A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Coronary Artery Disease among the Patients with Diabetes Mellitus in S.C.B MCH Cuttack, Odisha

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Introduction

Coronary artery disease is a condition in which the blood supply to the heart muscle is partially or completely blocked.Diabetes mellitus has been well described as a cardiovascular risk factor in developed countries. In the Framingham study, the incidence of cardiovascular disease among diabetic men was twice that among nondiabetic men, and similarly was three times more elevated in diabetic women compared to nondiabetic women. Diabetic subjects are known to have a two to four times increased CAD risk, and CAD has been reported to occur two to three decades earlier in diabetic subjects as opposed to their nondiabetic counterparts.

Aim of the Study: Thepresent study was conducted to assess theeffectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among the patients with diabetes mellitus in selected hospitals.

Methods: Evaluative approach. A one group pre test and post test (pre experimental) design was used for study.Non Probability convenience sampling technique was used for selection of sample.60 diabetes patients were selected as per availability and fulfillment of the preset criteria from selected hospital.

Results: The majority of pretest knowledge score of patients that is75% (45) has poor knowledge but majority posttest knowledge score have 53.33% (32) have good knowledge. posttest mean value 23.98was higher than the pretest mean value 11.56. The mean difference between pre and posttest was 12.42and the z test value was 14.27at 5% level of significance which was highly significant.Chi square was calculated to find out the association between post test knowledge scores of patients with diabetes mellitus with their selected demographic variables. It was find that there was no significant association between post test scores among patients with diabetes mellitus regarding prevention of CAD, when compared with age, sex, educational qualification, religion, marital status, dietary habits, habits, history of high BP, history of high cholesterol, previous knowledge of CAD. This indicates that the demographic variables have no effect on posttest knowledge score of patients.

Conclusion: From the findings of the present study it is concluded that structure teaching programme on knowledge regarding prevention of CAD among the patients with diabetes mellitus was effective for improving the level of knowledge.

Key words: *Coronary artery disease (CAD), Prevention, Diabetes mellitus, Knowledge*

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Introduction

"As the arteries grow hard,

The heart grows soft".

WilliumBenkinson

The heart is the engine of human life. Beating almost 100,000 times a day, more than 36 million times each year, Endlessly Beating examines the heart as a muscle, pushing approximately five quarts of blood in an endless course to deliver oxygen to every cell of the human body.[1]

Coronary artery disease is a condition in which the blood supply to the heart muscle is partially or completely blocked.The heart muscle needs a constant supply of oxygen-rich blood. The coronary arteries, which branch of the aorta just after it leaves the heart, deliver this blood. Coronary artery disease can block blood flow, causing chest pain (angina) or a heart attack (also called myocardial infarction).[2]

Since 1990, CAD has been the leading cause of death worldwide, and this trend is expected to continue until 2020.[3]Cardiovascular diseases accounted for 30.9% of all deaths in 1998 and 10.3% of disability adjusted life year loss. Most of the developing countries have witnessed a dramatic increase in the prevalence of CAD, while the developed countries have followed a reverse trend.[4]India is predicted to bear the greatest CAD burden, according to the estimates from the Global Burden of Disease Study, more than 9 million deaths due to CAD in 1990 in developing countries, 2.4 million (25%) occurred in India. By 2020, 85% of the global cardiovascular disease burden is expected to be borne by developing nations, and the increase in CAD mortality in developing countries between 1990 to 2020 is projected to be 120% in women and 137% in men. As these projections are based on conservative figures and changes in demography of the population, the actual numbers of CAD-related deaths would be more alarming if increases in all cardiovascular risk factors are taken into account.[5]CAD includes a spectrum of disease manifestation ranging from asymptomatic atherosclerotic disease to acute coronary syndrome, which includes ST elevation myocardial infarction (STEMI), Non-ST elevation myocardial infarction (NSTEMI) and unstable angina.[6]

