

EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME REGARDING THROMBOPROPHYLAXIS IN HOSPITALIZED PATIENTS ON KNOWLEDGE OF NURSES

Pooja Bhatta¹, Beena Chacko², Dr. Bhavani B.B.^{3*}

¹Lecturer, Far West Technical College, Dhangadhi, Chatakpur, Nepal.

²The Oxford College of Nursing, Ist Cross, Begur Road, Hongasandra, Bengaluru-560069.

³Sri Shankara College of Nursing, Ist Cross, Shankarapuram, Basavanagudi, Bangalore, Karnataka.

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*Corresponding Author: Dr. Bhavani B. B.

Sri Shankara College of Nursing, Ist Cross, Shankarapuram, Basavanagudi, Bangalore, Karnataka.

ABSTRACT

Background: Deep vein thrombosis is a blood clot that forms in the deep veins in the body. A deep vein thrombosis can break loose and cause a serious problem in the lung, called a pulmonary embolism. Sitting for a long time, certain medicines and disorders that increase risk for blood clots can lead to deep vein thrombosis. Deep vein thrombosis can be very dangerous and is considered as a medical emergency. Thromboprophylaxis consists of pharmacological and non-pharmacological measures to diminish the risk of deep vein thrombosis and pulmonary embolism. Pharmacological prophylaxis includes Anticoagulants such as unfractionated heparin (UFH), Low- molecular weight heparin (LMWH) and warfarin, or antiplatelet agents, particularly acetylsalicylic acid, Enoxapirin or clexane. Non- pharmacological prophylaxis includes Intermittent Pneumatic Compression (IPC) and Venous foot pump and Graduated compression stockings (Elastic stocking or anti-embolism stocking). **Subjects:** The participants were 60 staff nurses from a hospital, in, Bangalore. **Method:** Pre-experimental, one group pre -test and post-test design was selected for the study. 60 staff nurses were selected by non- probability purposive sampling technique. Data were collected using a structured knowledge questionnaire to evaluate knowledge of staff nurses. Analysis was done using descriptive and inferential statistics. **Result:** In the current study majority 40% of the nurses had inadequate knowledge before teaching intervention, 60% had moderate knowledge. After the intervention more than 80% nurses had adequate knowledge on thromboprophylaxis. There was statistically significant improvement in knowledge of nurses regarding thromboprophylaxis after the teaching program. developed structured teaching programme increased the knowledge of nurses. **Conclusion:** The study findings indicate that STP was effective in enhancing the knowledge of staff nurses regarding thromboprophylaxis.

KEYWORDS: Thromboprophylaxis, Knowledge, (STP) Structured teaching programme, Nurses.

INTRODUCTION

Deep vein thrombosis is a blood clot that forms in the deep veins in the body. Mostly deep vein clot occurs in the lower leg or thigh. Thrombophlebitis is an inflammatory process that causes blood clot formation, swelling of vein and block one or more veins, usually in legs. A deep vein thrombosis can break loose and cause a serious problem in the lung, called a pulmonary embolism. Sitting for prolonged period of time increase the chances of getting deep vein thrombosis. Some medicines and disorders that increase risk for blood clots can also lead to deep vein thrombosis. Deep vein

thrombosis can be very dangerous and is considered as a medical emergency. Deep vein thrombosis can occur without symptoms, but in many cases the affected extremity will be painful, swollen, red, warm and superficial vein may be engorged.^[1]

In the past decade, deep vein thrombosis has increasingly been recognized as an important and possibly preventable cause of morbidity and mortality in hospitalized patients because of prolonged immobilization in the bed which leads to stasis of blood and increase the risk of venous thromboembolism. Even those patients who are permitted to get out of bed,

remain in bed for more than they would be at home because of monitoring equipment's, intravenous lines, drainage tubes, catheters, and other necessary medical equipment's. Understanding the natural history of venous thrombosis is important for optimal management of this condition. Once risk factors are recognized it is possible to avoid these risk factors or to use active prophylaxis to reduce the morbidity and mortality.^[2]

Thromboprophylaxis is the prevention of thromboembolic disease. Thrombus formation is favoured by changes in Virchow's triad: blood stasis, increased coagulability of blood and damage to vessel wall.^[3] Thromboprophylaxis consists of pharmacological and non-pharmacological measures to diminish the risk of deep vein thrombosis and pulmonary embolism. Pharmacological prophylaxis includes anticoagulants such as unfractionated heparin (UFH), Low- molecular weight heparin (LMWH) and warfarin, or antiplatelet agents, particularly acetylsalicylic acid, Enoxapirin or clexane. Non- pharmacological prophylaxis includes Intermittent Pneumatic Compression (IPC) device, venous foot pump and Graduated compression stockings (Elastic stocking or anti-embolism stocking).^[4]

