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A STUDY TO EVALUATE THE EFFECTIVENESS OF SWEDISH MASSAGE ON PAIN AND PHYSIOLOGICAL PARAMETERS AMONG PATIENTS FOLLOWING CABG IN A SELECTED HOSPITAL AT COIMBATORE

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ABSTRACT

Introduction: The coronary artery bypass graft (CABG) surgery patients have pain and altered physiological parameters. In this study, Swedish massage therapy appears to be a natural and effective therapy to reduce pain among CABG patients. **Objective:** To assess the effectiveness of Swedish massage on the level of pain and physiological parameters among patients following CABG. **Design:** A quantitative research approach using pre-experimental pretest-posttest only design. **Sampling Technique:** The subjects were 30 CABG patients selected by using non probability purposive sampling technique in Sree Abirami Hospital, Coimbatore. **Tools:** The level of pain was assessed by using Numerical Rating Scale, Blood Pressure was checked and categorized based on the World Health Organization (WHO) recommended blood pressure category table and the level of Peripheral Oxygen Saturation was checked and categorized based on standardized Rule of Thumb category table. **Intervention:** Swedish massage intervention was administered to the subjects for 20 minutes twice a day at morning and evening for 4 consecutive days. The data was analyzed by using descriptive (Mean and standard deviation) and inferential statistics (paired “t” test). **Results:** The study findings revealed the obtained ‘t’ value of 11.4 pain, 12.3 blood pressure, and 18.9 peripheral oxygen saturation were significant at $p \leq 0.051$ level. **Conclusion:** It shows that Swedish massage therapy was effective in reducing pain, blood pressure and improves peripheral oxygen saturation level among patients following CABG.

KEYWORDS

Swedish massage, Pain, Physiological parameters and Coronary artery bypass graft.

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INTRODUCTION

Coronary artery bypass graft surgery (CABG) creates a new path for blood to flow to the heart. According to industry sources In India the annual number of CABG surgeries about 60000. The postoperative period of cardiac surgery is associated with complications, and the deleterious effects of the procedure lead these patients to pain experiences, alteration in physiological vital parameters. In the

case of cardiac surgery, studies have shown that 47-75% of patients reported some type of pain in the post operative period. Benefits of complementary therapies can be considered as two times more effective than that of conventional therapies. Swedish massage is exceptionally beneficial for increasing the level of oxygen in the blood, decreasing muscle toxins, improving circulation and flexibility while easing tension. Swedish massage refers to manipulation of muscles in the various regions of the body such as thoraco-lumbar region, upper extremities and lower extremities (exception of sephenectomy) by means of effleurage, petrissage, friction, tapotment and shaking administered for 20 minutes.

Problem statement

A study to evaluate the effectiveness of swedish massage on pain and physiological parameters among patients following CABG in a selected hospital at Coimbatore.

Objectives of the study

To assess the pretest level of pain, and physiological parameters among patients following CABG.

To assess the effectiveness of Swedish massage on the level of pain and physiological parameters among patients following CABG

To determine the association between the level of pain and physiological parameters with their selected demographic variables among patients following CABG.

Assumptions

The assumptions of the study were

Patients underwent coronary artery bypass graft may experience pain, and alteration in physiological parameters such as blood pressure and peripheral oxygen saturation level.

Complementary and alternative medicine will play an important role in reducing of pain and stabilize physiological parameters.

Swedish massage will effectively reduce the pain and physiological parameters such as blood pressure and improve the peripheral oxygen saturation among CABG patients.

