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Effectiveness of Nursing Care Pathway on Physiological Parameters and Qulaity of Life Among Patients Undergone Coronary Artery Bypass Grafting (CABG)

Dr. Prof. P.Padmathvathi[1], Prof. Chandramathi.K[2], Dr. Prof. C.Grazy[3], Prof.R. Gowri[4], Mr.Pearlson Jebamarhsel. D[5]

[1]PhD (N), Principal, Dhanvantri College of Nursing, Namakkal, Affiliated to the Tamilnadu. Dr.M.G.R. Medical University, Chennai.

[2,3,4,5]M.Sc (N), PhD (N), Department of Medical Surgical Nursing, Dhanvantri College of Nursing, Namakkal, Affiliated to the Tamilnadu. Dr.M.G.R. Medical University, Chennai.

ABSTRACT

Cardiovascular diseases (CVDs) are the leading cause of premature death and disability in humans and their incidence is on the rise globally. Preoperative education improves self-efficacy after CABG surgery. The objectives of the is to assess the level of physiological parameters and quality of life among patients who have undergone Coronary Artery Bypass Grafting before and after nursing care pathway in experimental group and control group. The investigator used Quasi experimental design - where pre and posttest with control group design. The Setting of the study was Erode Emergency Care hospital. Selected sample was Patients who have undergone coronary angiography with Age Group between 41 to 60 years, Both gender, patient undergoing CABG surgery, on the first day of postoperative period, Who were available during the period of data collection, Who gave consent to participate in this study. The total sample was 30 patients, out of which 15 were experimental group and 15 were control group. Results of the in control group the mean score was (10.21 ± 1.52), which is 64% whereas in experimental group the mean score was (6.42±1.88), which is 40% on the area of physiological parameters. It shows the differences of 24%. However in control group the mean scores was (54.12 ± 2.85), which is 54% whereas in experimental group the mean score was (82.01 ± 2.01), which is 82% on the area of quality of life. It shows the differences of 32% It indicates that a nursing care pathway was effective among patients with undergone coronary artery bypass grafting. The unpaired "T" test showed there is moderately significant difference in nursing care pathway on physiological parameters and quality of life among patients undergone Coronary Artery Bypass Grafting and Chi – square test showed no association between their demographic variables with control and experimental groups post test scores.

Conclusion: The study showed that nursing care pathway were effective and hence can follow to prevent post-operative complications.

KEYWORDS: Nursing Care Pathway, Physiological parameters, Quality of Life, Coronary Artery Bypass Grafting.

INTRODUCTION:

Worldwide, cardiovascular disease (CVD) continues to be the leading cause of death for both men and women. In 2023, there will be eight billion people on the planet! Approximately 620 million individuals worldwide suffer from heart and circulation disorders. Approximately 60 million people worldwide suffer from heart or circulation diseases each year. An estimated 1 in 13 people worldwide suffer from a cardiac or circulation condition. Around 1 in 3 deaths worldwide are attributed to heart and circulation disorders; in 2021, there were a projected 20.5 million deaths, or 56,000 deaths each day, or one death every 1.5 seconds. The British Heart Foundation is the source. V**ijay-Kunadian2024.**

The most prevalent of all CVDs is coronary artery disease (CAD), which has become extremely prevalent all over the world. CAD is becoming the world's largest cause of mortality and disability, especially in underdeveloped countries. According to the WHO and the Global Burden of Disease Study, Coronary Heart Disease (CHD) is now one of the leading causes of disability-adjusted life expectancy and rising trends in the number of deaths in India. On the other hand, CAD-related mortality are rapidly decreasing in wealthy countries. This rise, known as the epidemiological shift, is caused by urbanization, industrialization, and associated changes in lifestyle. **Gupta 2016.**

According to the World Health Organization (WHO), cardiovascular diseases (CVDs) are one of the leading causes of death worldwide, accounting for over 17.3 million deaths per year; by 2030, that number is expected to rise to over 23.6 million (WHO, 2016). In 2013, cardiovascular disease (CVD) accounted for 31% of all deaths worldwide, with low and middle-income nations accounting for 80% of these deaths. More people die from CVD than from any other disease in the world. It is the leading cause of morbidity and mortality globally and has emerged as a major health issue in many emerging nations. **Sharif, 2020**

