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## Assessment Of Nurses' Performance Regarding Caring Of Patients On Anticoagulant Therapy In Port-Said Hospitals

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### ABSTRACT

**Background:** anticoagulants are high-risk drugs so it is very important to monitor the patients receiving anti-coagulant therapy. **Aim:** assess the nurses' performance regarding caring of patients on anticoagulant therapy in Port Said Hospitals. **Subjects and Method:** a descriptive research design was used A convenient sample of 130 nurses at three hospitals affiliated to Ministry of Health (Port-Said General Hospital, Port-Fouad General Hospital and El-Zohor Central Hospital) at Port-Said governerate were recruited. **Tools:** data were collected using three tools, nurses' knowledge assessment questionnaire, nurses' attitude scale and observational checklist for practice. **Results:** the result of study indicated that **66.9%** of studied nurses had got unsatisfactory knowledge and **69.2%** of them had got unsatisfactory practice while **60.8%** of them had positive attitude regarding anticoagulant therapy. **Conclusion:** the study concluded that more than two thirds of the studied nurses had unsatisfactory knowledge, practice and less two thirds of them had positive attitude regarding caring of patients on anticoagulant therapy and there were a highly statistically significant positive correlation between total nurses' knowledge, practice scores and their total attitude scores .In addition, there is no statistically significant relations between total score of nurses' knowledge, practice, and attitude and all items of personal characteristics and work related data. **Recommendations:** There are obvious needs for conducting educational and training programs to improve nurses' knowledge and practice regarding the care of patients undergoing anticoagulant therapy.

**Key Words:** Anticoagulant Therapy, Nurses' Performance.

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## INTRODUCTION

Thromboembolic events commonly occur in critically ill patients, although they don't consistently present with specific signs and symptoms, they are associated with high morbidity and mortality (**Flato et al., 2012**). Anticoagulants are used to prevent and treat a wide range of thromboembolic diseases. Anticoagulant agents are the mainstay of the prevention and treatment of venous thromboembolism (VTE), and they are also used for stroke prevention in atrial fibrillation, acute coronary syndrome (ACS), and anticoagulation of prosthetic valves (**Barnes, 2015**).

The use of anticoagulants is a decision based upon the risks and benefits of anticoagulation. The biggest risk of anticoagulation therapy is the increased risk of bleeding. Complication of anticoagulant is bleeding dividing into minor complications of bleeding as excessive bruising, gum bleeding, minor nosebleeds and prolonged bleeding from minor wounds and serious complications of bleeding as compartment syndrome, gastrointestinal bleeding, severe nosebleeds, post-operative bleeding, and intracranial hemorrhage (**Staresinic et al., 2006**)

Thus, anticoagulant therapy requires constant vigilance and careful monitoring. Nurses must understand and use the anticoagulant administration practices particular to their practice and place of employment. These drugs require close attention to administer safely and effectively as medication errors and adverse effects are uncommon with use of the anticoagulants (**Piazza et al., 2011**). Anticoagulant as a drug which has a high risk of causing harm if it is used incorrectly, and includes warfarin in its list of drugs which have a heightened risk of causing significant patient harm when used in error (**Shaw et al., 2015**)

Nurses closely observe any indications of bleeding including oozing at intravenous injection sites, epistaxis ,bleeding gums ,hematuria ,monitor clotting studies as ordered the partial thromboplastin time (PTT) if the patient is receiving heparine , prothrombin time (PT) and international normalization ratio (INR) if the patient is receiving warfarin, report values outside the desired range to the doctor before the next schedule anticoagulant dose ( **Levy, 2014**)

### **Significance of the study**

The Joint Commission identified anticoagulants as one of the top five drugs associated with patient safety issues in the United States. Major bleeding occurs in >2% of the patients using oral anticoagulant therapy. The oral anticoagulant therapy associated cerebral hemorrhage can recur in 22% of patients after restarting oral anticoagulant therapy and in patients over age 80, risk factors for major bleeding include insufficient

patient education and polypharmacy (**Engelke, 2012**). Less than 50% of patients on oral anticoagulant therapy are able to maintain the stability of their target International Normalization Ratio (**Kirsch, 2011**).

