

## Assessment of Nurses' Knowledge and Practice about Venous Thrombo Embolism for Cancer Surgery Patients

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### Abstract

**Background:** Venous thromboembolism (VTE) a common complication and important cause of death. VTE consists of two forms: deep vein thrombosis (DVT) and pulmonary embolism (PE) venous thrombo embolism (VTE). **Aim** assess nurses' knowledge and practice about venous thrombo embolism for cancer surgery patients. **Study design:** A descriptive research design used in the study. **Setting:** The study was conducted in the surgical unit, at Aswan oncology center. **Subjects:** The study included on a convenience sample (30) nurses working in surgical unit, at Aswan oncology center. **Tools:** two tools were used for data collection, a structured Interview questionnaire sheet for nurses and an observation check list for nurses practice **Result:** The total score of Nurses' knowledge about VTE were unsatisfactory level (96.7%), also the total score of observed nurses' practice level regarding prevention was unsatisfactory (93.3%). **Conclusion:** Nurses' knowledge and practice levels regarding the care of Venous Thrombo Embolism for Cancer Surgery Patients and venous thromboembolism prevention were unsatisfactory which needed an improvement. **Recommendation:** Nurses needed for in-service training programs and increase awareness to update their knowledge and practice regarding the care of Venous Thrombo Embolism for Cancer Surgery Patients.

**Keywords:** Cancer Surgery Patients, Nurses' Knowledge & Practice, Venous Thromboembolism.

### Introduction

Venous thromboembolism (VTE) is a common complication and important cause of death. VTE is divided into two forms: deep vein thrombosis (DVT) and pulmonary embolism (PE), which are different manifestations of the same disease. (Wen et al., 2019).

Cancer patients constitute 20-30% of the patients diagnosed with venous thrombo embolism (VTE) and depending on the type of tumor, extent of malignancy, type of cancer treatment, and presence of other risk factors, 1%–25% of patients with malignancy will develop thrombosis. Several risk factors for developing venous thrombosis usually coexist in cancer patients including surgery, hospital admissions, immobilization, the presence of an indwelling central catheter, chemotherapy, and new molecular targeted therapies. Furthermore, other comorbid features will also influence the overall of thrombotic complications, as present in patients without cancer (Elhayeg et al., 2018)

A thrombus causes inflammation of the vein, inflammation or occlusion is responsible for clinical manifestation of deep venous thrombosis (DVT) as swelling, warmth, pain, redness, low-grade fever, tenderness and cyanosis in the affected extremity (Berridge et al., 2016).

Venous thrombo embolism (VTE) can occur after surgery because a person cannot move around very

well or because of other courses. In the most serious cases, a blood clot can break off and go to the lungs (called a pulmonary embolus, or PE). Stopping smoking before surgery helps lower the risk of developing blood clots. Frequent position changes, leg and ankle exercises and getting up and moving around soon after surgery also help reduce blood clots. People who are at high risk for developing blood clots may be given low doses of a blood thinner, such as heparin, to help reduce the risk (Cascio et al., 2018).

Patients undergoing surgery for cancer require general nursing care. Care is generally according to age, organ impairment, specific impairment, cultural implication and altered immunity. The nurse provides the patient and family with verbal and written information about surgical procedure, instructions, diet, and bowel preparation are also provided, prospectively nurse assess the patient responses to surgery and monitors the patient for possible complications, such as infection, bleeding, thrombophlebitis, wound dehiscence, fluid and electrolyte imbalance, and organ dysfunction. The nurse also provides patients comfort (Janice & Kerry, 2018).

### Significance of the study

patients with cancer is approximately one in 200 (Zahir et al., 2017)

A large cohort study showed that the baseline risk of thrombosis in cancer ,During clinical experience the researcher, observed the following symptoms; swelling, warmth, pain, redness, low-grade fever, tenderness which consider the most common symptoms of (venous thromboembolism (VTE) among cancer patients post operative surgery. patients need high quality nursing care after surgery.

### Aim of the study

the aim of present study was to assess nurse's knowledge and practice about venous thromboembolism for cancer surgery patients

### Research Question

What is the nurse's knowledge and practice about venous thrombo embolism for cancer surgery patients?

