved in encouraging and supporting patients with heart disease after cardiac events to obtain the treatment in achieving and maintaining a healthy heart by optimizing the status of patients' physical, psychological, social and vocational well-being. Hence assessing the knowledge of post myocardial infarction patients regarding cardiac rehabilitation following coronary angioplasty are important to identify the risk factors, complication and also structure teaching programme can be effective in improving the knowledge regarding cardiac rehabilitation following coronary angioplasty among post myocardial infarction patients attending cardiac outpatient department.

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