The etiological risk factors leading to the onset of CVDs are well recognized and include hyperlipidemia, hypertension, diabetes, obesity, smoking and, lack of physical activity. They collectively represent more than 90% of the CVD risks in all epidemiological studies. Despite high fatality rate of CVDs, the identification and careful prevention of the underlying risk factors can significantly reduce the global epidemic of CVDs. Beside making favorable lifestyle modifications, primary regimes for the prevention and treatment of CVDs include lipid-lowering drugs, anti-hypertensive's, anti-platelet and anticoagulation therapies. Despite their effectiveness, significant gaps in the treatment of CVDs remain. In this review, we discuss the epidemiology and pathology of the major CVDs that are prevalent globally. **Gangan Flora 2019**.

Prevalent cases of total CVD nearly doubled from 271 million (95% uncertainty interval [UI]: 257 to 285 million) in 1990 to 523 million (95% UI: 497 to 550 million) in 2019, and the number of CVD deaths steadily increased from 12.1 million (95% UI:11.4 to 12.6 million) in 1990, reaching 18.6 million (95% UI: 17.1 to 19.7 million) in 2019. The global trends for disability-adjusted life years (DALYs) and years of life lost also increased significantly, and years lived with disability doubled from 17.7 million (95% UI: 12.9 to 22.5 million) to 34.4 million (95% UI:24.9 to 43.6 million) over that period. The total number of DALYs due to IHD has risen steadily since 1990, reaching 182 million (95% UI: 170 to 194 million) DALYs, 9.14 million (95% UI: 8.40 to 9.74 million) deaths in the year 2019, and 197 million (95% UI: 178 to 220 million) prevalent cases of IHD in 2019. The total number of DALYs due to stroke

has risen steadily since 1990, reaching 143 million (95% UI: 133 to 153 million) DALYs, 6.55 million (95% UI: 6.00 to 7.02 million) deaths in the year 2019, and 101 million (95% UI: 93.2 to 111 million) prevalent cases of stroke in 2019. **Can J Cardiol 2019.**

STATEMENT OF THE PROBLEM:

A STUDY TO EVALUATE THE "EFFECTIVENESS OF NURSING CARE PATHWAY ON PHYSIOLOGICAL PARAMETERS AND QUALITY OFLIFE AMONG PATIENTS UNDERGONECABGADMITTEDINERODEEMERGENCYCAREHOSPITAL, ERODE".

OBJECTIVE:

1. To assess the level of physiological parameters and QOL among patients undergone CABG before and after nursing care pathway in experimental group and control group.
2. To determinetheeffectivenessofnursingcarepathwayonphysiologicalparameters and QOL among patients who have undergone CABG in both the groups.
3. To find out the association between the pre-test score of physiological parameters and QOL among patients undergone CABG in both the groups with their selected demographic variables.

METHODOLOGY:

In this study, quasi experimental design method was used, in which Sample size of 30 was selected and grouped into Group-A: Control group (15 no's) and Group-B: Experimental Group(15 no's) using "Purposive Sampling Method". Pretest was conducted for both groups and Intervention(Nursing Care Pathway) was given to experimental group after pretest and Post test was conducted to control and Experimental group after giving the intervention (nursing care pathway). The Data was analyzed using SPSS Version on Descriptive data including Mean, Standard Deviation, Mean Percentage and Inferential data including Paired and Unpaired "t" test, Chi-Square.

DEVELOPMENT OF THE TOOLS:

The tool which consists of three sections. They are,

SECTION-A: Demographic characteristics: It consists of Age, Gender, Hours of work done per day, Associated illness, Marital status, Smoking habits, Alcohol consumption habits, Dietary habits**.**

SECTION- B: Physiological parameters assessment scale:

This consists of physiological parameters assessment scale. It consists of 4 parameters; they are systolic pressure, diastolic pressure, heart rate and respiratory rate. In this tool the total score is 12.

