Knowledge of nurses regarding deep vein thrombosis and its prevention among patients admitted in the hospital.

Ms. Rohini Sharma [1] and Ms. D. Maryline Flinsi[2]

1- *M.Sc Nursing, Vice Principal, Apollo school of Nursing, Indraprastha Apollo Hospitals, New Delhi*
2- *M.Sc Nursing, Principal, Apollo school of Nursing, Indraprastha Apollo Hospitals, New Delhi*

Abstract- *Deep vein thrombosis is a common problem among patients who are immobile for a long period. Although it is preventable, it is still one of the problems of the patients related to poor knowledge and practice of nurses on Deep Vein Thrombosis prevention. There are very few studies conducted regarding the magnitude of Deep Vein Thrombosis among nurses in the study area. Thus it needs to assess the knowledge and awareness of nurses on Deep Vein Thrombosis prevention to avoid complications. So the investigators decided to conduct a study on the knowledge of nurses regarding deep vein thrombosis and its prevention among patients. An exploratory and Descriptive research approach and non-experimental design were used for assessing knowledge of 180 registered nurses. The findings revealed that the majority of the registered nurses (124, 68.9%) were having average knowledge, 37 (20.6%) were having good knowledge and 19 (10.5%) were having poor knowledge regarding deep vein thrombosis and its prevention.*

Keywords*- Deep vein thrombosis, nursing care in DVT, knowledge of nurses*

I.   Introduction

A deep vein thrombosis (DVT) is a thrombus (blood clot) that has developed in the venous system, most commonly in the leg's deep veins, and can partially or completely obstruct the flow of blood. If not treated, a DVT can break off and travel through the veins and heart to the pulmonary arteries in the lungs. This is known as a pulmonary embolism (PE) and can be fatal. [1]

The report of the World Health Organization depicted a high mortality rate from non-communicable diseases globally. Heart attacks, stroke, and hepatitis account majority of deaths in underdeveloped countries. The most serious and dangerous vascular diseases among patients are deep vein thrombosis and venous thromboembolism. These are considered to be the third main vascular diagnosis after stroke and heart attack. Deep vein thrombosis is one of the vascular diseases that affect ambulatory as well as hospitalized patients. The occurrence of deep vein thrombosis is 48/100,000 to 160/100,000 according to various reports of incidences.

The consequences of this disease are fatal and need thorough efforts to identify the causes, prevention, and main reasons for huge mortality and morbidity. DVT is asymptomatic and leads to long-term complications. Most of the time the DVT cases remain undiagnosed and considered silent killers. One of the life-threatening complications of deep vein thrombosis is venous thromboembolism which leads to pulmonary embolism and eventual death among patients. Pulmonary embolism is the third leading cause of death among adults. Moreover, the chronic complications are post-thrombotic syndrome and recurrent deep vein thrombosis. This put a significant burden on the patients both socially and economically. Despite massive advancements in medical diagnosis and treatment, the diagnosed case rate is less than the actual occurrences of pulmonary embolism. Multiple risk factors predispose the patient to deep vein thrombosis. Virchow's triad resulted from the stasis of blood, altered blood coagulation, and vessel wall injury. Moreover, prolonged immobilization, indwelling intravenous devices, obesity, lowered body mass index, old age, family history of DVT, major surgeries, history of varicose veins, trauma, smoking, alcohol, cardiac diseases, inflammation, use of hormonal replacement therapy, ischemic stroke, cancer treatment, etc. are the risk factors of deep vein thrombosis. Therefore, the prevention and management of deep vein thrombosis are imperative to avoid negative adverse events by early identification of risk factors and use of appropriate methods of prevention by health care providers. It is imperative to assess the risk of venous thromboembolism VTE 24 hours after admission of the patient to the hospital to identify the severity of the clinical condition. [2-5] So the investigators decided to conduct a study on the knowledge of nurses regarding deep vein thrombosis and its prevention among patients. The investigators assumed that RNs working in ICUs would be having good knowledge about DVT and senior nurses would be having above-average knowledge about DVT.

II.   Methodology

The study was done in 3 months i.e. from October 2021 to December 2021. An exploratory and Descriptive research approach and non-experimental design were used for the study. The research variable was the knowledge of nurses regarding deep vein thrombosis and its prevention among patients. The study was focused on 180 registered nurses working at a tertiary care hospital in Delhi. The convenience sampling technique was used for the selection of subjects. Only frontline nurses, having work experience of more than 1 year and are not working in emergency/ casualty, OPD, OT, Paediatric & neonatal, and diagnostics units were part of the study.