Graduated Compression Stocking or Mechanical thromboprophylaxis or compression therapy reduces the risk of deep vein thrombosis. Graduated compression stocking is often used in conjunction with pharmacological prophylaxis.^[5] While comparing knee-length stocking with thigh length stocking, knee-length graduated compression stocking has reduced the incidence of deep vein thrombosis (symptomatic and asymptomatic) in immobilized stroke patients.^[6]

Intermittent Pneumatic Compression device reduce the risk of deep vein thrombosis by approximately 50%. Intermittent pneumatic stocking equally seems to reduce the risk of deep vein thrombosis in immobile stroke patients. Intermittent pneumatic stocking being more effective than graduated compression stocking in critically ill patients. Intermittent pneumatic stocking remains an attractive method to prevent venous thrombo embolism in patients with bleeding disorders or those at high risk of excessive bleeding, both in the surgical and non-surgical settings. Intermittent pneumatic stocking is alternative to anticoagulant.^[7]

The appropriate use of thromboprophylaxis in hospitalized patients who are at risk for venous thrombo embolism will be safe and cost-effective.^[8] Thromboprophylaxis is the most important patient safety strategy in patients admitted to hospital. Although national and international thromboprophylaxis guidelines have repeatedly recommended thromboprophylaxis for patients admitted to hospital, only 40% to 50% of medical patients and 60% to 75% of surgical patients receive adequate thromboprophylaxis.^[9]

In cases of massive embolism, thrombolytic therapy agents such as streptokinase, urokinase or tissue-plasminogen-activator (TPA) may be used to dissolve the thrombus and to relieve the obstruction. Early mobilization of patients as soon as possible after surgery is thought to reduce the chances of venous thrombosis. Physiotherapy, range of motion, graduated stockings, and pneumatic compression devices can be categorized as important mechanical methods for the prevention of deep vein thrombosis.^[10]

Nurses are a key component to serve first –line health care, identify and respond to risks of venous thromboembolism.^[11] Nurses should provide a high standard of practice and care all the time based on best available evidence. The nurses should ensure that the patients are receiving appropriate thromboprophylaxis based on individual risk assessment. All hospitalized patients should be assessed for clinical risk factors of deep vein thrombosis. The high risk is in surgical and orthopedic patients. Medical patients are also at high risk and should receive thromboprophylaxis. Nurses can encourage mobilization and leg exercises to risk patients in order to activate the calf muscle.^[12]

An assessment in United States demonstrated that morbidity and mortality rate could be decreased through systematic and consistent nurse's education. Lack of knowledge was the main barrier in performing venous thromboembolism risk assessment. Therefore, it is essential to recognize the necessity for education and practice about venous thrombo embolism among nurse practioners.^[13]

Teaching or educating resources regarding appropriate use of thromboprophylaxis measures to prevent venous thromboembolism in hospitalized patients is essential for developing awareness and enhancing existing knowledge and practice of staff nurses through health education, structured teaching program and thereby reduce the incidence of the venous thromboembolism.

METHODS

The present study adopted a pre-experimental, one group Pre -test and post-test design. The study was conducted from 5/03/2020 to 5/04/2020. The setting of the study was The Oxford Medical College, Hospital and research Centre, Bangalore. The sample size consisted of 60 nurses, selected by non-probability purposive sampling technique. The inclusion criteria were registered nurses with 0-5 years of experience, nurses who were willing to participate and available during the period of data collection. The exclusion criteria was nurses who had already attended any seminars or workshops on thromboprophylaxis during the past 6 months. The data collection tool included a questionnaire for collecting demographic profile of nurses. A structured knowledge questionnaire on thromboprophylaxis in the hospitalized patients. The total score was categorized as Inadequate knowledge 0-10, moderate knowledge 11-20, adequate

knowledge 21-30. The content validity of the tool was done by 10 experts in the field of Medical Surgical Nursing. The reliability of the Knowledge tool was 0.89 and Practice tool was 0.81. The statistical packages for the social sciences (SPSS) version 16.0 were used for data analysis.

Ethical consideration

Ethical clearance was obtained from the institution ethical review board. A formal written permission was obtained from medical superintendent of The Oxford Medical College, Hospital and Research Centre, Bangalore and a written consent was taken from the

nurses.

RESULTS

I. Demographic profile of the nurses

In the present study most (55%) of the nurses belonged to the age group of 21-25years, (38.3%) belongs to the age group of 26-30years. The Majority (50%) of the nurses were B.Sc.(N). Majority (40%) had 1-2year experience., 88.3% nurses did not get in-service education about thromboprophylaxis and 50% nurses were working in the General ward of the hospital. (Table 1)

Table 1: Demographic variables of staff nurses (n=60).

