Original Research Article

Assess Nurse's Knowledge Toward Venous Thrombosis At Al-Sharqat General Hospital

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ABSTRACT

Aims: A blood clot that is stuck in a deep vein is known as deep vein thrombosis, while a blood clot that has broken loose and migrated to the lungs is known as a pulmonary embolus. Thrombotic disorders are the world's most common cause of high mortality and morbidity among preventable diseases.

was to assess nurse's knowledge toward venous thrombosis at AL-Sharqat General Hospital and relationship between knowledge and their demographic data.

Study design: A descriptive study.

Place and Duration of Study: Sample: This study was conducted at Al-Sharqat General Hospital in critical care unit and surgical department, between November 2023 and May 2024

Methodology: A purposive sample (non-probability) consisting of (25) nurses was selected from nurses who work in the critical care units and surgical department.

Results: The results showed that over half of the participants were female nurses, making up the majority of the group. These nurses had graduated from nursing institutes and had between one and five years of experience, without having attended any training courses. Results show that nurses knowledge related to venous thrombosis was poor to moderate and there were no significant relationship between nurse's knowledge and their demographic data at P-value >0.05

Conclusion: Nurses working in the surgical department, emergency units, and critical care units had poor knowledge regarding venous thrombosis because their education level was low and they had not attended training courses

Keywords: Nurse, knowledge, venous thrombosis.

1. INTRODUCTION

A blood clot that is stuck in a deep vein is known as deep vein thrombosis, while a blood clot that has broken loose and migrated to the lungs is known as a pulmonary embolus (1).

Thrombotic disorders are the world's most common cause of high mortality and morbidity among preventable diseases. Deep vein thrombosis, which is regarded as the third main vascular diagnostic after heart attack and stroke, is the most serious and dangerous vascular condition among patients(2) .

DVT has an annual impact of up to 900,000 people (3) ,according to current estimates, DVT causes 60,000 to 100,000 deaths in Americans each year. The fact that 10 to 30% of people who develop DVT die within a month of their

diagnosis is even more concerning (3) .

The majority of DVT cases go undetected and are regarded as silent killers. It is a deadly disorder that has negative effects on patients. Therefore, strategies to enhance nurses' utilization of DVT prevention procedures are crucial(4).

Despite having several risk factors, DVTs are preventable. Understanding risk factors and preventive actions is essential for DVT prevention, claim(5).

Understanding preventative steps can not only lower the incidence of DVT problems but also shorten hospital stays, free up beds, and even save lives. Nurses can significantly contribute to the prevention of Deep Venous Thrombosis, and training will enhance their skills and practices(6).

Nurses lack the necessary skills and knowledge to avoid deep vein thrombosis (DVT) (7). A recent study in India shows that a high percentage of nurses had bad practices and knowledge regarding the prevention of venous thrombosis.(8).

Aims of the study

This study aims to

1- was to assess nurse's knowledge toward venous thrombosis

2- relationship between nurse's knowledge and their demographic data.

2. METHODOLOGY

A descriptive study is conducted for the periods of 11th November 2023 to 3ed May 2024. This study was conducted at Al-Sharqat General Hospital in critical care unit and surgical department . Whether they agreed to participate in the study or declined, individuals in the control and study groups were given the opportunity to provide informed consent, which was provided to them. A purposive sample (non-probability) consisting of (25) nurses was selected from nurses who work in the critical care units and surgical department. A questionnaire consists of the following parts :

1- part one :socio-demographic data
2- part two : : This section, which was composed of one domain toward venous thrombosis. includes (20) closed ended (multiple choice) questions to measure nurses' knowledge about venous thrombosis, including: definition, causes, risk factors, signs & symptoms, diagnosis, treatment and complication.

To make the instrument more valid, it was presented to a panel of (10) experts in the different fields. The self-report and questionnaire are used in the data gathering procedure, and descriptive and inferential statistics are used for analysis.

3. RESULTS AND DISCUSSION

3.1. Discussion of Nurses' the Socio-demographic characteristics in the Control and Study Groups.

Twenty five nurses has been selected for each group, total number of male in the study group 11(44%), mean age (29.40 ± 5.97), whereas 44(49%) are accounted in controlled, with mean age (28.92 ± 5.35), as well as no significant differences at P>0.05 are accounted between studied groups with respect to gender and age variables.