### **AIM OF THE STUDY:**

The aim of this study is to assess nurses' performance regarding caring of patients on anticoagulant therapy in Port-Said hospitals.

### **SUBJECTS AND METHOD:**

#### **A- Research Design**

A descriptive research design was utilized for the current study.

#### **B- Setting**

This study is conducted at three hospitals affiliated to the ministry of health (Port- Said General Hospital, Port-Fouad General Hospital, and El –Zohor Central Hospital). In Port Said from each hospital, the following units are included: Intensive care unit, cardiac care unit, Dialysis unit, and Medical unit)

#### **C- Subjects**

A convenient sample was used, study sample consisted of all available nurses working in the time of data collection. Data was collected in six months at previously mentioned settings from nurses who were providing direct care to patients on anticoagulants drug administration. The number of nurses is one hundred and thirty (130) nurses Port-Said General Hospital (56 nurses), Port-Fouad General Hospital (34 nurses), El –Zohor Central Hospital (40 nurses)

Data was collected using three tools:-

#### **Tool I: Nurses' knowledge assessment questionnaire:**

It was adapted from **Ferguson et al., (2016)** and **(El-Pholy, (1984)** to assess nurses' knowledge regarding caring of patients on anticoagulant therapy, it was consisted of three parts; ***The first part: Socio-demographic characteristics:*** It concerned with socio-demographic **characteristics** of studied nurses and consisted of 7 closed– ended questions in the form of multiple choices and complete questions. ***The second part: Work related data:*** It concerned with **work related data** of studied nurses and consisted

of 5 closed –ended questions in the form of multiple choices questions. **The third part: Nurses' Knowledge** assessment questionnaire: It included (22) closed ended questions.

**Scoring system of Nurses' Knowledge assessment questionnaire:-**

Scoring system of knowledge of the nurses is calculated as follow:-

- The studied nurses' answers is compared with model key answer, where one (1) scores are given for correct answer and (zero) for incorrect answer. The scores of the items are summed-up and the total divided by the number of the items, giving a mean score for the part.

-The total number of questions was from (0 to 22). A total score of (22) marks is given for all questions.

-Theses scores are converted into a percent score.

**Tool II: Nurses' observational Checklist:**

\_\_\_This tool was adapted from **Potter, (2013) & Vera, (2012) and Ellis et al., (1996)** to assess nurses' practice regarding caring of patients on anticoagulant therapy. Certain modifications have been done by the researcher in the adapted checklists to suit the nature of the study

This tool consists of the following subtitle related to:-

Assess the patient before medication administration includes (5) items

Nursing role during preparation of equipment and patients for administration for therapy includes (7) items

Oral anticoagulant drug administration as(assist the patient to suitable position upright or lateral (side lying) position (for oral route), do not touch tablets with hands and remain with the patient until each medication is swallowing ) includes (3) items

• Subcutaneous anticoagulant drug administration includes (16) items as :-

- Keep privacy to patient (for injection route)
- Don gloves.
- The patients lie down and prepare the patient for the injection into the abdomen. Select an area on the right or left side of your abdomen
- Keep your shots 1 inch (2.5 centimeters) away from scars and 2 inches (5 centimeters) away from your navel
- Gently cleanse (sponge) the site with an alcohol pad
- Do not put a shot in a spot that is bruised, swollen, or tender

- Gently pinch or fold the abdominal skin and tissue with your thumb and forefinger about 3 inches apart to form a thick fold
  - Ask the patient to relax, and take a deep breath. As the patient inhales, insert the needle at a right angle (90 degree angle) into the fold of the skin
  - Don't move the needle once inserted as this can cause bruising or bleeding
  - After all the medicine is in, leave the needle in for 5 seconds
  - Pull the needle out at the same angle it went in
  - Remove the needle and quickly press the alcohol pad or your finger onto the site and do not rub the skin
- Documentation of the following criteria as right patient, right medication, right dosage, right route, right time, right history and assessment drug approach, right to refuse, right drug-drug interaction and evaluation right education and information includes (10) items

#### **Scoring system of observational checklist:**

Scoring system of observational checklist tool of the studied nurses was calculated as the following: The total scores of nurse's practice are from (**zero**) marks to **41** items for all the nursing procedures regarding anticoagulant drug administration.

