

Deep Vein Thrombosis Prophylaxis Practices Among Patients in A Tertiary Care Hospital



Medical Science

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ABSTRACT

Hospital-acquired deep vein thrombosis (DVT) and pulmonary embolism (PE) are preventable problems that can increase mortality. Early assessment and recognition of risk as well as initiating appropriate prevention measures can prevent DVT or PE. The objectives were to assess the risk of deep vein thrombosis among patients and to assess the deep vein thrombosis prophylaxis practices. Methodology: Quantitative approach with a descriptive design was used. Data collected from 500 subjects using consecutive sampling technique from medical and surgical in patient units of Sree Gokulam Medical College Hospital, Venjaramoodu. Tools used were modified thrombosis risk assessment tool, American Chest Control Physician (ACCP) recommended guidelines for prevention of DVT and DVT signs and symptoms checklist. The data collected were analyzed using descriptive and inferential statistics. Results: 28.2% of subjects had highest risk and 1.6% had no risk for developing DVT. The study found that 29.4% received adequate prophylaxis, 7.2% of subjects received no prophylaxis. Signs and symptoms of DVT were developed among 58 subjects. There was a significant association between age and clinical signs and symptoms.

1 Introduction

DVT and PE are two aspects of one disease process known as VTE. In DVT, a thrombus (blood clot) forms in the deep veins of the leg or pelvis. In PE, some or all of the thrombus becomes detached and moves from the vein through the right side of the heart to lodge in one or more pulmonary arteries. Each year approximately 30,000 people are hospitalized in India as a consequence of VTE, and an estimated 2,000 die from VTE. The majority of VTE cases requiring hospitalization are related to previous hospital admission for surgery or acute illness. Many of these cases are preventable.

In a study conducted to assess risk factors and prophylaxis given for DVT and PE in newly admitted medically ill patients during the first two weeks of their hospital stay at a tertiary care center hospital in India. 75% of patients had the highest risk for DVT and PE. Only 12.5% received DVT prophylaxis within the first two days of admission.

VTE is a significant problem for surgical and medical hospitalized patients, leading to the possibility of serious illness and risk of death. A number of clear evidence-based guidelines are available which outline the appropriate use of prophylaxis to prevent DVT and PE. In spite of the existence of such evidence, the problem of VTE in hospitalized patients persists, and it is clear that evidence-based guidelines and recommendations are underutilized and patients with identifiable risk factors admitted to acute hospitals are not receiving appropriate prophylaxis. The incidence of VTE in hospitalized patients is higher than that of people living in the community. Hence this study is done to assess the risk and to identify the prophylactic practices among in patients admitted in a tertiary care hospital.

1.1 Problem statement

A descriptive study on deep vein thrombosis prophylaxis practices among patients in a tertiary care hospital at Thiruvananthapuram.

1.2 Objectives

- To assess the risk of deep vein thrombosis among patients admitted in a tertiary care hospital
- To assess the deep vein thrombosis prophylaxis practices among patients

1.3 Assumptions

- Hospitalized patients are at risk for developing DVT
- Modified thrombosis risk assessment tool effectively measures the risk for developing DVT
- Patients with risk of DVT may be provided with DVT prophylactic measures

2 Materials and methods

2.1 Research design

In this study the researcher used a quantitative approach and descriptive design. The setting of the study was Sree Gokulam Medical College and Hospital, Venjaramoodu Trivandrum. The population of the study was all patients admitted in a tertiary care hospital. Subjects include 500 in-patients who are above 18 years and who had completed at least two days of hospitalization and those who satisfy the inclusion criteria.

2.2 Tools/Instruments

The tools used in the study are

- Tool I Section I: Socio clinical Performa**

Socio clinical Performa to assess the socio clinical variables of the subject included 18 items like age, sex, occupation, department, unit, ward, days of hospitalization, height, weight, BMI, calf muscle circumference, heart rate, BP, presence of intravenous line and mechanical ventilator, level of consciousness, history of alcoholism.

- Tool I Section II: Modified thrombosis risk assessment tool**

This is used to assess the risk of deep vein thrombosis. This tool consists of 33 risk factors and score ranges from 0-5.

- Tool II Checklist based on American chest control physicians (ACCP) recommended guidelines for prevention of deep vein thrombosis.**

This tool recommends specific prophylaxis for medical patients, critical care patients, general and abdominal pelvic surgeries, thoracic surgeries, cardiac surgeries, elective spinal surgeries, craniotomy, trauma, orthopedic surgeries. Prophylaxis practice includes early ambulation, leg exercises, compression stockings and pharmacologic measures.

- Tool III: Clinical signs and symptoms checklist**

This is an observation checklist used to assess the clinical

signs and symptoms. It consists of 10 items or symptoms of DVT.

2.3 Data collection process

After obtaining permission from institutional research committee and institutional ethical committee of Sree Gokulam Medical College Hospital data collection process was started. By consecutive sampling technique 500 patients who fulfilled the inclusion criteria were selected. A brief description of the study and its purpose was explained to patients and obtained an informed consent from them. Baseline socio clinical data were collected by interviewing and reviewing records. Using modified thrombosis risk assessment tool risk for deep vein thrombosis was assessed and adequacy of prophylaxis was assessed by using observation checklist based on American Chest Control Physician recommended guidelines for prevention of deep vein thrombosis. Clinical signs and symptoms were assessed in 58 patients who had completed at least ten days of hospitalization using clinical signs and symptoms checklist.