Most of educational levels of the studied groups has assigned institute graduation, since 15(60%), and 16(64%) are accounted in the study and controlled groups respectively, with no significant different between studied groups at P>0.05, as well as surgical halls are accounted 10(40%) in each group, and the leftover were distributed similarly among emergency hall, and internal resuscitation unit.

Table (1): Distribution of the studied groups according to (SDCv.) with comparisons significant

SDCv.	Groups	Groups				C.S. (*)
	Classes	Study		Control		P-value
Gender	Male	11	44	12	48	C.C.=0.040 P=0.777 (NS)
	Female	14	56	13	52	
Age Groups	< 30 yrs.	6	24	7	28	C.C.=0.207 P=0.525 (NS)
	30 _ 34	10	40	9	36	
	35 _ 39	4	16	7	28	
	> 39 yrs.	5	20	2	8	
	Mean ± SD	29.40 ± 5.97		28.92 ± 5.35		
Education levels	Nursing preparatory school graduate	1	4	0	0.00	C.C.=0.210 P=0.509 (NS)
	Institute graduate	15	60	16	64	
	College graduate	6	24	8	32	
	Postgraduate	3	12	1	4	
Occupation	Emergency hall	7	28	8	32	C.C.=0.052 P=0.936 (NS)
	Internal resuscitation unit	8	32	7	28	
	Surgical halls	10	40	10	40	

(*) NS: Non Sig. at P>0.05; Testing based on a contingency coefficient (C.C.) test.

According to analyses of the nurses' demographic data, however there are notable distinctions. The study's quasi-experimental approach, which included both a pre- and post-test, accepts these findings.

The study's objective was to assess nurses' knowledge regarding venous thrombosis .

According to Table 1. With respect to gender, the current study's findings on nurse gender showed that most nurses were female. This might be because there are often fewer male nurses than female nurses in the nursing field.

These results corroborate those of (9) , who performed descriptive research in Egypt to*" assess attitude, subjective norms, perceived behavioral control, and intention of nurses towards prevention of deep vein thrombosis among critically ill patients in intensive care units".* The research sample mainly consisted of female nurses more than half.

Regarding years of experience, a high percentage of them (more than a third) had been working in nursing for 1–5 years. Most of them (more than half) have experience in the intensive care unit, surgical units, and emergency department for 1–5 years.

These results agreed with study conducted by (10) "*Critical Care Nurses' Knowledge about Pulmonary embolismin Respiratory Care Unit in Baghdad Teaching Hospitals*" A high percentage of them was more than a third For (1-5) years they worked in nursing, and more than half of them had (1-5) years of experience At RCU.

Concerning educational level, The majority of the nurses in the research sample worked in the critical care unit and held a diploma in nursing.

These results agree with study conducted by (11)" Effectiveness of Nursing Education Program on Nurses Practices Toward Arrhythmia in Kirkuk" stated that the nursing institute constituted the majority of his study sample.

This outcome might be explained by the fact that technical nurses work as bedside nurses in government hospitals, but the majority of bachelor nurses serve as supervisors or head nurses.

As regards age, the results of this study indicate that the majority of the study and control samples were in the 30- to 34-year-old age range, with mean ages of (29.40 ± 5.97) and (28.92 ± 5.35) for the study and control groups, respectively. In the researcher's opinion, this outcome might be the result of the demanding nature of work in critical regions, where young adult nurses are needed to combine their severe work load with their energy and strength.

This results disagreed by (12)" *Effectiveness of an Educational Program upon nurses ' knowledge toward The Continuous Positive Airway Pressure (CPAP) Machine in Neonatal Intensive Care Unit at Al-Diwanyia City Hospitals"*, he stated that the majority of his study samples ranged in age from 25 to 30

3.2: Discussion of Nurses' Knowledge Toward Venous Thrombosis At Al-Sharqat General Hospital.

Table (2) includes a summary statistics, such that (Mean of Score-MS, Standard Deviation-SD, Relative Sufficiency-RS%, Assessing scored over the three intervals due to RS% by the following assessments: [Low: (0.00 _ 33.33); Moderate: (33.34 _ 66.66); , and High: (66.67 _ 100)]. In addition to that, testing of significant are obtained for each period in light of pre to post periods, as well as testing of significant are presented for testing observed frequencies between the studied groups in each period independently.