The nurses' practice is classified into done and not done, where done take (1) score and not done take (zero) score. According to the nurses' actual practice, their level of practice is categorized as the following according to (**Eldosoky, 2004 and Kasem, 2016**).

- Satisfactory level ( $\geq 75\%$ )
- Unsatisfactory level ( $< 75\%$ ).

#### **Tool III: Nurses' Attitude scale:**

This tool was developed by the researcher based on reviewing of recent related literature; the tool consisted of (16) attitudinal statements regarding caring of patients on anticoagulants therapy. The attitudinal items are both positively and negatively worded to force respondents to read each statement and respond appropriately. They are measured on five-point likert scale ranging from (zero) to (four) as (zero) for strongly disagree, one (1) for disagree, two (2) score for neutral, three (3) for agree, and four (4) score for

strongly agree, for the positive statements number (1,3,5,10,13,14,15,16) and the negative statements number (2,4,6,7,8,9,11,12) for the 16 statements, total scores that can be achieved ranged from 0 to 64 scores are considered as negative attitudes (< 75%) and scores for positive attitudes ( $\geq 75\%$ ). (Kasem, 2016)

### **Content validity of the tools:-**

For the tools of nurses' knowledge, attitude scale and observational checklist for practice, content validity is ascertained by 9 experts in the field of medical surgical nursing and medicine (internal medicine and physicians) and necessary modifications are done according to the experts' opinions.

### **Reliability of the tools:**

Cronbach's alpha coefficient is used to assess the internal consistency of tools, knowledge questionnaire and its value was (81.6%), observational checklist the value for practice was (85.2%) the value of attitude was (75.6%)

## **RESULTS:**

**Table (1):** Reveals that all studied nurses are females and **49.2%** of them are in age group of 20 to less than 30 years old while **0.8%** of them are in age group more than 50 years old and **50%** of the nurses graduated from secondary school diploma of nursing while **20%** of them had bachelor's degree. Regarding marital status married nurse constitute **74.6%** of study nurses.

**Table (2):** shows that **52.3%** of the studied nurses have more than 10 years of experience while **7.7%** of them have less than one year, and **81.5%** of them have more than 2 years experience in the field of anticoagulant therapy and the majority **91.5%** of nurses were not attending programs or courses in the field of anticoagulant drugs, Also, **83.1%** of nurses had not any guidelines in their hospital about anticoagulant therapy, and **71.5%** had source of information about anticoagulant therapy from experience

**Table (3):** illustrates that **66.9%** of the studied nurses have got unsatisfactory total knowledge scores regarding anticoagulant therapy. While, shows that **69.2%** of studied nurses have got unsatisfactory total scores of practice regarding anticoagulant therapy administration. And, represent that **60.8%** of studied nurses had positive attitude scores regarding anticoagulant therapy.

**Table (4):** proves that there is a highly statistically significant positive correlation between nurses' total knowledge scores, their total practice and attitude scores with  $p \leq 0.000$ .