Diabetes mellitus has been well described as a cardiovascular risk factor in developed countries. In the Framingham study, the incidence of cardiovascular disease among diabetic men was twice that among nondiabetic men, and similarly was three times more elevated in diabetic women compared to nondiabetic women. Diabetes shares several risk factors in common with coronary artery disease (CAD), such as age, hypertension, dyslipidemia, obesity, physical inactivity, and stress, an increase in the prevalence of diabetes indirectly implicates an escalating risk of CAD as well. Diabetic subjects are known to have a two to four times increased CAD risk, and CAD has been reported to occur two to three decades earlier in diabetic subjects as opposed to their nondiabetic counterparts. The life expectancy of people with diabetes is reduced by nearly eight years due to increased mortality. Coronary artery disease accounts for more than 80% of all deaths and 75% of all hospitalizations in diabetic subjects. It is also reported that plaques are more vulnerable to rupture among patients with diabetes.[7]

Need of the Study

Dr. V. K. Bahl (AIIMS, New Delhi)says,'' It is estimated by the year 2020, India will have the largest cardiovascular burden in the world''. He adds that among Indians, coronary heart diseases tend to occur earlier in life than in any other ethnic group.[8]

The extent of the disease in coronary arteries is also greater among diabetic patients. Autopsy studies have reported that diabetic patients have a higher incidence of two- and three-vessel disease and a lower incidence of one-vessel disease compared to non- diabetics. Similar data have been reported from one large retrospective analysis of patients undergoing elective percutaneous transluminal coronary angioplasty (PTCA). Multivessel disease was more common in diabetic patients.[9]

The Chennai Urban Population Study, a population-based study in Chennai, in South India, showed a prevalence of CAD of 11%, which is 10 times more than what it was in 1970. Clustering of risk factors for CAD such as hyperglycemia, central body obesity, dyslipidemia, and hypertension tends to occur, and interplay of these risk factors could explain the enhanced CAD risk in Indians. Preventive measures

such as lifestyle modification with healthy diet, adequate physical activity, and decrease in stress could help prevent the twin epidemics of diabetes and CAD.[10]

Statement of Problem

"A study to assess the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among the patients with diabetes mellitus in S.C.B MCH Cuttack, Odisha."

Objective

· To identify the existing knowledge regarding prevention of coronary artery disease among the patients with diabetes mellitus.

· To administer a structured teaching programme regarding prevention of coronary artery disease among the patients with diabetes mellitus.

· To evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among the patients with diabetes mellitus.

· To find out the association between posttest level of knowledge scores with their selected demographic variable.

Material and Methods

RESEARCH APPROACH

Evaluative research approach is used for the study.

Rsearch Design

A pre experimental research design was adopted in the present study. In this design one group pre-testpost-test was selected.

Setting of the Study

Selected hospitals in odisha.

Population:-

The population of the study includes the patients with diabetes mellitus of selected hospital of Cuttack Odisha.

SAMPLE:-

Patients who met the inclusion criteria and were available during data collection were sample for the study.

SAMPLE SIZE:-

The sample size of the study was 60.

SAMPLING TECHNIQUE

Non Probability convenience sampling technique was used in this study.

Findings

1. Overall comparison (Frequency and percentage wise distribution) of level of knowledge of pretest and post test knowledge scores among the patients with diabetes mellitus regarding prevention of coronary artery disease.

Level of knowledge	Pre test		post test	
	Frequency	Percentage	Frequency	Percentage
Poor	45	75%	0	0%
Average	15	25%	28	46.66%
Good	O	0%	32	53.33%
Total	60	100%	60	100%

2. Area wise distribution of mean, SD and mean (%) percentage of pre and posttest level of knowledge score among the patients with diabetes mellitus regarding prevention of CAD.

AREA	PRE TEST			POST TEST			Difference in mean % (Y-X)
	MEAN	MEAN% (X)	SD	MEAN	MEAN% (Y)	SD	
Introduction of coronary artery disease	1.06	26.50%	0.88	2.83	70.75%	0.79	44.25%
Risk factors, symptoms and diagnostic evaluation of coronary artery disease	3.61	27.76%	1.68	7.88	60.61%	2.05	32.85%
Management of coronary artery disease	0.85	28.33%	0.67	1.95	65%	0.8	36.67%
Prevention of coronary artery disease among patients with diabetes mellitus.	6.03	31.73%	2.15	11.31	59.52	3.01	27.79
Over all	11.56	29.64%	3.84	23.98	61.48%	5.68	31.64

3. Comparison between difference of pre-test and post test level of knowledge score among the patients by using closed ended knowledge questionnaire on selected sections related to prevention of CAD among patients with diabetes mellitus.

