EFFECTIVENESS OF RANGE OF MOTION (ROM) EXERCISES ON KNOWLEDGE AND PRACTICE OF CARE GIVERS OF PATIENTS AT RISK OF DEEP VEIN THROMBOSIS (DVT) ADMITTED IN A SELECTED TERTIARY HOSPITAL, DEHRADUN, UTTARAKHAND

Nursing

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ABSTRACT

DVT is an ordinary issue after surgery, long bed rest. Mostly it occurs in a hospitalized patient who is immobile and suffering from long term illness. ROM is a term that determines the quantity of movement of each joint. The easiest intervention to maintain or enhance joint movement and also the blood flow in patients. Objective: To evaluate the effectiveness of range of motion exercises on knowledge and practice of care givers of patients at risk of Deep Vein Thrombosis. Methodology: A Time Series Research Design was used to evaluate the effectiveness of range of motion exercises on knowledge and practice of care givers of patients at risk of Deep Vein Thrombosis. Purposive sampling technique was used to select 94 care givers of patient at risk of Deep Vein Thrombosis. Data was collected by Interview method with the help of structured knowledge questionnaire and structured practice checklist. Results: Mean pretest score was computed 11.01 ± 1.8 and mean posttest score was computed 23.94 ± 0.37 . So, the mean posttest knowledge score of caregivers of patient at risk of Deep Vein Thrombosis and Range of motion exercises was higher than that of their mean pretest knowledge scores. Repeated Measure ANOVA was performed to find the difference in the practice score between three observations. Mean posttest practice score was higher than that of their mean pretest score. Mean pretest practice score was 7.59 ± 1.10 and mean posttest practice scores were 9.67 ± 0.51 , 10 ± 0 . Conclusion: Present research Study concluded that intervention on range of motion exercises was effective to improve the knowledge and practices of care givers of patient at risk of Deep Vein Thrombosis.

KEYWORDS

Deep Vein Thrombosis, Range Of Motion Exercises, Knowledge And Practices.

1. INTRODUCTION

Thromboembolic is a clot formation in a blood vessel, when clot moves in blood stream and plug another blood vessel. The clot may form in different vessel of the body parts like lungs, brain, gastrointestinal tract, kidney and most common in lower limbs. This condition is vital cause of morbidity and mortality especially in adults. Thromboembolic state includes two conditions i.e. blood clot in deep vein, abrupt obstruction in lung artery.¹

Patients with DVT usually have symptoms such as local pain in the affected area, limb edema, swelling and tenderness. Calf distress at the backward bending of foot is thought to be related with the appearance of thrombosis which designated as Homan's sign.² People who are prone to get DVT having some characteristics such as reduced blood flow caused by immobility due to bed rest, general anesthesia, surgery any neurological condition such as stroke, long hour flights. Increased venous pressure due to carcinoma, expectant mother, narrowing of blood venule or inborn abnormality.³ Many researchers conducted a study and showed in their studies that bottom exercises help to increase blood movement in sick person who are steady since long time. Outcome can be gained by early mobilization, range of motion activities help to enhance the blood movement in lower part of the body which help to decrease the risk of DVT. ROM is a term that determines the quantity of movement of each joint. The easiest intervention to maintain or enhance joint movement and also the blood flow in patients. Leg and ankle exercises help to improve the peripheral blood circulation of the lower limb.⁴

Literature Review

Hosseini Sadat-Zahra conducted study on inactivity which can stop confined problems, and helps to enhance muscular activity in stroke people. Researcher wanted to know about, what is the effect of Passive ROM Exercise earlier on functional activity of stroke people. A randomized controlled trial was done and it included 52 samples who were more than 18 years of age and admitted in the neurology and emergency units. The patients who had first ischemic stroke were included experimental group, as six to eight times of thirty minute exercise. The obtained result showed that the muscular activity in the first month, muscular power increased in experimental group 1.09 (0.8) and in the 2nd group 0.58 (0.90), $P = 0.045$ after mediation and in

lower extremity also, experimental group was improved their muscular power about 0.76 (0.71) and in the 2nd group 0.00 (1.11), ($P = 0.004$). The changes in muscular activity were not significant between both groups.⁵

Ye Li, Xiang-Hong Guan had done study on two groups, routine nursing care provided to the 1st (control) group while the additional active ankle exercises were given to the second (interventional) group with the routine care. The active ankle movements were performed 20° dorsal flexion, 30° varus, 40° planter flexion, and 30° valgus flex in sequence and the construct ankle activity 30 times per minute and cycle of 8 min, for thirty minutes in one cycle, and 20 cycle every day, 7 round in morning, 7 rounds in afternoon and 6 rounds in the evening. During intervention, a significant increasing DVT presence was reported in the 2nd group, there were eight with asymptomatic DVT, and differentiate with the case group, so there was one with asymptomatic DVT ($P = 0.034$).

2. Problem Statement and Objectives

2.1 Problem Statement

A study to assess the effectiveness of range of motion (ROM) exercises on knowledge and practice of care givers of patients at risk of Deep Vein Thrombosis (DVT) admitted in a selected tertiary hospital, Dehradun, Uttarakhand.