3 Results of the study

3.1 Section 1: Distribution of subjects based on socio clinical variables

The study found that 36.4% of subjects belonged to the age group 39-58 years and only 5.6% belonged to the age more than 78years. Data revealed that 58.6% of subjects were females and 41.4% were males. Among subjects 47.2% were unemployed, 38.6% of subjects were doing dynamic occupation, 8.4% were sedentary workers and only 5.8% were doing less sedentary work. Study found that 19.8% were in department of surgery 29.4% were admitted under medicine department, 20.2% to department of OBG and 30.6% were admitted in other departments. With regard to admitted area 31.6% were in medical wards, 34.4% were in surgical wards, 21.45% in OBG and rest from medical and surgical ICUs.73.4% of subjects were completed less than 4 days of hospitalization during data collection period and .8% was completed more than 10days of hospitalization.37.8% subjects had a height between 150 and 159 cm and 6.8% had a height more than 170cm. Data revealed that one third (37.2%) of subjects had a weight between 60 and 69kg and only 7.6% had a weight more than 79kg.38.6% had a BMI between 21 and 25. 30.8% had a BMI between 26 and 30 and 5.2% had a BMI greater than 30.Nearly 74.4% of subjects had a calf muscle circumference between 30 and 34 cm and 4% had a calf muscle circumference between 20 and 24 cm. Results showed that 51.4% had a heart rate between 70and 79 beats per min and only .6% had a heart rate between 40 and 49 beats per minute. 46.2% of subjects had a systolic BP between 101 and 120 mmHg and 4.4% had BP more than 161 mm Hg. 34.2% of subjects had diastolic BP between 71 and 80mmHg and 7.2% had diastolic BP more than 90mmHg. Among subjects 89% had IV line and 11% didn't have an IV line. A large majority of subjects (97.8%) didn't receive mechanical ventilation and 2.2% received mechanical ventilation. Among subjects 85% were non alcoholic and 15% were alcoholic. Study identified that 95.4% were conscious, 4.2% had altered sensorium and only .4% was unconscious.

3.2 Section: 2 Analysis of deep vein thrombosis risk

- Among subjects 28.2% had highest risk, over a one third (40.6%) had high risk, one fifth (19.8%) had moderate risk, 9.8% had low risk and only 1.6% had high risk for developing DVT.
- Results revealed that nearly half(38.8%) of subjects in department of general medicine had highest risk, 55.4% of subjects in department of OBG had high risk,

23.2% of subjects in department of surgery had moderate risk, 11.6% in general medicine had low risk and 2% in general medicine had no risk of DVT.

- Findings showed that there is a significant association between department and risk score at $p < .01$.

3.3 Section: 3 Analysis of deep vein thrombosis prophylaxis practice.

(n=500)		
Prophylaxis practice	Frequency (n)	Percentage (%)
Not needed	135	27
No prophylaxis received	36	7.2
Inadequate	182	36.4
Adequate	147	29.4

- Study revealed that 29.4% received adequate prophylaxis, 36.4% received inadequate prophylaxis, 7.2% of subjects received no prophylaxis and 27% subject didn't need any prophylaxis.
- Findings showed that among 38.7% of subjects under department of medicine no one received adequate prophylaxis. It is also identified that among 45.5% high risk subjects in department of surgery only 33% received adequate prophylaxis. Among 13.9% of subjects in OBG department 92.9% received adequate prophylaxis. Among 35.3% patients with high risk in other department nearly half (44.4%) received adequate prophylaxis.

Table 2: Association between risk score and prophylaxis practice

Risk score	Prophylaxis practice				χ^2	df	P value
	Not received to inadequate		Adequate				
	f	%	F	%			
Low risk (n=19)	3	15.8	16	84.2	41.020***	3	.000
Moderate risk (n=43)	22	51.1	21	48.9			
High risk (n=162)	83	51.2	79	48.8			
Highest risk (n=141)	110	78	31	22			

- The study revealed that there is a significant association between risk score and prophylaxis practices and also between prophylaxis practices and department at $p < .001$

3.4 Section: 4 Analysis of clinical signs and symptoms of deep vein thrombosis

- Out of 58 subjects who completed 10 days of hospitalization,28 developed signs and symptoms of DVT among that 32.8% developed pain,13.8% developed swelling,5.2% developed tenderness,1.7% developed warm skin,1.8% had visible surface vein 1.7% had slight fever,10.3% had feeble or no peripheral pulses.
- Study findings revealed that there is a significant association between age and clinical signs and symptoms of DVT at $p < .05$.

- There was also a significant association between prophylaxis practices and clinical signs and symptoms at $p < .01$

4. Discussion

In the present study 29.4% received adequate prophylaxis, 36.4% received inadequate prophylaxis, 7.2% of subjects received no prophylaxis and 27% subjects didn't need any prophylaxis.

In a study conducted in Kolkata on Utilization of deep venous thrombosis prophylaxis in medical and surgical intensive care units it was found that 44% of subjects received DVT prophylaxis and 56% of subjects did not receive DVT prophylaxis. This was inconsistent with the present study findings.

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