### Subject & Methods

#### Research design

A descriptive research design was used in the study

#### Setting

The study was conducted in the surgical unit, at Aswan oncology center.

#### Subjects

The study included convenient sample for nurses (30) nurses working in surgical unit, at Aswan oncology center.

#### Tools

Two tools were utilized for data collection included the following:-

#### Tool (I): A structured Interview Questionnaire sheet for nurses

It included two parts to assess nurses' knowledge regarding care of Venous Thrombo Embolism for Cancer Surgery Patients:

**Part (1):** socio demographic characteristics for nurses: as nurse's name, age, sex, marital status, qualification, years of experience, and attaining previous training program about nursing care of (VTE).

**Part (2):** Assessment of nurses' knowledge about VTE:

This part was developed by the researcher in Arabic language based on current, national and international literature(Shiny, 2008).

To assess nurses' knowledge about venous thrombo-embolism (VTE).this part included questions about definition, type and site of VTE, definition of DVT and PE ,risk factor of VTE in cancer surgery patients, causes, type of cancer increase risk of VTE ,manifestation of DVT and PE, complications, medical management , side effect of medical treatment (anticoagulation drug) , nursing percussions

during administrating of anticoagulation drug and nursing care before and after cancer surgery .

It consists of a reliable and valid questionnaire consists of 16 questions;

Each complete correct answer was given two score, where the not complete correct was given one score, while wrong answer was given zero

**Scoring system:** the total scores were 32, which was divided into two parts. Those who obtained less than (70%) were considered having unsatisfactory level of knowledge. While those who obtained above than (70%) were considered having satisfactory level (Shiny, 2008).

#### Tool (II): An observation check list for nurses practices

This tool was used for the provided nursing practice which included preparation (pre- operative teaching), post- operative nursing care and teaching patient self-care before discharge. Consisted of 4items of the procedure literature. (Mersal, 2014).

**Scoring system:** The total score were 104 degrees; one degree was given for each wrong or missing step in practice there is no incomplete step in practice is either done 2score & two degrees for each right step in practice zero degree was given for no answer . those who obtained less than (70%) were considered having incorrect practice level. While those who obtained (70%)or above considered having correct practice level (Mersal, 2014).

#### Method

- After appraisal of the protocol of the study by ethical and scientific Committee an official letter from the dean of the faculty of Nursing, Assiut university, directed to the head of the surgical departments at Aswan oncology center in order to get permission to conduct the study.
- The purpose of the study was explained to the participant nurses before starting data collection.
- A pilot study was conducted on 10% (3nurses) of the sample to evaluate the applicability and clarity of the tools.
- Content validity was established by panel of (5) experts from medical and surgical nursing staff who reviewed the tools for clarity, relevance, comprehensiveness, being understandable , applicability, and easiness for administration , minor modifications were required.(validity for tool 2)
- The researcher introduced herself to nurses to initiate line of communication order to facilitate the implementation of the study.
- The researcher assessed nurse's knowledge and practice by using the study tools.
- Data were collected from surgical unit at Aswan oncology center during the period from February,

2019 to June 2019. The tools filled through in interviewed.

- Nurses were informed that participation in the study was voluntary and that they could withdraw at any time of the study it confidentiality of the nurse's data was ascertained.

#### Field work

The researcher interviewed nurses three days weekly at morning and afternoon shifts to collect data. The researcher interviewed with all nurses working in surgical unit, introduced herself to initiate communication, explained the aim of the study and took their approval to participate in the study prior to data collection, then the researcher assessed the nurses' level of knowledge and practice regarding preventing venous thromboembolism among patients undergoing cancer surgery by using questionnaire and observational checklist for nurses and hospital structure as follows:

The questionnaire were administered by the researcher to all nurses individually to assess their knowledge about nursing care for preventing VTE among patients undergoing cancer surgery. The average time needed for the completion of each interview took about 25 – 35 minutes.