Physiological parameter assessment scale

Physiological parameters	**Normal ranges**	**Low ranges**	**High ranges**
Heart rate.	72to100beats/mts	50 -60	>100beats /minute
Respiratory rate.	12-20 breath/mts	<12	>20breath/mts
Systolic BP	<120mmHg	<90	120-129 mmHg
Diastolic BP	<80mmHg	<60	80-89 mmHg

SCORING PROCEDURE:

The physiological parameters are categorized as normal, moderate and unchanged parameters.

Level of physiological parameters

Level of physiological parameters	**Actual scores**	**Percentage**
Normal–vast improvement, complete remission of vital parameters.	1-4	1-31%
Moderate–decided improvement and partial remission of vital parameters	5-8	32-63%
Unchanged parameters.	9-12	64-100%

SECTION-C: Quality Of Life Assessment Scale:

This consists of the CABG Quality of life scale (WHO Scale) which is a standardized tool used to assess the level of QOL of the patients with CABG both in experimental and control group.

SCORINGPROCEDURE:

Based on the percentage of scores the QOL is categorized as Poor, Average and Good.

Level of QOL	**Actual Scores**	**Percentage of scores**
Poor	1-32	<33%
Average	33-66	33-66%
Good	67andabove	>66%

ETHICAL CONSIDERATION:

1. A written permission was obtained from the Board of Directors of Ethical Committee and Principal of Dhanvantri college of Nursing, Namakkal.
2. A written permission was obtained from the Medical Superintendent of Erode Emergency Care Hospital, Erode.
3. A written consent was obtained from every sample(Patients undergone CABG) admitted in Erode Emergency Care Hospital, Erode.

VALIDITY AND RELIABILITY:

The content validity of the demographic variables, physiological parameters assessment scale and QOL questionnaire was validated in consultation with guide and field of experts. The experts were nurse specialist, cardiologist, and statistician. The tool was modified according to the suggestions and recommendations of the experts.

The reliability of physiological parameters assessment scale and QOL questionnaire was tested by implementing the tool on 6 patients admitted in Erode Trust Hospital, Erode On 15-03-2024 to 20-03-2024 which is other than sample area. Test retest method to assess the stability by using Split Half method (Spearman Brown Formula) and the value was found to be reliable. (r1 = 0.86).

PERIOD OF DATA COLLECTION:

The data was collected from 09/04/2024 to 08/05/2024 for the period of one month.

PRE-TEST:

The Pretest data was collected on the day of admission for the surgery (CABG).

INTERVENTION (Nursing Care Pathway):

Nursing care pathway was administered in three parts:

1. First part of teaching was administered on the day of admission and it included knowledge about anatomy of heart, CAD, various treatment modalities, CABG and choice of grafts, expectations after surgery, exercise program, and importance of rehabilitation teaching. One-to-one individual teaching and demonstration of exercises were done for 30 min/day.
2. Second part of teaching was on the 3rd or 4th postoperative day and included care of incision site, care of sternum, sign of incision infection, and reinforcement of exercise program. Total time taken for this section was about 20 min/day.
3. Third part of teaching was on the day of discharge included nutrition, sexual life, risk modification strategy, follow-up, and reinforcement of exercise program. Total time duration for this section was about 20 min. Doubts were cleared immediately after teaching.

Total duration of procedure 70mts for 5-8 days.

POST-TEST:

The Post test data was collected during the hospital visit one after Surgery(CABG). Post test was conducted on end of the month by using physiological parameters assessment scale and quality of life questionnaire scale to assess the quality of life among patient undergone CABG.

DESCRIPTION OF DATA ANALYSIS:

RESULTS:

SECTION-A: DESCRIPTION OF SAMPLE CHARACTER ACCORDINGTO THEIR DEMOGRAPHICALVARIABLES.

