

EFFICACY OF INDIVIDUAL PLANNED TEACHING PROGRAMME ON PREVENTION OF DEEP VEIN THROMBOSIS AMONG SURGICAL PATIENTS

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ABSTRACT

Venous thromboembolism, comprised of deep vein thromboses (DVT) and pulmonary embolism (PE), is a major contributing factor to increased mortality and morbidity among surgical patients. DVT is a preventable disease, so creating awareness among surgical patients is important to protect them from fatal consequences. The objective of the study was to evaluate the efficacy of individual planned teaching (IPT) on the prevention of DVT among patients undergoing major surgery in terms of knowledge gain. A quantitative pre-experimental research approach with a one-group pre-test and post-test design was used for this study. Purposive sampling was used to select 50 patients from the hospital who met the inclusion criteria for the sample. Data was collected using a structured knowledge questionnaire. The mean post-test knowledge score ($x_2 = 19.24$) was higher than the mean pre-test knowledge score ($x_1 = 9.34$). At the 0.05 level of significance, the mean difference between the post-test and pre-test knowledge scores was highly significant ($t_{49} = 20.24$). The study also found a significant association between knowledge scores and educational level ($\chi^2 = 9.82, P = .01$). The study showed that patients had inadequate knowledge on the prevention of deep vein thrombosis; however, the level of knowledge significantly improved after the administration of an individual planned teaching program. Hence, it was concluded that the IPT programme was an efficacious teaching strategy for improving the knowledge of patients on the prevention of DVT so that we could reduce the number of patients dying from DVT every year and prevent its complications and health care costs.

Keyword-*Efficacy, knowledge, Individual Planned teaching programme (IPT), Deep Vein Thrombosis (DVT), surgical patients..*

1. INTRODUCTION

Venous thromboembolism (VTE), a silent killer consisting of pulmonary embolism and deep venous thrombosis (DVT), has long been mentioned as a disease of secondary significance among Asians because of its perceived low prevalence^[1] and lack of awareness about VTE. The incidence of DVT and PE is not less in Indians, the annual incidence of acute DVT with or without PE increased from 2006 to 2010.^[2] It is considered as a major cause of mortality and morbidity affecting thousands of individuals worldwide and accounting for many hospitalizations. The three main contributing elements to the pathophysiology of venous thrombosis are stasis, hypercoagulability, and vascular wall damage (Virchow's triad) and any of these elements may activate during and after a major surgical procedure. Thus major surgeries can increase the risk of post operative DVT.^[3] Previous VTE, advanced age, immobility, cardio-respiratory failure, use of central venous access, oestrogens, and many acquired and inherited haematological disorders may add to the risk of VTE.^[4] The incidence of thrombotic

complications is also high among critical patients with COVID-19 infection and also evident in post-COVID-19 patients, and its risk continues for about six months.^[5,6]

Preventing DVT is cheaper than treating its consequences. Increased awareness of VTE and its preventive measures may aid in patient safety by encouraging active participation in advised activities such as early ambulation, the use of compression stockings, and calf-pump exercise.^[7] World population have limited knowledge on DVT and prevention based on research conducted worldwide.^[8,9,10] Due to the paucity of data on awareness about DVT among surgical patients in India, this study aims to evaluate the knowledge about DVT and assess the effectiveness of an individual planned teaching programme in terms of knowledge gain among surgical patients.

2. METHODOLOGY

This study employed a quantitative research methodology. The pre experimental one- group pre-test post- test design was the research design used. By using the non-probability purposive sampling technique, 50 sample subjects were selected from a private multispecialty hospital in Thrissur district, Kerala, who met the inclusion criteria, such as patients who are in the age group between 40 and 70 years and planned for orthopaedic, gastric, and general surgery and who don't have a history of DVT and are not on treatment.

Formal permission was obtained from the hospital authority. Also, the hospital's ethics committee provided their approval. After a detailed explanation of the purpose and benefits of the study, written consent was obtained from each study sample. The data was collected in 2022-2023 from December to March.

Data were obtained by a structured knowledge questionnaire developed by the investigator. By applying the Split-Half method and the Spearman-Brown prophecy formula, the internal consistency and reliability of the tool were determined, and it was found to be 0.82. The questionnaire consists of two sections; part A demographic data and part B knowledge questions on DVT. Part A consisted of personal data such as age, gender, educational status, type of operation, previous information, and habit of smoking. Part B included 24 items that were used to test the knowledge level. Data was collected pre-operatively and the prepared educational module on the prevention of deep vein thrombosis was administered individually after the pre-test. On the sixth day, a post-test was conducted to evaluate the change in knowledge level.

3. RESULTS

The data were tabulated, analyzed and interpreted using descriptive and inferential statistics.

3.1 Distribution of Sample characteristics

Table 1: Frequency and percentage distribution of samples according to their demographic characteristics
n=50

Variables	Frequency (%)
Age	
40-50	22 (44%)
51-60	20 (40%)
61-70	8 (16%)
Gender	
Male	29(58%)
Female	21(42%)
Education	
Primary	26 (52%)
Degree	16(32%)
Professional	8(16%)
Type of surgery	
Gastric	9(18%)
Ortho	27(54%)
General	14(28%)

Habit of smoking	
Yes	8 (16%)
No	42(84%)
Previous knowledge	
Yes	9 (18%)
No	41(82%)