MATERIAL AND METHODS

A pre-experimental One-group pretest-post test design was chosen for analyzing the effectiveness of Swedish massage among patients following coronary artery bypass graft. The sample was selected for this study by adopting non probability purposive sampling technique which means selection based on characteristics of a population and objectives of the study. In this study, patients after CABG were selected based on inclusion and exclusion criteria. Prior permission was obtained from the authorities of Sree Abirami Hospital. After explaining the objectives of the study and obtained consent from the study samples, the study was conducted for a period of 6 weeks. According to the inclusion and exclusion criteria totally 30 sample were selected for the study. After determining the study subject the required explanations was presented to the samples about confidentiality of data, procedure and duration of the study. In pre test the researcher first collected the demographic details. Then the level of pain was measured by using Numerical Rating Scale and the levels of physiological parameters including blood pressure measured by standardized sphygmomanometer and level of peripheral oxygen saturation measured by using Pulse Oximetry.

During the intervention period the researcher provided the swedish massage therapy for 20 minutes, twice a day (morning and evening) for 4 consecutive days from 3rd -6th day of post CABG. The researcher created the privacy with curtain, the patient was covered with blanket and the massaged part exposed. The talcum powder was applied on the patient skin to reduce friction. Massage areas were back, neck, shoulders, arms and legs according to patient request and preference and they were examined in terms of being healthy. The patient was in the most comfortable position like sitting on a chair, lying on his back or on his side on bed with the help of researcher. The Swedish massage used by the researcher includes 5 techniques; Effleurage, Petrissage, Tapotment or rhythmic tapping, Friction and Vibration or shaking. The post -intervention stage the researcher remained bed side and to assessed the level of pain, levels of physiological

parameters including blood pressure and peripheral oxygen saturation.

Tools used for the study

The assessment of the level of pain by Numerical Rating Scale (NRS), assessment of level of blood pressure by standardized sphygmomanometer and the assessment of the level of peripheral oxygen saturation level by pulse oximetry.

RESULTS AND CONCLUSION

Data on Demographic variables of patients following CABG among study subjects

Table this revealed that the majority of the patients 18(60%) belongs to the age group of 46 to 65 years, 26(86.6%) are males, 20(66.6%) patients are in primary education (5th standard), 28(93.3%) were married, 19(63.3%) were doing self business, the patients individual monthly income of 12(40%) were above RS.15,000/-, 15 (50%) were smokers, 16(53.3%) were alcoholic, 21(70%) CABG patients were in acute coronary syndrome and 20(66.6%) CABG patients were undergone three grafts.

Data on pretest and posttest level of pain among patients following CABG

Table No.1 revealed that, in pretest majority of the patients 23(76.6%) were had moderate level of pain, 8(26.6%) were had severe pain on the first and second day in both morning as well as in the evening and minority of the patients 8(26.6) were in the moderate pain 22(73.3%) mild pain on the second and third day in both morning as well as evening. Where as in post test majority of the patient 22(73.3%) had absence of pain, 8 (26.6%) had mild pain. None of the patients showed the normal and severe level of pain both test.

Data on level of blood pressure among patients following CABG

Table No.2 revealed that, in pre test majority of the patients 19(63.3%) were in the moderate hypertension, 7(23.3%) had mild hypertension, 4(16.6%) had severe hyper tension on the first day in morning as well as evening. And minority of the patients 8(26.6) were had moderate hypertension, 22(73.3%) had mild hypertension on the second and third day in both morning as well as evening. Where

as in post test majority of the patient 30(100%) showed the normal blood pressure at the fourth day.

Data on level of peripheral oxygen saturation among patients following CABG

Table No.3 revealed that, in pre test majority of the patients 25(83.3%) were in the mild hypoxemia on the first and second day in both morning as well as in the evening and minority of the patients 5(16.6%) were in the mild hypoxemia on the second and third day in both morning as well as evening. Where as in post test majority of the patient 29(96.6%) in normal, 1(3.3%) in mild hypoxemia. None of the patients showed the normal and severe level of hypoxemia in both test.