Results of testing significant with reference of studied items, as well as scoring scales assessments concerning effectiveness of applying the proposed program reported highly significant differences at $P<0.01$ through raising grades of studied respondents at the post period, and that could be enable to confirms importance and successfulness of applying the proposed program. In addition to that, and rather than testing significant are too sensitive to improvements that might be occurred for repeated measurements statistically in study group, but all of studied items illustrated too highly and meaningful changeability with a high levels of assessed along pre to post periods.

The results of the controlled group has recorded completely immovable responses over the studied periods with a moderate level of assessed generally.

Table (2): Descriptive Statistics of the studied groups according to (Knowledge related to Venous Thrombosis) Domain along studied periods with comparisons significant

Knowledge related to Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
Is it considered one of the symptoms of deep vein thrombosis?	Pre	25	0.72	0.46	72	H	1.000	0.76	0.44	76	H	0.019	1.000
	Post	25	0.72	0.46	72	H		0.32	0.48	32	L		0.010
What are the signs and symptoms of PE that a patient may exhibit?	Pre	25	0.72	0.46	72	H	1.000	0.56	0.51	56	M	0.180	0.377
	Post	25	0.72	0.46	72	H		0.32	0.48	32	L		0.010
What is the difference between venous thrombosis (DVT) and arterial thrombosis?	Pre	25	0.80	0.41	80	H	1.000	0.96	0.20	96	H	0.000	0.189
	Post	25	0.84	0.37	84	H		0.48	0.51	48	M		0.016
What is the relationship of Restless Leg Syndrome to DVT?	Pre	25	0.80	0.41	80	H	1.000	0.32	0.48	32	L	0.227	0.001
	Post	25	0.80	0.41	80	H		0.52	0.51	52	M		0.072
What is the difference between deep phlebitis (DVT) and superficial phlebitis?	Pre	25	0.48	0.51	48	M	0.125	0.12	0.33	12	L	0.227	0.012
	Post	25	0.64	0.49	64	M		0.32	0.48	32	M		0.046
What is the relationship between cancer and the risk of developing DVT?	Pre	25	0.52	0.51	52	M	0.031	0.36	0.49	36	M	1.000	0.393
	Post	25	0.76	0.44	76	H		0.40	0.50	40	M		0.021
The common diagnostic technique used to detect Pulmonary Embolism is?	Pre	25	0.52	0.51	52	M	0.125	0.64	0.49	64	M	0.424	0.567
	Post	25	0.68	0.48	68	H		0.48	0.51	48	M		0.252
What medical tests can be used to determine the effectiveness of anticoagulant treatment?	Pre	25	0.68	0.48	68	H	0.063	0.52	0.51	52	M	0.754	0.387
	Post	25	0.88	0.33	88	H		0.44	0.51	44	M		0.002
What risk factors may increase the likelihood of blood clots forming?	Pre	25	0.72	0.46	72	H	0.031	0.32	0.48	32	L	0.013	0.010
	Post	25	0.96	0.20	96	H		0.72	0.46	72	H		0.049
What age group is most susceptible to DVT?	Pre	25	0.72	0.46	72	H	0.500	0.68	0.48	68	H	0.454	1.000
	Post	25	0.80	0.41	80	H		0.52	0.51	52	M		0.072
What are the main factors that may increase the risk of venous thrombosis?	Pre	25	0.52	0.51	52	M	0.031	0.56	0.51	56	M	0.065	1.000
	Post	25	0.76	0.44	76	H		0.28	0.46	28	L		0.002
The main factor contributing to the formation of venous thrombosis is?	Pre	25	0.76	0.44	76	H	1.000	0.28	0.46	28	L	0.118	0.002
	Post	25	0.80	0.41	80	H		0.56	0.51	56	M		0.128
What is the treatment method for DVT?	Pre	25	0.84	0.37	84	H	0.500	0.44	0.51	44	M	0.302	0.007