**Table (1):** Socio -demographic characteristics of the studied nurses (n=130).

<b>Demographic characteristics</b>	<b>studied nurses</b>	
	<b>N=130</b>	
	<b>No.</b>	<b>%</b>
<b>Age(years)</b>		
20-<30	<b>64</b>	<b>49.2</b>
30-<40	<b>58</b>	<b>44.6</b>
40-<50	<b>7</b>	<b>5.4</b>
≥ 50	<b>1</b>	<b>0.8</b>
<b>Mean± SD</b>	<b>.58 ± .633</b>	
<b>Educational level</b>		
Secondary School Diploma of Nursing	<b>65</b>	<b>50.0</b>
Technical Institute /Nursing	<b>15</b>	<b>11.5</b>
Health Technical Institute	<b>23</b>	<b>17.7</b>
Bachelor's Degree	<b>26</b>	<b>20.0</b>
Master Degree	<b>1</b>	<b>0.8</b>
<b>Marital Status</b>		
Married	<b>97</b>	<b>74.6</b>
Divorced	<b>1</b>	<b>0.8</b>
Single	<b>32</b>	<b>24.6</b>

**Table (2):** Work related data of the studied nurses (n=130).

<b>Work Related Data</b>	<b>N=130</b>	
	<b>No.</b>	<b>%</b>
<b>Duration of Nursing Experience (years)</b>		
<1	<b>10</b>	<b>7.7</b>
1-<5	<b>24</b>	<b>18.5</b>
5-<10	<b>28</b>	<b>21.5</b>
≥ 10	<b>68</b>	<b>52.3</b>
<b>Mean± SD</b>	<b>2.18± .994</b>	
<b>Duration of experience in the field of Anticoagulant therapy</b>		
<1	<b>10</b>	<b>7.7</b>
1<2	<b>14</b>	<b>10.8</b>
≥ 2	<b>106</b>	<b>81.5</b>
<b>Mean± SD</b>	<b>1.74± .591</b>	
<b>Attending training programs /courses in the field of anticoagulant therapy</b>		
No	<b>119</b>	<b>91.5</b>
Yes	<b>11</b>	<b>8.5</b>
<b>Having guidelines or posters in their hospital about anticoagulant therapy</b>		
No	<b>108</b>	<b>83.1</b>
Yes	<b>22</b>	<b>16.9</b>
<b>Source of information about anticoagulant therapy</b>		
Study	<b>32</b>	<b>24.7</b>
Internet	<b>3</b>	<b>2.3</b>
Magazines	<b>2</b>	<b>1.5</b>
Experience	<b>93</b>	<b>71.5</b>



**Table (3):** Total nurses' scores of knowledge, practice and attitude regarding anticoagulant therapy

Variables	satisfactory	unsatisfactory
Total Knowledge	33.1	66.9%
Total Practice	30.8	69.2%
	<b>Positive</b>	<b>Negative</b>
Total Attitude	60.8%	39.2

**Table (4):** Correlations between total nurses' scores of knowledge, practice, and attitude regarding anticoagulant therapy (n=130)

Variables	Total Knowledge			Total Practice			Total Attitude		
	R	Sig. (2-tailed)	R <sup>2</sup>	R	Sig. (2-tailed)	R <sup>2</sup>	R	Sig. (2-tailed)	R <sup>2</sup>
Total Knowledge	1			.885**	.000	0.783	.817**	.000	0.667
Total Attitude	.817**	.000	0.667	.824**	.000	0.679	1		
Total Practice	.885**	.000	0.783	1			.824**	.000	0.679

R : Spearman correlation coefficient  
0.01level (2-tailed)

R<sup>2</sup> : determination coefficient

\*\* . Correlation is significant at the

## DISCUSSION:-

Regarding to demographic characteristics of studied nurses, the results revealed that, as regard age, less than half of the nurses were between 20 less to 30 years. As regards educational level, half of studied nurses were graduated from secondary school diploma of nursing .In relation to years of experience, nearly half of studied nurses had more than 10 years of experience. As regard duration of experience in the field of anticoagulants, most of studied nurses had more than 2 years of experience. In relation source of information about this therapy, most of studied nurses had information about anticoagulant therapy from experience. Moreover, the majority of studied nurses had not received training programs or courses in the field of anticoagulant therapy.