SL NO	AREA	'Z' VALUE	LEVEL OF SIGNIFICANCE
1.	Introduction of CAD	12.64	Highly Significant
2.	Risk factor, symptoms and diagnostic evaluation of CAD.	12.93	Highly Significant
3.	Management of CAD.	11	Highly Significant
4.	Prevention of CAD among diabetes mellitus patients.	11.47	Highly Significant

(df =59)**(Table Value= 2.576), (P< 0.05)**

Thus, it can be interpreted that structured teaching programme was effective for all the areas and there was a difference between pre and post-test knowledge scores of patients regarding prevention of CAD.

4. Comparison between the overall scores of mean, SD, mean difference and 'z' value of pre and post test level of knowledge score among patients with diabetes mellitus on prevention of CAD.

Groups	Mean	Sd	Mean Difference	'Z'value	Table Value (P≤ 0.05)
Pre test	11.56	3.84	12.42	14.27	2.00
Post test	23.98	5.68			

It was inferred that patients with diabetes mellitus had significantly higher level of knowledge score in post-test after implementation of structured teaching programme.

5. Association between post test knowledge scores of patients with diabetes mellitus regarding prevention of CAD with their selected demographic variables.

SL NO	DEMOGRAPHIC VARIABLES	CHI SQUARE VALUE (X2)	df	TABLE VALUE	LEVEL OF SIGNIFICANCE
1.	Age	0.29	6	12.59	Not significant
2.	Sex	0.61	2	5.99	Not significant
3.	Educational qualification	2.68	10	18.31	Not significant
4.	Religion	0.81	6	12.59	Not significant
5.	Marital status	0.008	6	12.59	Not significant
6.	Dietary habits	0.10	2	5.99	Not significant
7.	Habits	7.91	8	15.51	Not significant
8.	History of high BP	0.003	2	5.99	Not significant
9.	History of high cholesterol	0.3	2	5.99	Not significant
10.	Previous knowledge of CAD	0.02	2	5.99	Not significant

This indicates that the demographic variables have no effect on posttest knowledge score of patients. Hence researcher rejected the research hypothesis and accepts the null hypothesis

Discussion

The majority 53.33 %(32) of patients were in the age group of 35-50 years.The majority 70% (42) of patients with diabetes mellitus were male.The majority 35% (21) of patients belongs to Intermediate.The majority of patients with diabetes mellitus 80% (48) were Hindu. The majority of patients that is 96.66%(58) were married . The majority of patients that is 76.66% (46) were non vegetarian. The majority of patients 51.66% (31) have no any habits like alcoholic, smoking, tobacco chewing and drug addiction.The majority of patients that is 56.66% (34) were not having history of high blood pressure.The

Majority of patients that is 78.33% (47) were not having history of high cholesterol.The majority of patients that is 58.33 %(35) had previous knowledge of prevention of coronary artery disease.The majority ofpretest knowledge score of patients that is75% (45) has poor knowledge but majority posttest knowledge score have 53.33% (32) have good knowledge.Area wise highest pre test mean score was 6.03 which show 31.73% for the area of "prevention of coronary artery disease", and the highest post-test mean score was 11.31which shows 59.52% for the area of "prevention of coronary artery disease".Item wise comparison showed that there is effectiveness of STP in increasing knowledge of the patients with diabetes mellitus regarding prevention of CAD.No significant association was found between post test knowledge scores and demographic variables.

Conclusion

From the findings of the present study it is concluded that structure teaching programme on knowledge regarding prevention of CAD among the patients with diabetes mellitus was effective for improving the level of knowledge. Prior to implementation of structure teaching programme , patients had poor knowledge 75% and after structure teaching programme patients had good knowledge 53.33% regarding prevention of CAD among the patients with diabetes mellitus with over all mean in pre test was 11.56and post test was 23.98. Hence it can be easily interpreted that STP was effective to improve knowledge regarding prevention of CAD among patients with diabetes mellitus.

Ethical Clearance– Taken fromethics committee of college.

Source of Funding- Self

Conflict of Interest- Nil

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