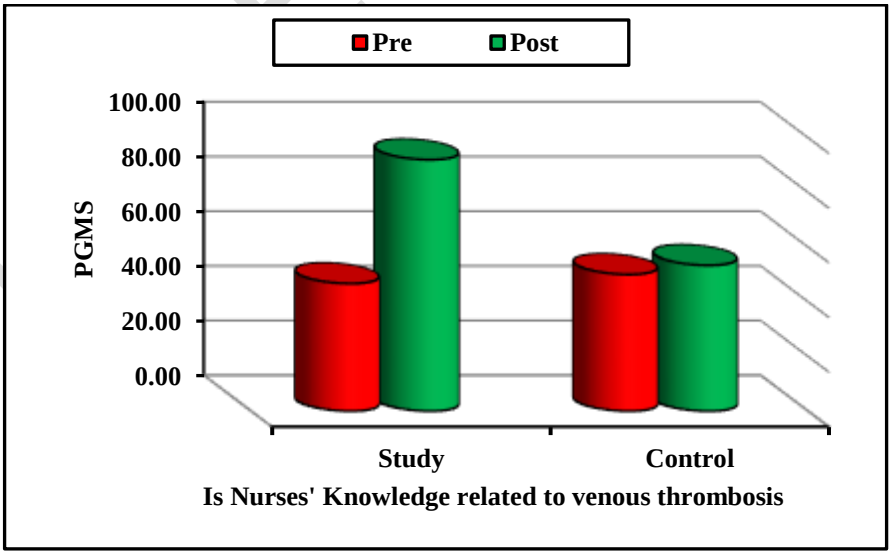
	Post	25	0.92	0.28	92	H		0.64	0.49	64	M		0.037

Continue …

Knowledge related to Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
What is the first step in managing a PE emergency?	Pre	25	0.68	0.48	68	H	0.063	0.12	0.33	12	L	0.001	0.000
	Post	25	0.88	0.33	88	H		0.64	0.49	64	M		0.095
What is the main role of surgery in treating DVT?	Pre	25	0.52	0.51	52	M	0.016	0.44	0.51	44	M	0.774	0.778
	Post	25	0.80	0.41	80	H		0.52	0.51	52	M		0.072
What emergency treatment can be used in severe and serious PE?	Pre	25	0.52	0.51	52	M	0.004	0.32	0.48	32	L	0.508	0.252
	Post	25	0.88	0.33	88	H		0.44	0.51	44	M		0.002
One of the common ways to prevent deep vein thrombosis is?	Pre	25	0.80	0.41	80	H	0.500	0.28	0.46	28	L	0.007	0.001
	Post	25	0.88	0.33	88	H		0.72	0.46	72	H		0.289
How can proper nutrition play a role in preventing DVT?	Pre	25	0.56	0.51	56	M	0.008	0.44	0.51	44	M	0.754	0.572
	Post	25	0.88	0.33	88	H		0.36	0.49	36	M		0.000
One of the factors that may contribute to the development of DVT complications is?	Pre	25	0.84	0.37	84	H	1.000	0.52	0.51	52	M	1.000	0.032
	Post	25	0.88	0.33	88	H		0.48	0.51	48	M		0.005
What is one of the possible complications of PE?	Pre	25	0.52	0.51	52	M	0.004	0.79	0.41	79	H	0.057	0.072
	Post	25	0.88	0.33	88	H		0.44	0.51	44	M		0.002

(*) Assessments Intervals Scoring Scales of Relative Sufficiency Coefficient (RS%): [L: Low (0.00– 33.33)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.67 – 100)].

Testing are based on McNemar test for testing Pre to Post periods in each group, and Fisher Exact Probability test for testing 2X2 association category dichotomous binary nominal scales of two independent random variables.



Is Nurses' Knowledge related to venous thrombosis

Figure (1): Cluster Bar Charts for distribution Grand Mean of Score of studied Main and Sub Main Domains along studied pre to post periods for the studied groups

The study group's pre- and post-test results showed notable variations, but overall, they demonstrated a good degree of understanding in the majority of the topics related to venous thrombosis, indicating that the training program had an impact on the nurses' knowledge. In addition to that, testing of significant are obtained for each period in light of pre to post periods, as well as testing of significant are presented for testing observed frequencies between the studied groups in each period independently.

Results of testing significant with reference of studied items, as well as scoring scales assessments concerning effectiveness of applying the proposed program reported highly significant differences at P<0.01 through raising grades of studied respondents at the post period, and that could be enable to confirms importance and successfulness of applying the proposed program.

In addition to that, and rather than testing significant are too sensitive to improvements that might be occurred for repeated measurements statistically in study group, but all of studied items illustrated too highly and meaningful changeability with a high levels of assessed along pre to post periods. The results of the controlled group has recorded completely immovable responses over the studied periods with a moderate level of assessed generally. Table (3)

The researcher thinks a majority of them have nursing diplomas, all nursing texts are written in English, and they are studying Arabic, . Additionally, the majority of them did not receive previous education on venous thrombosis treatment, which is another reason for their lack of expertise.