#### Results

**Table (1): Distribution of studied nurses as regarding of Socio demographic characteristics (No.=30).**

Socio demographic characteristic	No.	%
<b>Age in year</b>		
16-25	19	63.3
26-40	11	36.7
<b>Mean ±SD</b>	<b>25.7± 5.79</b>	
<b>Sex</b>		
Male	1	3.3
Female	29	96.7
<b>Marital status</b>		
Single	12	40.0
Married	17	56.7
Widowed	1	3.3
<b>Level of education</b>		
Diploma of nursing	11	36.7
technical institute	16	53.3
Bachelor	3	10.0
<b>Years of experience:</b>		
<5 years	22	73.3
>5less than10 years	4	13.3
>10 years	4	13.3
<b>Mean ±SD</b>	<b>1.6 ± 486</b>	
<b>Attending training courses:</b>		
Yes	12	40.0
No	18	60.0

The researcher observed nurses' practice using the observational checklist based on the designed NCSs then the researcher complete the observational checklist sheet to assess their practice pre implementing the NCSs. The average time needed for the completion of each observational checklist took about 25 – 35 minutes. Participants' direct or indirect observation was done so that the nurses were observed during their practice/ provision of care and carrying out different procedures. Each nurse was observed on when are these three different occasions while performing each procedure of the observational checklist. observation done immediately post operative because nurse's ably all required nursing care in this time Obtained data were converted into numeric data, and the average of the three observations was calculated.

#### Statistical analysis

The data obtained were reviewed , prepared for computer entry, coded, analyzed, and tabulated, (frequencies and percentages, mean and standard deviation , were done used computer program (SPSS). chi-square and one –way –a nova test used in relationship between nurses knowledge about (TE)and nursing care. It was considered significant when P. value was <0.01.

**Table (2):** distribution of nurses' knowledge regarding nursing care of (VTE) in cancer surgery patient (No.=30).

Nurse's knowledge	(No.= 30)	%
<b>knowledge about VTE</b>		
Satisfactory	1	3.3
Unsatisfactory	29	96.7
<b>Mean ±SD</b>	<b>12.06 ±4.99</b>	
<b>knowledge about nursing care</b>		
Satisfactory	5	16.7
Unsatisfactory	25	83.3
<b>Mean ±SD</b>	<b>2.60±1.86</b>	
<b>Total knowledge level</b>		
Satisfactory	2	6.7
Unsatisfactory	28	93.3
<b>Mean ±SD</b>	<b>14.36±6.25</b>	
<b>Total score :</b>	<b>32 degrees</b>	

**Table (3):** distribution of nurse's practice regarding nursing care of (VTE) for cancer surgery patient (No=30).

Items	No.	%
<b>Prevention of VTE</b>		
Complete correct	2	6.7
In correct	28	93.3
<b>Mean ±SD</b>	<b>17.76±11.73</b>	
<b>post-operative nursing care</b>		
In correct	30	100.0
<b>Mean ±SD</b>	<b>6.20±2.13</b>	
<b>Patient teaching before discharge</b>		
Complete correct	1	3.3
In correct	29	96.7
<b>Mean ±SD</b>	<b>1.67±3.74</b>	
<b>Total practice score</b>		
Incorrect	30	100.0
<b>Mean ±SD</b>	<b>25.63±14.49</b>	
<b>Total score</b>	<b>104 degree</b>	

**Table (4):** level of satisfaction regarding nurses care given VTE for cancer surgery patients and nurses to their characteristics (N. =30).

Demographic data	Total knowledge		p. value
	Satisfactory	unsatisfactory	
<b>Age groups</b>			<b>0.393ns</b>
16 to 25years	2	17	
26 to 40 years	0	11	
<b>Previous Training</b>			<b>0.696ns</b>
Yes	1	11	
No	0	18	
<b>Sex</b>			<b>0.933ns</b>
Male	0	1	
Female	2	27	

Demographic data	Total knowledge		p. value
	Satisfactory	unsatisfactory	
<b>Marital status</b>			
Single	2	10	<b>0.200ns</b>
Married	0	17	
widow	0	1	
<b>Level of education</b>			
Diploma of nursing	1	10	<b>0.851ns</b>
Institute technician	1	15	
Bachelor	0	3	
<b>Years of experience</b>			
< 5 years	2	20	<b>0.677ns</b>
5- 10 Years	0	4	
>10 years	0	4	

**Table (1):** Shows that approximately more than half of study nurse's (63.3%) their age ranged from (16-25), The total mean age ( $25.7 \pm 5.79$ ), was showed that; more than half of nurses is married and had an institute of nursing degree (56.7% and 53.3%) respectively. The majority of experienced less than 5 years, did not attend any training programs, (73.3%, 60%) The total mean score of year of experience ( $1.6 \pm 4.86$  and  $25.7 \pm 5.79$ ) respectively.