These results were in identical line with **Al-Arifi et al., (2016)** who stated that the majority of the nurses under in their study ranged from 20 to 30 years, it might be related to be still in the fitness and power period. On the same line, these findings are supported by **Lexshimi et al. (2009)**, a study performed to assess nurses' Knowledge, attitude and

practice in administering oral medication at medical ward reporting and illuminated that the highest percentage of nurses had only diploma qualification.

Regarding years of experience, these results were in agreement with the study done by **Mohammed and Taha, (2014)**, a study entitled knowledge and practice regarding administration of total parenteral nutrition at critical care areas in Egypt and illuminated that less than half of studied nurses had 1-5 years of experience. As regard duration of experience in the field of anticoagulant drugs, the results were in contrast with **Ferguson et al. (2016)**, who mentioned that less than one third of his studied nurses had experience in the field of anticoagulant drugs. In relation to attending training programs or courses in the field of anticoagulant drugs, this finding goes in the same way with **Tangiisuran et al., (2017)**, who stated that nearly of three-quarters of his study didn't attend training programs or courses in the field of anticoagulant drugs.

Concerning total scores of nurses' knowledge regarding caring of patients on anticoagulant therapy, the finding revealed that there were marked unsatisfactory level in their total knowledge. This result goes in the same line with **Oterhals et al., (2014)**, who mentioned that nurses have lack of knowledge on aspects of anticoagulant therapy among health care professionals, thus might lead to inappropriate patient counseling, and further to adverse medical outcomes. Along, this studying finding is in similar line with **Ndosi and Newell, (2009)**, a study performed to assess nurses' knowledge of pharmacology behind drugs they common administer reporting that majority of nurses in his study had unsatisfactory level of knowledge regarding some of these items as anticoagulant diet, and anticoagulant medication interactions. Medication administrations are a daily basic activity in nursing practice and nurses need to have sufficient knowledge, attitude and competency to perform these tasks **Lexshimi et al.,(2009)**.

The reasons for lack of nurses' knowledge regarding to the care of patients undergoing anticoagulant therapy from the researchers' point of view" might be related to lack of continuing educational programs or sessions about this therapeutic intervention, supervision, continuous evaluation of nurses' practice, and cooperation between multidisciplinary health care team members (nurses - physicians). The researcher' point of views is supported by **Kasem, (2016) and Lexshimi et al., (2009)**, who mentioned that nurses need to improve their knowledge especially on the different routes of medication administration as responsibility for correct administration of medication lies in their

hands. Therefore, for nurses to provide high quality care and function effectively, they must have an adequate knowledge that they have actually used it in practice.

Regarding the nurses' practice regarding caring of patients on anticoagulant therapy, the present study findings revealed that less than three-quarter of nurses had got unsatisfactory total scores. This study is consistent with **EL-Azem, (2013)**, a study conducted to assess nurses' performance regarding infection control measures with central venous catheter reported that the majority of nurses in his study had got unsatisfactory practice. This might be related to the fact that gap in nursing practice is increased due to poor understanding, ignorance, lack of time, simply or lack of training and inadequacy of adherence to evidence-based guidelines, so there is a various need for anticoagulant therapy policy and current practical guidelines.

Concerning total scores of nurses' attitude regarding caring of patients on anticoagulant therapy, this study revealed that more than half of nurses under study had positive attitude. This study is consistent with **Cross et al., (2017)**, a study performed on nurses' attitudes toward the single checking of medications .world views on evidence-based nursing reported that nurses had a positive attitude toward decision making in anticoagulation. Also, this study is in agreement with **Ockhuis and Kyriacos, (2015)**, who mentioned that the most of nurses had a positive attitude regarding the safety of unfractionated heparin for chronic haemodialysis.