Data on effectiveness of Swedish massage on pain and physiological parameters such as blood pressure and peripheral oxygen saturation among patients following CABG in the study subjects

Table No.4 projected that, the pre test mean and standard deviation 4.8 ± 1.1 was higher than the post test mean and standard deviation 2.9 ± 0.84 in pain, (5.7 ± 30.6) (2.0 ± 10.9) blood pressure and (5.5 ± 29.6) (2 ± 10.7) peripheral oxygen saturation. The mean difference of pretest and posttest score was 1.9 in pain, 3.7 blood pressure and 3.5 in peripheral oxygen saturation. The paired 't' test value 11.4 in pain, 12.3. In blood pressure and 18.9 in peripheral oxygen saturation were significantly higher than the table value at $p \leq 0.05$. It indicates the effectiveness of Swedish massage on the level of pain, blood pressure and peripheral oxygen saturation among patients following CABG.

Data on association on the pain and physiological parameters such as blood pressure and peripheral oxygen saturation with their selected demographic variables among patients following CABG in the study subjects

The Table No.5 state that there is a significant association found between the level of peripheral oxygen saturation with marital status and habits of alcoholism. Hence the hypothesis H_3 was retained for the above mentioned variables and it was rejected for the other variables among patients following CABG.

Table No.1: Frequency and percentage distribution on level of pain among patients following CABG N=30

Days	Level of pain	Morning				Evening			
		Pre-test		Post-test		Pre-test		Post-test	
		N	%	N	%	n	%	n	%
DAY 1	Normal	0	0	0	0	0	0	0	0
	Mild	0	0	4	13.3%	0	0	4	13.3%
	Moderate	22	73.3%	18	73.3%	22	73.3%	20	66.6%
	Severe	8	26.6%	8	26.6%	8	26.6%	6	20%
DAY 2	Normal	0	0	0	0	0	0	0	0
	Mild	3	10%	5	16.6%	3	10%	6	20%
	Moderate	19	63.3%	17	56.6%	23	76.6%	20	66.6%
	Severe	8	26.6%	8	26.6%	4	13.3%	4	13.3%
DAY 3	Normal	0	0	0	0	0	0	0	0
	Mild	7	23.4%	9	30%	9	30%	20	66.6%
	Moderate	23	76.6%	21	70%	21	70%	10	33.3%
	Severe	0	0	0	0	0	0	0	0
DAY 4	Normal	10	33.3%	12	40%	20	66.6%	22	73.3%
	Mild	12	40%	12	40%	10	33.3%	8	26.6%
	Moderate	8	26.6%	0	0	0	0	0	0
	Severe	0	0	0	0	0	0	0	0

Table No.2: Frequency and percentage distribution on level of blood pressure among patients following CABG N=30

Days	Level of blood pressure	Morning				Evening			
		Pre-test		Post-test		Pre-test		Post-test	
		N	%	N	%	N	%	N	%
Day 1	Normal	0	0	0	0	0	0	0	0
	Mild hypertension	7	23.3%	7	23.3%	7	23.3%	9	30%
	Moderate hypertension	19	63.3%	19	63.3%	19	63.3%	18	60%
	Severe hypertension	4	13.3%	4	13.3%	4	13.3%	3	10%
Day 2	Normal	0	0	0	0	0	0	0	0
	Mild hypertension	9	30%	9	30%	15	50%	15	50%
	Moderate hypertension	18	60%	18	60%	13	43.3%	13	43.3%
	Severe hypertension	3	10%	3	10%	2	6.6%	2	6.6%
Day 3	Normal	10	33.3%	15	50%	17	56.6%	17	56.6%
	Mild hypertension	15	50%	10	33.3%	8	26.6%	8	26.6%
	Moderate hypertension	5	16.6%	5	16.6%	5	16.6%	5	16.6%
	Severe hypertension	0	0	0	0	0	0%	0	0
Day 4	Normal	28	93.3%	30	100%	30	100%	30	100%
	Mild hypertension	2	6.6%	0	0	0	0	0	0
	Moderate hypertension	0	0	0	0	0	0	0	0
	Severe hypertension	0	0	0	0	0	0	0	0

Table No.3: Frequency and percentage distribution on level of peripheral oxygen saturation among patients following CABG N=30