**Table (2):** Revealed that the majority (96.7%) of nurses had unsatisfactory level of knowledge about VTE while only (3.3%) had a satisfactory knowledge level. The total mean was ( $12.06 \pm 4.99$ ). Regarding knowledge about nursing care Majority of them unsatisfactory level of knowledge (83.3%), while the mean value ( $2.60 \pm 1.86$ ), the total nurses' knowledge where unsatisfactory level (93.3%), while the total mean of what was so and so ( $14.36 \pm 6.25$ ).

**Table (3):** Demonstrated that the majority (93.3%) of nurse's practice about prevention had unsatisfactory level of knowledge while only (6.7% of them) had satisfactory level of knowledge. The total mean score was ( $17.76 \pm 11.73$ ). regarding practice postoperative all nurse's had unsatisfactory level of knowledge (100%). While, the mean score of what was so and so ( $6.20 \pm 2.13$ ). The total nurse's practice before discharge where unsatisfactory (96.7%), while the total mean total practice score of what was so and so ( $25.63 \pm 14.49$ ).

**Table (4):** Table reflected that all nurse's had unsatisfactory level of practice. The total mean score was ( $25.63 \pm 14.49$ ). In addition, the table showed no significance relation between total nurses knowledge and socio demographic characteristic.

## Discussion

Venous thromboembolism (VTE) is the term used for a combination of the formation of a thrombus in a vein or veins of the systemic venous system, (usually in the lower limbs or abdomen/pelvis), and

the embolization of a thrombus to the pulmonary arterial system via the inferior vena cava and right heart chambers. The commonest clinical presentation in VTE is a deep venous thrombosis (DVT), and pulmonary embolism (PE) (Blumgart, 2016)

Nurses play a major role in VTE prevention if well educated and empowered to change hospital culture. Their increased level of knowledge undoubtedly leads to an improvement in the delivery of patient care. Appropriately trained nurses are skilled in assessing the risk of VTE in their patient and ensuring prophylactic measures are in place. Even in the absence of a medical practitioner, the nurses can initiate appropriate mechanical measures (Collins et al., 2014).

The aim of the study was to assess nurses' knowledge and practice about venous thromboembolism for cancer surgery patients.

As regard to nurses' gender, the present study revealed that the majority of nurses were females. This might be due to overall ratio of male nurses to the female nurses were less in the nursing profession. As regard to marital status of the studied nurses, the finding of the present study revealed that the highest percentage of them was married. According to the level of education for nurses the finding of the present study indicated that the majority of nurses had institute of nursing education. This might be due to the newly nurses with bachelor degree in nursing education were distributed in critical care unit rather than other units in the hospital.

As regarding years of experiences for nurses the finding of the present study revealed that less than half of them had an experience less than 5 years. This might be due to the small number of nurses in the surgical unit. As regarding attending of nurses training courses, the present study showed that all nurses had not attending any previous training

courses about nursing care standards for preventing DVT.

These findings are agree with various studies about VTE in different settings in Egypt, (Ahmed, 2015) reported that, all nurses involved in the study were females; half of them are married and the majority of nurses had diploma in nursing science. While contraindicated with the present study in some points; most of nurses were less than 30 years and more than half of them their experiences were less than 5 years.

As regards total nurses' knowledge scores level about nursing care for preventing VTE, majority of nurse's had unsatisfactory level of knowledge pre implementation of teaching program on VTE. However, one third of nurses had satisfactory knowledge level. The results might be due to lack of educational and training background for nurses under the study whereas, almost all the staff nurses did not receive formal training courses about nursing care for preventing VTE among patients undergoing surgery.

In addition result disagreed with study, the majority of the nurses had only diploma in nursing education in which the content of nursing care for preventing DVT was limited in their curriculum. This result is in congruent with (Das et al., 2014) who mentioned that the majority of staff nurses had unsatisfactory level of knowledge pre implementation of planned teaching program on DVT than post implementation.