The tool used for data collection was divided into two sections. Section 1 was on the background information of the nurses and Section 2 was a structured knowledge questionnaire on DVT and its prevention among patients, which had 21 items based on prevention, causes, symptoms, management, and nursing care of patients with DVT. Each correct answer had a score of 1; no score was given for incorrect or missed items, so the maximum score was 21 and the minimum was 0. A total score of more than 14 indicated good knowledge, a score between 10-14 means average knowledge, and below 10 signified poor knowledge. Permission from Group Director Nursing, Assistant Director Nursing, and well-informed written consent was obtained before data collection. The data was collected in November 2021 through an online survey. Google form link for the questionnaire was shared with the registered nurses through WhatsApp.

III.   Result And Discussion

Figure 1-6 describes the background information of registered nurses. The majority of the nurses were female (97.8%), between age group 20-25 years (54.4%), have done BSc Nursing (51.7%), working in ICU/HDU (62.8%), 1-3 years of work experience (63.3%), holding the post of staff nurse (80%) and have taken care of patients suffering from DVT (82.2%)

Figure 7 depicts that the mean knowledge score of registered nurses was 12.4, median 12, range 6-19, and standard deviation was 2.36. Table 1 depicts that the majority of the registered nurses (124, 68.9%) were having average knowledge, 37 (20.6%) were having good knowledge and 19 (10.5%) were having poor knowledge regarding deep vein thrombosis and its prevention among patients admitted in the hospital.

The current study findings were similar to the study conducted by Yesuf Nurhusien Nuru et al titled "Nurses knowledge and practice towards prevention on deep vein thrombosis in University of Gondar Comprehensive Specialized Hospital, northwest Ethiopia". The study findings revealed that 60.5 % of the nurses had good and 39.5% had poor knowledge of DVT[6]. Another study by Yan Ting et al on "Nurses' knowledge, attitudes, and behaviors toward venous thromboembolism prophylaxis: How to do better" depicts similar results i.e. out of 1121 nurses, only 55.43% of nurses selected 100% correct answers. The overall knowledge level of the nurses was not optimistic and recommended that administrators should, therefore, take countermeasures to deal with these problems [7].

Based on the study findings, flyers were prepared and shared with all the nurses through WhatsApp to raise their knowledge level which further may help in the prevention and timely management of DVT (Picture 1). It was also recommended to the Department of nursing to have a frequent update and practice check about DVT so that quality nursing be provided to the patients.

Table 1- *Frequency and percentage distribution of registered nurses as per their knowledge level*

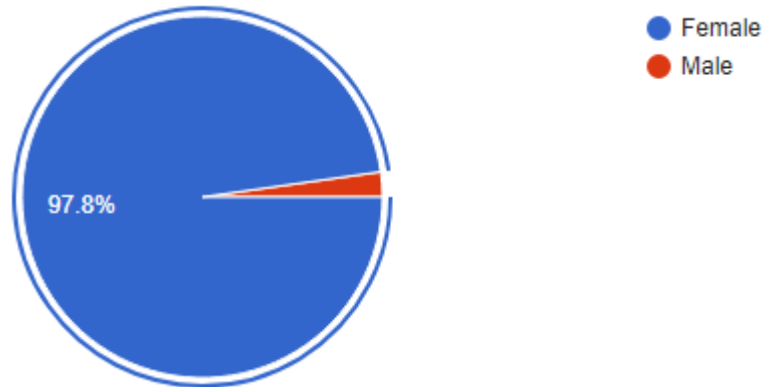| S. No.	Knowledge Level	Scoring Criteria	Frequency	Percentage
1	Good	>14 (>65%)	37	20.6%
2	Average	10-14 (45- 65%)	124	68.9%
3	Poor	<10 (<45%)	19	10.5