Demographic variables	Frequency	Percentage (%)
Age of staff nurses		
a. 21-25 years	33	55.0
b. 26-30 years	23	38.3
c. 31-35 years	3	5.0
d. 36-40 years	1	1.7
Educational qualification		
a. GNM	21	35.0
b. BSc(N)	30	50.0
c. Post BSc(N)	9	15.0
d. MSc(N)	-	-
Total Year of experience		
a. 0-1year	16	26.7
b. 1-2 years	24	40.0
c. 2-3 years	11	18.3
d. 3-4 years	5	8.3
e. 4-5 years	4	6.7
In service education		
a. Yes	7	11.7
b. No	53	88.3
If yes		
a. Once	7	100
b. Twice	-	-
c. More than 3 times specify	-	-
Area of work experience		
a. General wards	30	50.0
b. ICU	8	13.3
c. Emergency	10	16.7
d. Others specify	12	20.0

II. Knowledge of nurses on thromboprophylaxis

In the current study majority 40% of the nurses had inadequate knowledge before teaching intervention, 60%

had moderate knowledge. After the intervention more than 80% nurses had adequate knowledge on thromboprophylaxis (Table2).

Table 2: Pre and post-test knowledge level of Nurses on Thromboprophylaxis (n=60).

Level of knowledge	Pre- test		Post -test	
	Frequency	Percentage	Frequency	Percentage
Inadequate knowledge (<50%)	24	40.0	-	-
Moderate knowledge (50-75%)	36	60.0	7	11.7
Adequate knowledge (>75%)	-	-	53	88.3

T test was done to find the effectiveness of teaching program on knowledge of nurses. The findings showed

that the mean knowledge score in pre-test was 11.63 with SD 2.35 and mean knowledge score in the post test was

22.58 with SD 2.92. The improvement of mean score of overall knowledge is 10.95 and the 't' value of 34.108 was found significant at p<0.001 level. (Table 2)

Table 3: Paired t-test analysis for statistical significance of pre- and post- test knowledge about thromboprophylaxis in hospitalized patients among nurses. (n=60).

Test	Variable	Paired t-difference (Enhancement)		t-test value	P-value
		Mean	SD		
Pretest	Knowledge	11.63	2.35	34.108*	p<0.001
Post test		22.58	2.92		

The Chi-square test was used to assess the association. It was found that knowledge scores had association with total years of experience of nurses and area of experience at p<0.05 level. (Table 4)

Table 4: Association of knowledge on thromboprophylaxis of nurses with their selected demographic variables of staff nurses. (n=60)

S.no	Demographic variables	Sample (n=60)		Knowledge				Chi-square value	p-value
		F	%	≤Median		>Median			
				F	%	F	%		
1.	Age of staff nurses							1.550, df=3, NS	p>0.05
	a. 21-25 years	33	55.0	19	57.6	14	51.9		
	b. 26-30 years	23	38.3	11	33.3	12	44.4		
	c. 31-35 years	3	5.0	2	6.1	1	3.7		
	d. 36-40 years	1	1.7	1	3.0	0	0		
2.	Educational qualification							2.896, df=2, NS	p>0.05
	a. GNM	21	35.0	14	42.4	7	25.9		
	b. BSc(N)	30	50.0	16	48.5	14	51.9		
	c. Post BSc(N)	9	15.0	3	9.1	6	22.2		
	d. MSc(N)	-	-	-	-	-	-		
3.	Total years of experience							14.971, df=4, S	P<0.05
	a. 0-1year	16	26.7	8	24.2	8	29.5		
	b. 1-2 years	24	40.0	19	57.0	5	18.5		
	c. 2-3 years	11	18.3	2	6.1	9	33.3		
	d. 3-4 years	5	8.3	1	3.0	4	14.8		
	e. 4-5 years	4	6.7	3	3.0	1	3.7		
4.	In service education							0864,df=1, NS	p>0.05
	a. Yes	7	11.7	5	15.2	2	7.4		
	b. No	53	88.3	28	94.9	25	92.6		
5.	Area of work experience							8.532, df=3, S	P<0.05
	a. General wards	30	50.0	16	48.5	14	51.9		
	b. ICU	8	13.3	4	12.1	4	14.8		
	c. Emergency	10	16.7	3	9.1	7	25.9		
	d. Others specify	12	20.0	10	30.3	2	7.4		