In the light of the present study findings, there were a highly statistically significant positive correlation between total scores of nurses' knowledge, attitude and practice regarding anticoagulant therapy. These findings might be related to deficiencies in nurses' knowledge, practice and attitude regarding caring in patients on anticoagulant therapy which can adversely affect patient safety and education. Training is considered one way of preventing adverse nursing outcomes. So, to provide high quality care, nurses must have an adequate knowledge that they have actually used in practice. These findings is in accordance with **Asliurst (2016) and Jeannes and Taylor, (1992)**, who stated that low knowledge among nurses can lead to medication errors as safe medication administration is based on knowledge, attitude and sound clinical judgment. The nurses must improve their knowledge about anticoagulant therapy. In the same line **sayed et al., (2009)**, who mentioned that positive correlation was found between nurses' knowledge and practice scores about micro vascular free tissue transfer surgeries.

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**CONCLUSION:**

Based on the findings of the current study, more than two thirds of the studied nurses had got unsatisfactory knowledge and practice, and less than two thirds of them having positive attitude regarding anticoagulant therapy. Also, there were a highly statistically significant positive correlation between total nurses' knowledge, practice scores and their total attitude scores. Also, there are not statistically significant relations between total score of nurses' knowledge, practice, and attitude and all items of demographic characteristics and work related data.

**RECOMMENDATIONS:**

In the light of the study results, the following recommendations are proposed: - Periodic educational program for nurses is mandatory, for the purpose of raising and updating the knowledge of nurses regarding anticoagulant therapy. Provide manual handbooks containing all necessary informations (knowledge and practice) about procedures related to anticoagulant therapy. Ongoing monitoring of staff nurses' practice by head and charge nurses when caring for patients undergoing anticoagulant therapy and provision of guidance to correct improper practices. Hospital directors should be encouraged and help nurses to attend national and international conferences, workshops and training courses affiliated to Ministry of Health related to nursing care for patients undergoing anticoagulant therapy. Nurses must be knowledgeable of the specific precautions before anticoagulants administration as evaluate coagulation tests and measure blood pressure to avoid complications. Further research is proposed to develop, implement an educational program for nurses' at Port -Said General Hospital regarding nursing care for patients undergoing anticoagulant therapy.

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### تقييم أداء الممرضين تجاه الأدوية المضادة للتجلط في مستشفيات بورسعيد

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### الخلاصة

الأدوية المضادة للتجلط هي واحدة من أكثر الأدوية استخدامًا خلال الممارسات التمريضية اليومية. ولذلك تعتبر هذه الأدوية من الأدوية عالية الخطورة لذلك فمن المهم جدا مراقبة المرضى الذين يتلقون العلاج بهذه الأدوية. تهدف هذه الدراسة الي تقييم أداء الممرضين تجاه الادوية المضادة للتجلط وأجريت هذه الدراسة في المستشفيات الحكومية بمدينة بورسعيد التابعة لوزارة الصحة (مستشفى بورفؤاد العام، مستشفى بورسعيد العام ومستشفى الزهور المركزي). وقد اشتملت عينة الدراسة علي 130 ممرضة وقد جمعت تلك المعلومات عن طريق ثلاث ادوات (استمارة استبيان لقياس المعلومات، مقياس لتقييم اتجاهات الممرضين، قائم ملاحظة الممرضين تجاه الأدوية المضادة للتجلط). وقد أظهرت النتائج أن الممرضين ليس لديهم المعلومات والمهارات الكافية للتعامل مع المرضى الذين يعالجون بالأدوية المضادة للتجلط حيث أن معظم الممرضين عندهم مستوى غير مُرضي لمعلوماتهم عن الادوية وايضًا لممارستهم الخاصة بالرعاية التمريضية للمرضي المعالجين بالأدوية المضادة للتجلط. لذلك اوصت الدراسة بعمل وتنفيذ برنامج تعليمي في المستشفيات العامة ببورسعيد لتحسين معلومات وممارسات الممرضين ومعرفة العوامل التي تؤثر علي أداء الممرضين.

**الكلمات المرشدة: الأدوية المضادة للتجلط ، أداء الممرضين**