3.2 Pre test and post test level of knowledge regarding DVT among surgical patients

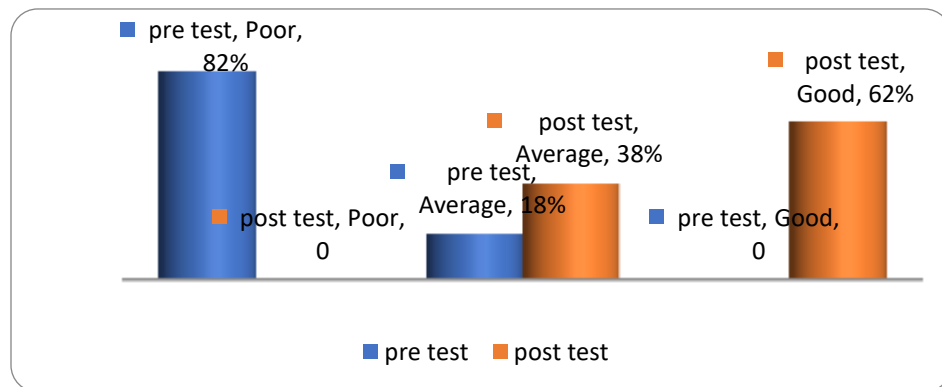


Chart 1 : shows the percentage distribution of pre test and post test level of knowledge

The data presented in figure 1 shows that majority of the subjects (82%) had poor knowledge on DVT prevention in the pre-test. However after the individual teaching programme most of the subjects, 62% had good knowledge, and 38% had moderate knowledge respectively. In the pretest, 23.5% and 52.6% knew that compression stocking and early ambulation could prevent DVT, which was 70.5% and 89.3% in the post-test. 24% only identified PE as a complication of DVT in the pre-test whereas 70% was the post-test result.

3.3 Efficacy of individual planned teaching programme on prevention of DVT among surgical patients

Table 2: Comparison of Mean, Median and Standard Deviation of Pre-test and Post-test knowledge score of surgical patients on prevention of DVT

	Mean	Median	SD	't'-value	n=50
Pre-test	9.34	8	2.81	20.24	
Post-test	19.24	19	2.09		

Maximum score = 24, 't'49=1.675 (P < 0.05), SD: Standard deviation

Data in Table 2 depicts that the mean post-test knowledge score (19.24) is higher than the mean pre-test knowledge score (9.34). The calculated 't' value 20.24 (P<0.05) is greater than the table value ('t'49=1.675) at .05 level of significance. Hence it can be concluded that the individual planned teaching programme (IPT) is an effective teaching mode to enhance the knowledge score of the patients on DVT.

3.4 Association between level of knowledge on prevention of deep vein thrombosis and socio demographic variables among surgical patients

The study results also found an association of factors influencing score of the subjects with educational status ($\chi^2 = 9.82, P = 0.01$) level of significance. However, there is no association with other demographic variables like age, gender, type of operation, previous information and habit of smoking at .05 level of significance.

4. DISCUSSION

Data collected prior to the administration of the Individual Planned Teaching Programme (IPT) reflected that the majority of the patients had poor knowledge on the prevention of DVT. The above findings are consistent with a cross-sectional study conducted in Mangalore among bedridden patients to identify the knowledge level on DVT and found that no subjects had adequate knowledge on deep vein thrombosis prevention, whereas 42% of individuals had moderate awareness and 58% of subjects had inadequate knowledge.^[9]

It is also supported by a descriptive study conducted in Saudi Arabia among hospitalised patients. The participants have only 15% and 32% reported knowledge of pulmonary embolism (PE) and deep vein thrombosis (DVT), respectively.^[7]

Another cross-sectional study conducted in Saudi Arabia among the general population showed 45.5 % of subjects had prior knowledge of DVT. 79% had poor knowledge, whereas only 12% had a better understanding of DVT^[10]. These all revealed the need to improve the knowledge of DVT among all kinds of people so they can prevent it through effective measures.

In the current study, the post-test mean knowledge score is significantly greater than the mean pre-test knowledge score after an Individual Planned Teaching Programme (IPT), which shows that the Individual Planned Teaching Programme (IPT) is effective in enhancing the knowledge of patients on the prevention of deep vein thrombosis.

The findings of the study are consistent with a randomized control trial conducted among surgical patients in the Midwestern US using a multi-method venous thromboembolism prevention education plan and an increase in the knowledge level found in the experimental group from 38.2% to 73.5%.^[11] The effectiveness of educational programmes is also supported by studies conducted in Himachal Pradesh and Bhubaneswar, India, among staff nurses.^[12,13]

In the present study, participants had improved knowledge of management and preventive aspects after the teaching programme. It is consistent with a study conducted among staff nurses in Bhubaneswar, India, which showed 66% were aware of the purpose of compression stockings, and it improved to 98% during the post-test. About half of them (50%) lacked knowledge of the importance of daily physical activity, and it improved to 75% after the teaching section.^[13]

This study showed a significant association between pre test knowledge score and educational status. And this finding is supported by a study conducted among surgical ward patients in Saudi Arabia.^[14]

4.1 Implications in Nursing

As an educator, nursing personnel can utilize IPT as a cost-effective method to upgrade the knowledge of patients and incorporate health-related behaviour into everyday life, and adopt preventive and promotional measures, thus avoiding its complications.

The investigator felt that extensive research studies can be done with a large sample size on the prevalence of DVT, the development and use of a risk assessment tool, the comparison of gender differences in the incidence of DVT, and the effectiveness of different preventive strategies to prevent the development of DVT.

4.2 Limitations

The sample size was small. Only surgical patients from one hospital were included in the study, which limited the ability to generalize the results.

5. CONCLUSIONS

The study findings revealed that individual planned teaching programmes were a powerful tool in improving knowledge among surgical patients. The importance of educational intervention programmes must be sensitised to all individuals, especially those over 40 with limited physical mobility. It can be surmised that there is a need to raise awareness of DVT prevention, so that we can reduce the number of patients' deaths from DVT every year and prevent its complications and health care costs.

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CONFLICTS OF INTEREST:

There are no conflicts of interest

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