DISCUSSION

Deep vein thrombosis can be very dangerous and is considered as a medical emergency, which is important to analyse to reduce morbidity and mortality. Poor level of knowledge of nurses on prevention of deep venous thromboembolism could increase hospitalization and ultimately leads to poor health care outcome. The present study was an attempt to evaluate the effectiveness of structured teaching programme on knowledge regarding thromboprophylaxis in hospitalized patients among nurses in selected hospital, Bangalore. The main finding of the study was that more than majority 40% of the nurses had inadequate knowledge before teaching

intervention, 60% had moderate knowledge. The overall mean knowledge score obtained by the subjects in pre-test was 11.63 with SD 2.35 and the overall mean knowledge score obtained by the subjects in the post test was 22.58 with SD 2.92. The improvement of mean score of overall knowledge was 10.95 and the 't' value of 34.108 was found significant at p<0.001 level. It was evidenced that developed structured teaching programme was effective in increasing the knowledge of nurses. These findings are similar to a study done by Yohannes S et al, wherein only 55.6% participants had good knowledge on prevention of deep vein thrombosis.^[19] Another study by Sharma R and Flinsialso M showed similar findings of majority of the registered nurses

(68.9%) having average knowledge, regarding deep vein thrombosis and its prevention among patients admitted in the hospital.^[20]

The knowledge of nursing staff regarding thromboprophylaxis can affect the efficacy of their care practices, with poor knowledge can lead to leading to a lack of care and potentially increasing the occurrence of thrombosis among hospitalized patients. It is recommended that in-service seminars of care and practice protocols on thromboprophylaxis must be carried out in the patient care settings.

LIMITATIONS

The study is limited to the staff nurses working in The Oxford Medical College, Hospital and Research center, Bangalore. Extraneous variables like exposure to media, peer contact was beyond the investigators control. The study did not use any control group. Therefore, there are possibilities of threats to internal validity like events occurring between pre-test and post-test.

CONCLUSION

The present study attempted to evaluate the effectiveness of structured teaching programme on knowledge regarding thromboprophylaxis in hospitalized patients among nurses. The Preintervention knowledge of most nurses was inadequate which significantly improved after the knowledge based intervention program.

REFERENCES

1. Deep vein thrombosis, United States department of health and service [Internet], 2018[updated 2019 April 8]. Available from: <https://medlineplus.gov/deepveinthrombosis.html>.
2. Donna D et.al, Textbook of Medical Surgical Nursing. 2nd edition, Philadelphia. 955-959.
3. Virchow 's Triad [Internet] 2017 October 30. Available from: <https://en.wikipedia.org>.
4. William E Cayley, Jr. Preventing deep vein thrombosis in hospital inpatients, 2007.21; 335(7611): 147-151.
5. Afshari A, Fenger-Eriksen C, Monreal M, Verhamme P. Mechanical Prophylaxis for prevention of venous thromboembolism. Available from: <https://pdfs.semanticscholar.org>.
6. Hui AC, Heras-Palou C, Dunn I, Triffitt PD, Crozier A, Imeson J, et al. Graduated compression Stockings for prevention of deep-vein thrombosis after hip and knee replacement. *J Bone Joint Surg Br*, 1996; 78(4): 550-4.
7. Arabi YM, Khedr M, Dara SI, Dhar GS, Bhat SA, Tamim HM, et al. Use of intermittent pneumatic compression and not graduated compression stockings is associated with lower incident venous thromboembolism in critically ill patients: a multiple propensity scores adjusted analysis. *Chest*, 2013; 144(1): 152-9.
8. Kahn SR, Diendere G, Piche A, Filion KB, Morris M, Geer W. Interventions for implementation of thromboprophylaxis in hospitalized Patients at risk for venous thromboembolism, *Cochrane Systematic Review - Intervention Version*, 2018.
9. Nathalie Routhier N, Tagalakis V, Klil-Drori AJ, Venous Thrombo Embolism prophylaxis, 2019; 03-01.
10. Anderson FA: Best Practices Preventing Deep Vein Thrombosis and Pulmonary Embolism. 1991, Available from: www.dvt.org.
11. Lee JA, Grochow D, Drake D, et al. Evaluation of hospital nurse's perceived knowledge and practices of venous thromboembolism assessment and prevention. *J Vasc Nurs*, 2014; 32: 18-24.
12. Sahu R, Menon SA, Anik S, Rai A. A study to assess the effectiveness of planned teaching programme on knowledge regarding Deep Vein Thrombosis among B. Sc. Nursing intern 's working in Jawaharlal Nehru Hospital and Research Centre Bhilai (C.G.), *international journal of nursing research and education*, 2017; 5 3: 2454-2660.
13. Lavall KA, Costello JF. Assessment of the public's knowledge of venous thromboembolism. *J Vasc Nurs*, 2015; 33: 68-71.
14. Yohannes S, Abebe T, Endalkachew K, Endeshaw D, "Nurses' Knowledge, Perceived Practice, and their Associated Factors regarding Deep Venous Thrombosis (DVT) Prevention in Amhara Region Comprehensive Specialized Hospitals, Northwest Ethiopia: A Cros.
15. Sharma RR., Flinsi M. Knowledge of nurses regarding deep vein thrombosis and its prevention among patients admitted in the hospital. *IOSR Journal of Nursing and Health Science*, 2022. 11; 02: 01-05.