2.2 Objective:

- To evaluate the effectiveness of ROM exercises on knowledge and practice of care givers patients at risk of Deep vein thrombosis.
- To find the correlation between post-test knowledge score and post-test practice score of care givers of patients at risk of DVT.

3. Material and Methods

In present study quantitative approach was used, and the research design was quasi-experimental research design. Purposive sampling technique was used to select 94 caregivers of patients at risk of DVT, with the help of standardized tool Wells criteria, Himalayan Hospital, Dehradun, Uttarakhand. Pretesting was done with 5 caregivers of patients at risk of DVT. The split half method was used for testing reliability of structured knowledge questionnaire and established as 0.96 , and for the self-reported practice checklist test-retest method was

used and established as 0.91.

Data collection was started after taken written consent from the samples. Data was collected in three phase by interview method with socio demographic and clinical profile of the patient, structured knowledge questionnaire. After done pretest on 1st day, a demonstration of range of motion exercise given to the caregivers of patients at risk of DVT. On 3rd day 1st posttest was done and 2nd posttest was done on 7th day.

Analysis and interpretation

Table No 1. Comparison of pre-test and post-test knowledge score on ROM exercises among care givers of patients at risk of DVT.

S. No	Knowledge score	Range	Mean $\pm$ SD	Mean Difference	t value	P value
1	Pre-test	4-16	11.01 $\pm$ 1.8	12.98	65.57	0.0001*
2	Post-test	21-24	23.94 $\pm$ 0.37			

Table No 1. Depicted mean pretest and posttest knowledge score of study participants. The mean posttest knowledge score 23.94 ($\pm$ 0.37) was improved as compared to pretest knowledge score 11.01($\pm$ 1.8) which was significantly higher $p < 0.001$. The difference in knowledge score was 12.98, paired't' test performed to find the significant difference between mean pretest knowledge score and posttest knowledge scores. The calculated't' value was 65.57, and it was higher than tabulated value 1.98.

Table No. 2: Comparison of pre-test and post-test practice score on ROM exercises among care givers of patients at risk of DVT.

Pretest	Posttest		F	P value
1st day (M $\pm$ SD)	3rd day (M $\pm$ SD)	7th day (M $\pm$ SD)		
7.59 $\pm$ 1.10	9.67 $\pm$ 0.51	10 $\pm$ 0	324.2	.00001

Table No. 2: Depicted that the mean score of Pretest and Posttest practices of ROM exercises, in this three subsequent observation was made. 1st day pretest and posttest done on 3rd day and 7th day after intervention. Repeated measure ANOVA performed to find the difference between the practice score. There was significant increase in practices of ROM exercises among study participants which was seen by F value 324.2 and p value was .0001.

Table No. 3: Correlation between posttest knowledge score and posttest practice score of caregivers of patients at risk of DVT

S.No	Variable	r value	P value
1.	Posttest knowledge score and practice score of caregivers of patients at risk of DVT	0.22	0.05

Table No. 3: Illustrated that there was correlation between posttest knowledge score and posttest practice score of caregivers of patient at risk of DVT. Hence the research hypothesis was accepted.

4. DISCUSSION

Research findings showed that mean posttest knowledge score was higher than that of their mean pretest knowledge score. Mean pretest score was computed 11.01 $\pm$ 1.8 and mean posttest score was computed 23.94 $\pm$ 0.37. Mean pretest practice score was higher than that of their mean pretest score mean pretest practice score was computed 7.59 $\pm$ 1.10 and mean posttest practice score was computed 10 $\pm$ 0, so the mean pretest practice score was higher than that of their mean pretest score.

LIMITATION

The current study had following limitation

- The study samples were confined to caregivers of patients at risk of DVT.
- Study did not have control group to compare the findings with experimental group.
- There was no random selection of samples.

Nursing Implications

Nursing Education: Nurses have an important role to play while performing nursing activities as range of motion exercises (ROM) which helps to increase peripheral circulation and prevents DVT. ROM is also included in B.Sc. Nursing as part of curriculum. Nursing

students should aware the importance of ROM.

Nursing Practice: Nurses should assess the knowledge and plan the appropriate inservice education program in clinical area on prevention of DVT by ROM.

Nursing Administration: Nurses as administrator should take initiative in formulating policies regarding teaching program of ROM to be conducted by nurses for caregivers of patients at risk of DVT. Health administration can create awareness about the range of motion exercises among restricted mobile patients and assign the staff for conducting the planned teaching programme in hospital and the community area.

Nursing Research: There are lots of scope to explore this area to do more research which can be carried out to improve knowledge and practice regarding ROM for caregivers of patients at risk of DVT.

Recommendation:

- A similar study can be conducted with a large sample size and larger study setting.
- Another study can be conducted with control group.
- A longitudinal study can be conducted on the difficulties of caregivers in caring for patients at risk of DVT.
- A community-based study can be conducted on the incidence and prevalence of patients at risk of DVT.

CONCLUSIONS

The findings of the present study concluded that the mean posttest knowledge score of caregivers of patient at risk of DVT on ROM exercises was higher than that of their mean pretest knowledge score. The score predicted that remarkable difference between mean pretest and mean posttest knowledge scores which was $p < 0.05$ level, and another result represented that there was enhancement in the practices of ROM exercise.

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