The present study was in the same line with the study conducted by (Bhatti et al., 2012) about "knowledge, attitude and practices of health care providers towards DVT prophylaxis in five teaching hospitals of Rawalpindi" and reported that the knowledge of health care providers about DVT prophylaxis were less than adequate.

This result also agrees with a descriptive study conducted by (Henwood & Kennedy, 2011) among staff nurses working in critical care units in North Africa, found that 58% had poor knowledge and 42% had average knowledge on the prevention of DVT. Study highlights the importance of continuing nursing education which helps to maintain good knowledge and standards of care.

As estimated total nurses' practice scores level about nursing care for preventing VTE, majority of nurses had unsatisfactory level of practice prevention. This result might be due to the majority of VTE preventing hospital structures items were not available. Explained practice postoperative had regarding one hundred unsatisfactory level of knowledge, this result may indicated from lack of training program and lack of facilities, As revealed that the majority of nurses had majority of nurses

unsatisfactory level of knowledge for teaching before discharge, resulting from one word un complete or lack of training program and nurses have less period of experience in surgical area.

who agree with study result must be before the previous paragraph (your interpretation) The findings of the present study revealed that less than quarter of the studied nurses had satisfactory level of practice pre NCSs implementation. However, post its implementation, the majority of nurses had satisfactory level of practice (El-SayedEad et al., 2016).

This finding was supported by (Bratzler, 2010) who stressed that variability in nurses' knowledge of DVT assessment and appropriate prevention appeared to was a negative influence on implementation strategies..

This study disagreed with that of (Mohamed et al., 2017) found that the majority of nurses had satisfactory level of practice.

The nurses is agree with implement, guide, and accompany patients in treatment with compression stockings. When choosing the device, the pressure graduation must be high around the ankle, calves and lower thigh region, usually at least 20 mmHg compression to prevent VTE (Ayhan et al., 2015)

Nurses disagreement with study who manage to actively educate patients at risk for VTE seem to obtain satisfactory results, as observed when they used explanatory materials and videos to educate patients about the risk of VTE. (Marini et al., 2014)

As regards the relation between Total nurses knowledge and socio demographic characteristic. The current study found that there were no significant relation between total nurses knowledge and socio demographic characteristic. Majority of nurses' characteristics had unsatisfactory level of knowledge.

The findings of the present study can be explained by the fact that novel nurses with fewer years of experience are more flexible and open to learning new skills. Moreover, senior nurses with more years of experience with established attitudes are harder to change and are more resistance to changing. Surprisingly, and not in line with previous research, diploma nurses scored higher adherence than nurses with a bachelor's degree (Mokadem & EL-Sayed, 2019)

It is easy to understand that improvement in VTE knowledge is achieved with higher levels of educational background, nursing experience, and leadership roles. The importance of continuing education has been emphasized by several scholars (Gasto et al., 2013).

In addition, (Mersal, 2014) revealed that a highly and statistically significant difference was found between the personal characteristics and total mean score of knowledge of caregivers regarding prevention of immobility complications.

The finding of the present study revealed that policy structure, guideline structure, training session structure, supervision of nurses' performance regarding preventing VTE structure, IPC device supplies structure for preventing VTE, computer programs for electronic alerts for patients at risk of VTE documentation sheet for VTE assessment, application of VTE preventive measures and HS patient education were not available in hospital structure.

Finally, prevention is better than cure. For VTE prevention is essential for patient's safety and one of quality standards in hospital. In Surgical unit, nurse plays a vital role in early detection and prevention of VTE. Hence, it should provide them adequate knowledge and practice about the preventive measures from VTE.

### Conclusion

Nurses' knowledge and practice levels regarding the care of Venous Thrombo Embolism for Cancer Surgery Patients and venous thromboembolism prevention were unsatisfactory which needed an improvement.

### Recommendations

Based on the finding of the present study the following recommendations are suggested:

1. Courses provided by the work institution promote sufficient of the information to the needs of the nursing staff, as well as to the information required to meet the standards of the institution.
2. Continuous in service: training programs are highly recommended in this specialized area to raise the standards of nursing care given to such group of patients.
3. Periodical containing training program up to date knowledge should be help to improve quality of care provided for such group of patients.

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