Frequency and percentage distribution of control and experimental groups of patients who have undergone CABG according to their demographic variables (N1=15, N2= 15)

Demographic Variables	Control Group		Experimental Group	
	Frequency (N1)	Percentage(%)	Frequency(N2)	Percentage(%)
1. Age in years				
a. 30-40years	6	40	1	7
b. 41-50years	6	40	8	53
c. 51-60years	3	20	6	40
2.Gender				
a. Male	9	60	11	73
b. Female	6	40	4	27
3.Hours of work done per day				
a.<2	1	7	1	7
b. 2 -4	10	67	5	33
c.5 -8	4	26	7	47

d.>8	-	-	2	13
4.Associated disease				
a. DM	10	6	12	80
b. Hypertension	5	3	3	20
c. DM with HT	0	3	0	0
d. Others	0	0	0	0
5.Maritalstatus				
a. Married	9	60	11	73
b. Unmarried	6		4	27
6.Dietaryhabits				
a. Vegetarian	10	6	12	80
b. Non-Vegetarian	5	33	3	20
7.Smoking habits				
a.Yes	9	60	10	67
b.No	6	40	5	33
8.Alcoholism				
a. Yes	3	20	4	27
b. No	12	80	11	63

SECTION-B: Assess the level of physiological parameters and QOL among patients undergone CABG after nursing care pathway in experimental group and control group

1. Frequency and percentage distribution of control group and experimental group post test scores of physiological parameters among patients who have undergone CABG.(N1=15, N2=15)

Levels of physiological parameters	**Posttest scores**			
	Control Group		**Experimental Group**	
	Frequency (N1)	**Percentage (%)**	**Frequency (N2)**	**Percentage (%)**
Normal	-	-	12	80
Moderate	7	40	3	20
Unchanged parameters	8	60	-	-

2. Frequency and percentage distribution of the control group and experimental group post test scores of QOL among patients who have undergone CABG (N1=15, N2=15)

Levels of Quality of life	**Posttest scores**			
	Control Group		**Experimental group**	
	Frequency (N1)	**Percentage (%)**	**Frequency (N2)**	**Percentage (%)**
Poor	13	87	-	-
Average	2	13	1	7
Good	-	-	14	93

3. Unpaired 't' test value of experimental and control group of post test scores.

Patients undergone coronary artery bypass grafting	Un paired"t"test Value	Tablevalue	Level of significant(p)
Physiological parameters	14.01	2.05	P<0.05significant
Quality of life	18.45	2.05	P<0.05significant

Comparison of mean, SD, and mean percentage of experimental group and control group post test scores of physiological parameters and QOL among patients who have undergone CABG

Patients undergone CABG	Maxscores	Posttest scores						DifferenceMean%
		Control Group			Experimental Group			
		Mean	SD	Mean%	Mean	SD	Mean%	
Systolic pressure	4	2.88	0.12	72	1.85	0.57	46	26
Diastolic pressure	4	2.92	0.44	73	1.20	0.74	30	43
Heart rate	4	2.81	1.42	70	1.28	1.23	32	38
Respiratory rate	4	2.79	0.25	70	1.47	1.67	37	33
Total	**16**	**10.21**	**1.52**	**64**	**6.42**	**1.88**	**40**	**24**
Quality of life	**100**	**54.12**	**2.85**	**54**	**82.01**	**2.01**	**82**	**32**

SECTION–D: Find out the association between post test scores on physiological parameters and QOL among control and experimental groups of patients who have undergone CABG and their demographic variables using Chi-Square.

1. Association between control group posttest scores on physiological parameters among patients with their demographic variables

Demographic variables	Posttest scores			Level of significance
	Df	□2	Table value	
Age	1	1.08	3.84	P> 0.05Notsignificant
Gender	1	1.95	3.84	P> 0.05Notsignificant
Hours of work done per day	1	1.19	3.84	P> 0.05Notsignificant
Associated disease	1	0.45	3.84	P< 0.05Significant
Marital status	1	1.95	3.84	P> 0.05Notsignificant
Dietary habits	1	3.26	3.84	P< 0.05 Significant
Smoking habits	1	0.81	3.84	P< 0.05Significant
Alcohol consumption habit	1	2.01	3.84	P< 0.05Significant

2. Association between experimental group of post test scores on physiological parameters among patients with their demographic variables.