These results supported by (13)*" Effect of An Educational Program on Critical Care Nurses Performance regarding Emergency Care for Patients with Pulmonary Embolism".* the study demonstrated the nurses' knowledge prior to the program's deployment, generally poor.

Also these results agree with (14) showed that following an organized education program, there was a significant rise in the post-test knowledge scores. One of the best ways to increase nurses' knowledge regarding deep vein thrombosis prevention is through an organized teaching program.

The study is in agreement with the study done by (15) who claimed that the program improves nurses' knowledge in the intensive care unit and showed a difference between the program's pretest and posttest.

3.3. Discussion of the association between the knowledge with Demographic Variables of the Study

Results shows that weak relationships are proved with (SDCv. and SRv.), since no significant relationships are accounted at P>0.05, and according to that.

Table(3): Relationships (Analysis of Covariance-ANCOVA) for Compliance Regarding to Life Style Modification in the study group and SDCv.

Group	Source of Variations S.O.V.	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S. (*)
Study Group	Intercept	46506.0	1	46506	1422.9	0.000	HS
	Gender	63.857	1	63.857	1.954	0.190	NS
	Age Groups	53.011	3	17.67	0.541	0.664	NS
	Education Level	12.963	3	4.321	0.132	0.939	NS
	Occupation	163.02	2	81.51	2.494	0.128	NS
	Services yrs.	22.512	2	11.256	0.344	0.716	NS
	Services yrs. at the specific felid	9.641	2	4.82	0.147	0.865	NS

Error	359.5	11	32.683	R-Square=0.491
Total	156063.1	25		

(*) HS: Highly Sig. at P<0.01; Non Sig. at P>0.05; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

A The current study found no statistically significant correlation between a nurse's knowledge with venous thrombosis and demographic variables such age, gender, years of experience as a nurse, level of education attained, and years working in surgical or critical care units.

These results agree with (10) *" Critical Care Nurses' Knowledge about Pulmonary embolism in Respiratory Care Unit in Baghdad Teaching Hospitals*". which, in contrast to the current study, showed that there is no significant relationship between age, gender, years of experience, and nurses' knowledge, with the exception of the degree of education, where there is.

Also, these results agree with *(Najlaa et al.,2021)* " *Effectiveness of Education Program on Nurses' Knowledge and Practice toward Preventive Measures of Pulmonary Embolism in AL Nasiriyah City"* show that the knowledge of nurses on preventive measures of pulmonary embolism and demographic characteristics (age, gender, years of service in nursing, educational level, and years of duty in critical or surgical units) did not vary statistically significantly.

Results showed that the overall main domains recorded high significant differences ($P < .001$) toward the effectiveness of a proposed program through raising the information grades of studied respondents at the post-period, and that could be used to confirm the success of applying a proposed program.

In addition to that, and rather than testing significant improvements that occurred for repeated measurement statistics in the study group, all the main domains studied were illustrated as highly and meaningfully changeable with high levels of assessments along the pre- and post-period.

4. CONCLUSION

Nurses working in the surgical department, emergency units, and critical care units had poor knowledge regarding venous thrombosis because their education level was low and they had not attended training courses.

CONSENT

All authors declare that 'written informed consent was obtained from the nurses for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal."

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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DEFINITIONS, ACRONYMS, ABBREVIATIONS

List of Abbreviations	
Symbols	Meaning
ANCOVA	Analysis of Covariance
VTE	Venous thromboembolism
DVT	Deep Vein Thrombosis
PE	pulmonary embolism
CCU	Coronary Care Unit
CDC	Centers for Disease Control and Prevention
ICU	Intensive Care Unit

K-S	Kolmogorov-Smirnov
M.S	Mean of Score
MCQ	Multiple Choice Questions
PGMS	Percentile Grand/or Global Mean of Score
PPSD	Percentile Pooled Standard Deviation
QI	Quality Improvement
RCU	Respiratory Care Unit
RS	Relative Sufficiency
SD	Standard Deviation
SDCv.	Socio-Demographical Characteristics Variables
SPSS	Statistical Package for the Social Sciences
e.g.,	Exempli Gratia (For Example)
etc.	Et Cetera (And So More)
C.S.	Comparison Significant
Sig. or S	Significance
G	Good
H.S	High Significant
M	Moderate
N. S	Non-Significant
P	Poor
df.	Degree Of Freedom
n	Number Of Samples
f.	Frequency
$\chi 2$	Chi-square
≤	Less than or equal
%	Percentage
<	Less than

≥	More than or equal