N=180

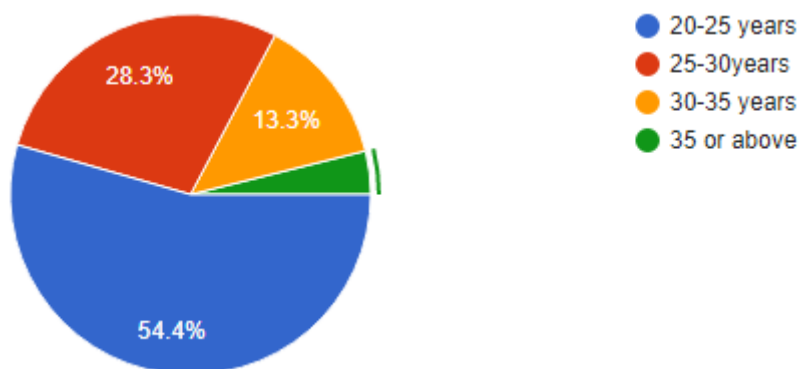*Figure 1- Percentage distribution of Registered Nurses based on their gender*

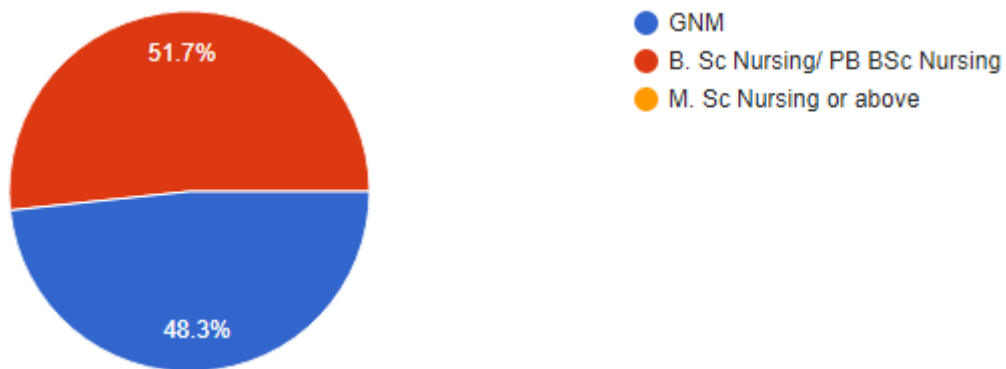*Figure 2- Percentage distribution of Registered Nurses based on their Age*

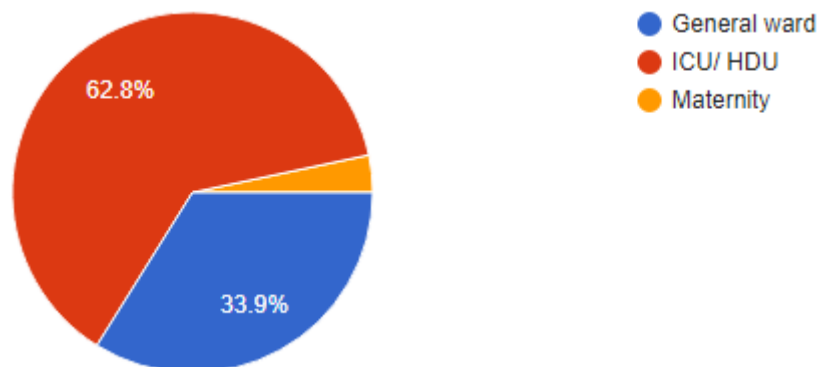*Figure 3- Percentage distribution of Registered Nurses based on their education*

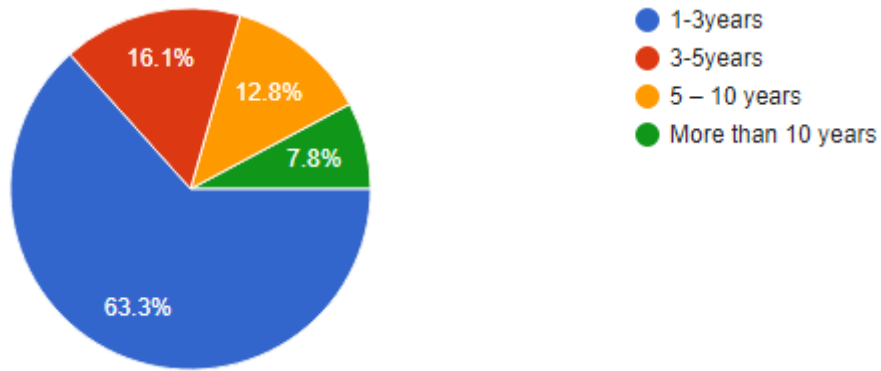*Figure 4- Percentage distribution of Registered Nurses based on their department of work*