Demographic variables	Posttest scores			Level of significance
	Df	chiquare	Table value	
Age	1	1.53	3.84	P>0.05Notsignificant
Gender	1	1.17	3.84	P>0.05Notsignificant
Hours of work done per day	1	3.26	3.84	P>0.05Notsignificant
Associated disease	1	6.4	3.84	P< 0.05Significant
Marital status	1	1.1	3.84	P>0.05Notsignificant
Dietary habits	1	2.3	3.84	P<0.05Significant
Smoking habits	1	1.52	3.84	P<0.05Significant
Alcohol consumption habits	1	2.01	3.84	P < 0.05Significant

3. Association between control group of post test scores on QOL among patient who have undergone CABG with their demographic variables

Demographic variables	Posttest			Level of significance
	Df	Chiquare	Table value	
Age	1	0.12	3.84	P>0.05 Not significant
Gender	1	0.92	3.84	P>0.05 Not significant
Hours of work done per day	1	0.10	3.84	P>0.05 Not significant
Associated disease	1	9.7	3.84	P< 0.05 Significant
Marital status	1	0.92	3.84	P>0.05 Not significant
Dietary habits	1	1.20	3.84	P<0.05 Significant
Smoking habit	1	1.81	3.84	P<0.05 Significant
Alcohol consumption habit	1	2.01	3.84	P<0.05 Significant

4. Association between experimental group of posttest scores on QOL among patients with their demographic variables

Demographic variables	Post test scores			Level of significance
	Df	chisquare	Table value	
Age	1	0.08	3.84	P> 0.05Notsignificant
Gender	1	0.10	3.84	P> 0.05Notsignificant
Hours of work done per day	1	0.30	3.84	P> 0.05Notsignificant
Associated disease	1	0.77	3.84	P< 0.05Significant
Marital status	1	1.00	3.84	P> 0.05Notsignificant
Dietary habits	1	0.04	3.84	P< 0.05Significant
Smoking habit	1	0.75	3.84	P< 0.05Significant
Alcohol consumption habit	1	1.52	3.84	P< 0.05Significant

DISCUSSION:

Distribution of control and experimental group samples according to their age group depicts that in control group similar percentage (40% and 40%) of them were in the group of 41-50years and the lowest percentage (20%) of them in the age group of 51- 60years. In experimental group the highest percentage (53% and 40%) of patients undergone CABG in the age group of 41-50 years, and 41-50 years respectively and only 7%. of them were in the age group of 30-40 years associated with most of them were in the age group = 41-50 year, with regard to gender, control and experimental group samples reveals that, the highest percentage (60%, and 73%) of patients were males in both the groups. However lower percentage of female patients in control and experimental group were (40% and 27%) respectively. It seems that male patients undergone CABG more than female patients.

Distribution of control and experimental group of samples according to their hours of work done per day shows that in control group highest percentage (67%) of them were in the 2 – 4 hours of work done per day and only 26% of them were in the 6 -8 hours of work done per day. In experimental group the highest percentage of them were in the hours of work done per day was 6 -8 hours. However 33% of them were in the 2 – 4 hours of work done per day and 13% of them were in the more than 8 hours of work done per day. It might be associated weight is one of the risk factors of CAD.

Distribution of control and experimental group samples according their associated diseases depicts that most (67% and 80%) of the patients had DM in both the groups. However 33% and 20% of them had HTN is associated disease in both the groups.

Distribution of control and experimental group samples according their marital status depicts that most (60% and 73%) of the patients married in both the groups. However 40% and 27% of them had unmarried in both the groups. It seems that no conclusion for this study.

Distribution of control and experimental group samples according their dietary pattern depicts that most (67% and 80%) of the patients had vegetarian in both the groups. However 33% and 20% of them had non vegetarian diet in both the groups. It seems that no conclusion for this study.

Distribution of control and experimental group samples according their smoking habits depicts that most (60% and 67%) of the patients had smoking habits in both the groups. However 40% and 33% of them no smoking habits in both the groups. It seems that no conclusion for this study.

Distribution of control and experimental group samples according their Alcohol consumption habit depicts that most (80% and 73%) of the patients no Alcohol consumption habit in both the groups. However 20% and 27% of them had Alcohol consumption habit in both the groups. It seems that no conclusion for this study.

CONCLUSION:

Based on this study it is statistically evident that Nursing Care Pathway was effective and can improve the Physiological parameters and Quality of life among the patients undergone Coronary Artery Bypass Grafting.

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