Days	Level of SpO ₂	Morning				Evening			
		Pre-test		Post-test		Pre-test		Post-test	
		N	%	N	%	N	%	N	%
Day 1	Normal	0	0	0	0	0	0	0	0
	Mild hypoxemia	25	83.3%	25	83.3%	25	83.3%	25	83.3%
	Moderate hypoxemia	5	16.6%	5	16.6%	5	16.6%	5	16.6%
	Severe hypoxemia	0	0	0	0	0	0	0	0
Day 2	Normal	0	0	1	3.3%	1	3.3%	1	3.3%
	Mild hypoxemia	25	83.3%	24	80%	25	83.3%	25	83.3%
	Moderate hypoxemia	5	16.6%	4	13.3%	4	13.3%	4	13.3%
	Severe hypoxemia	0	0	0	0	0	0	0	0
Day 3	Normal	7	23.3%	15	50%	15	50%	20	66.6%
	Mild hypoxemia	20	66.6%	14	46.6%	14	46.6%	9	30%
	Moderate hypoxemia	3	10%	1	3.3%	1	3.3%	1	3.3%
	Severe hypoxemia	0	0	0	0	0	0	0	0
Day 4	Normal	23	76.6%	27	90%	28	93.3%	29	96.6%
	Mild hypoxemia	7	23.3%	3	10%	2	6.6%	1	3.3%
	Moderate hypoxemia	0	0	0	0	0	0	0	0
	Severe hypoxemia	0	0	0	0	0	0	0	0

Table No.4: Mean, standard deviation, mean difference and ‘t’ value on pretest and post test pain, blood pressure and peripheral oxygen saturation among patients following CABG N=30

S.No	variables	Test	Mean	Standard deviation	Mean difference	‘t’ value
1	Pain	Pre-test	4.8	1.1	1.9	11.4
		Post-test	2.9	0.84		
2	Blood pressure	Pre-test	5.7	30.6	3.7	12.3
		Post-test	2.0	10.9		
3	SpO ₂	Pre-test	5.5	29.6	3.5	18.9
		Post-test	2	10.7		

Table No.5: Association on the pain and physiological parameters such as blood pressure and peripheral oxygen saturation with their selected demographic variables among patients following CABG in the study subjects N=30

S.No	Demographic variables	Pain χ^2	Blood pressure χ^2	SpO ₂ χ^2
1	Age	3.48	3.2	1
2	Gender	1.44	0.26	0.3
3	Educational status	2.6	1.8	3.37
4	Marital status	0.75	2.2	15.1*
5	Occupational status	2.88	2.1	1.4
6	Monthly income	8.1	2.2	1.9
7	Habits of smoking	0.5	0.2	0.2
8	Habits of alcoholism	1.9	1.8	7*
9	Diagnosis	0.17	0.2	0.2
10	Total number of graft	6.9	1.8	1.8

Significant at p≤0.05

CONCLUSION

The main conclusion drawn from this present study was that most of the clients following CABG had significant level of pain, blood pressure and peripheral oxygen saturation level. After Swedish massage intervention, it was found that there has been a significant level of reduction in pain, blood pressure and improve peripheral oxygen saturation level. Participants became found themselves comfortable and also expressed high level of satisfaction towards Swedish massage intervention. It is concluded that, Swedish massage intervention is an effective, simple, easy and inexpensive method to reduce pain, blood pressure and improve peripheral oxygen saturation among patients following CABG.

RECOMMENDATION

The present study recommended the following: Educational course about the intervention of a Swedish massage and its effect on minimizing the pain level should be conducted for nursing staff and students.

Application of Swedish massage has to be a part of the routine care of all patients following CABG.

A comparative study can be undertaken to compare the effectiveness of Swedish massage with other complementary therapies to find out its effectiveness.

A study can be conducted with large samples to generalize findings.

A longer period of intervention can be studied for more reliability and effectiveness.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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