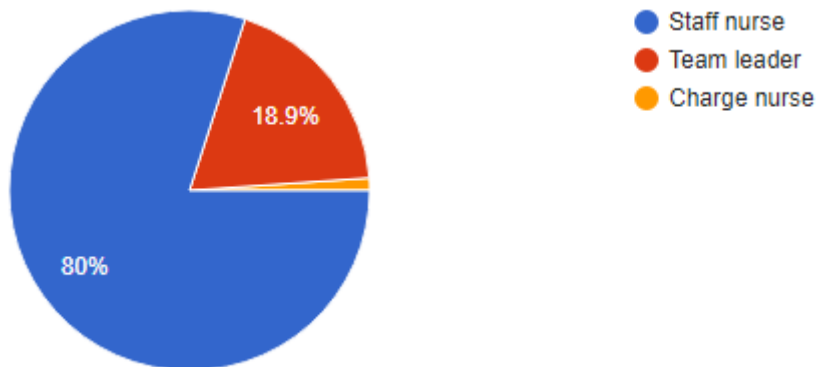*Figure 5- Percentage distribution of Registered Nurses based on their work experience*

Figure 6- Percentage distribution of Registered Nurses based on their designation
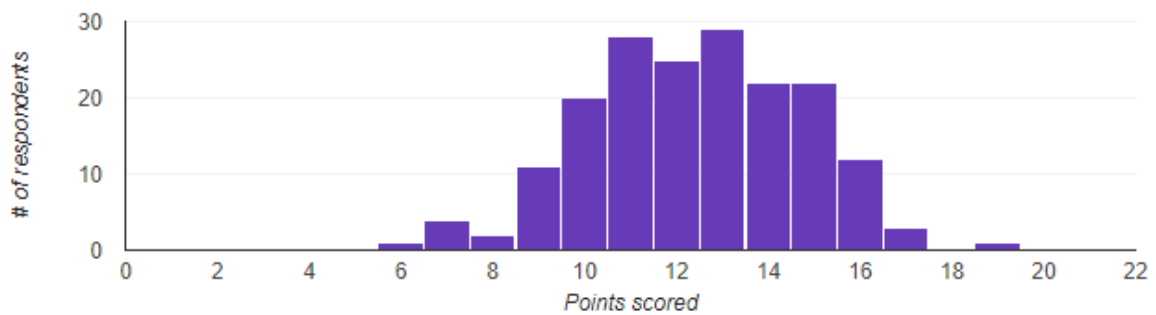

Figure 7- Bar diagram showing mean, median, and range of knowledge scores of registered nurses

Deep Vein Thrombosis(DVT) and its Prevention

Apollo HOSPITALS

Introduction

Deep vein thrombosis (DVT) is a common problem among patients who are immobile for a long period. Although it is preventable, it is still one of the problems of the patients related to poor knowledge and practice of nurses on Deep Vein Thrombosis prevention. The incidence of DVT is **10% to 20%** in general medical patients, **20% to 50%** in patients who have had a stroke, and up to **80%** in critically ill patients. It is estimated that as many as **30%** of patients hospitalized with DVT develop long-term post-thrombotic complications. A study conducted in Indraprastha Apollo Hospitals, Delhi revealed that the majority of the registered nurses (124, 68.9%) were having average knowledge, 37 (20.6%) were having good knowledge and 19 (10.5%) were having poor knowledge regarding deep vein thrombosis and its prevention. DVT occurs when a blood clot (thrombus) forms in one or more of the deep veins in the body, usually in the legs. It can cause leg pain or swelling but may occur without any symptoms. It is a serious condition because blood clots in the veins can break loose, travel through the bloodstream, and obstruct the lungs, blocking blood flow. The responsibility of identifying deep vein thrombosis patients lies with the nurses & treating consultant.

Nursing Responsibilities for preventing DVT in patients admitted in hospital:

- Advice patients to avoid sitting still for a long time- If a patient had surgery or has been on bed rest for other reasons, try to ambulate the patient as soon as possible. Advice to exercise lower legs. Also, advise raising and lowering the heels while keeping toes on the floor, then raising your toes with your heels on the floor.
- Advising to avoid smoking
- Exercise and weight management
- Graduated compression stockings
- Pneumatic compression devices like stockings, DVT Pumps, etc.
- Leg exercises

DVT Pressure Stockings

DVT Pump and Compression Boots

Picture 1- Flyer on DVT ant its prevention in patients admitted in hospital

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