Assessing Knowledge and Awareness of Thromboprophylaxis before surgical intervention, among senior year medical students at Syrian private university (SPU)- a cross sectional study.

Zahraa Aljasem (zahraaaljasem9@fmail.com)
Faculty of Medicine, Syrian Private University, Damascus, Syria.

Najwa Alraqmani
Department of Surgery Division of Anesthesiology, Faculty of Medicine, Syrian Private University, Damascus, Syria.

Research Article

Keywords: Awareness, Thromboprophylaxis

Posted Date: February 17th, 2023

DOI: https://doi.org/10.21203/rs.3.rs-2599316/v1

License: ☝️ This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License
Abstract

Background

Venous thromboembolism (VTE) is a major public health challenge globally due to its high morbidity and mortality. The condition is often asymptomatic and underdiagnosed due to lack of awareness of VTE risk factors and thromboprophylaxis.

Methods

This cross-sectional study was conducted in April 2022 using an appropriate sampling pattern among students of the Faculty of Medicine at the Syrian Private University. A self-administered questionnaire was used. Ethical approval was obtained from the Institutional Review Board (IRB), Faculty of Medicine, Syrian Private University.

Results

The sample in our study consisted of 140 students, where awareness was surveyed about the use of venous thrombosis prevention before surgery. be without clinical symptoms 94 students answered “yes” (67%), the largest number of students knew that prolonged immobilization “predisposes to deep venous thrombosis in hospitalized patients” by 94%, and the largest number of students answered that obesity may lead to venous thrombosis Deep venous thrombosis with a percentage of 94%, 105 students answered yes when asked whether intravenous catheters could predispose to deep venous thrombosis by 75%, and when asked whether venous thrombosis was a sudden cause of death in hospitalized patients, 86 students answered yes with a percentage of 61%, and when asked as to whether prolonged hospitalization may increase predisposition to developing deep vein thrombosis by 8-fold, the largest number of students, 106, answered yes by 76%.

Conclusion

The results of our study conclude to an acceptable degree of awareness among medical students in the Syrian Private University regarding thromboprophylaxis.

Introduction:

Deep vein thrombosis (DVT), pulmonary embolism (PE), and other types of venous thromboembolism (VTE) cause significant morbidity and mortality worldwide (1).

DVT is a blood clot that develops in the big veins of the pelvis, legs, or other parts of the body. Since it frequently causes long-term complications, notably PE, and is usually asymptomatic, it is frequently
referred to as a "silent killer." (2).

Numerous studies have demonstrated the advantages of pharmacist-induced anticoagulation services to lower VTE and bleeding problems while lowering hospital and healthcare expenses (3).

Thromboprophylaxis aims to lower the morbidity and death brought on by VTE. This involves the application of mechanical or pharmaceutical substances. Gradual compression stockings (GCS), intermittent pneumatic compression (IPC), and venous foot pumps are examples of mechanical devices, whereas unfractionated heparin, low molecular weight heparin (LMWH), and warfarin are the common pharmaceutical medications (4).

Despite the availability of guidelines for effective thromboprophylaxis practice, several research observations have indicated that VTE prophylaxis is still inadequate. Furthermore, in cases where thromboprophylaxis is started, the recommendations are not always followed (5).

Due to its important morbidity and mortality rates, it is crucial to train our future doctors to understand and effectively manage VTE. Therefore, the purpose of this study is to evaluate medical students' knowledge of VTE risk factors and thromboprophylaxis procedures.

**Methods:**

**Study design and participants:**

This cross-sectional study was conducted using an appropriate sampling pattern among medical students at the Syrian Private University. Students were asked to participate voluntarily and written informed consent was obtained from all participants. They were informed that all their responses were recorded anonymously, that it was not mandatory to respond to all questions, and that they were allowed to opt out of the survey at any time. The inclusion criteria included medical students studying at a Syrian Private University, and the objectives of the study were explained to the students in a written form attached to the questionnaire.

**Sampling:**

The sample size of 140 was calculated for a population of 3000 students, using the sample size calculator. Ethical approval was obtained from the Institutional Review Board (IRB), Faculty of Medicine, Syrian Private University.

**Questioner:**

A self-administered questionnaire in Arabic distributed to students of the Syrian Private University was used regarding awareness about the prevention of venous thrombosis. Reliability was evaluated by Cronbach's alpha test at 0.761.
The questionnaire includes questions about awareness about the prevention of venous thrombosis, the number of questions reached 18 questions about predisposing factors for the occurrence of thrombosis, clinical manifestations, and knowledge of clinical guidelines.

**Statistical Analysis:**

Participants' data were tabulated and entered into the computer, and then the SPSS statistical package for the social sciences version (26) was used to analyze this data, and the descriptive statistical method was relied upon in presenting the results.

**Results:**

140 students made up the sample in our study and asked about their knowledge of the usage of venous thrombosis prevention before surgery.

When asked whether deep venous thrombosis in the upper extremities was a possibility, 78 students responded affirmatively (56%), 26 students disagreed (19%), and the remaining 36 students had no idea (26%). Venous thrombosis may be more likely in people who are "more than 40 years" old. The majority of students—123 students—responded affirmatively (88%) whereas only 5 students disagreed (4%), and 12 students—9%—did not know the answer to the question.

94 students responded affirmatively to the question of whether venous thrombosis can occur without showing any outward signs of the condition (67%), compared to 26 students who gave negative responses (19% each), and 20 students who gave unanswered responses (14% each).

In regard to clinical symptoms, twenty students did not know whether the clinical symptoms were specific or not (14%), whereas 79 students responded that the clinical symptoms are specific to deep venous thrombosis (56%), while 41 students responded that the clinical symptoms are not specific (29%).

Only one student responded that prolonged immobilization does not predispose to deep vein thrombosis and 6% did not know. The largest group of students, 131 students, knew that prolonged "immobilization" predisposes to deep vein thrombosis in hospitalized patients by 94%.

Tumors, HIV infection, pelvic surgery, sepsis, and the use of oral contraceptives are among the diseases and conditions that can cause deep vein thrombosis. When asked about these factors, 113, 80, and 132 students responded affirmatively, with percentages of 81%, 57%, and 94%, respectively. The number of students who said that sepsis and the use of oral contraceptives can cause DVT was equal to 112 students, or 80.

While 5, 14, 1, 7, and 13 students responded without a predisposition to these factors to cause deep vein thrombosis by 4%, 10%, 1%, 5%, and 9%, respectively, while 22, 46, 7, 21, and 15 were Students who did not know whether these factors predisposed to deep vein thrombosis or not were 16%, 33%, 5%, 15%, and 11%, respectively.
Only nine students (or 6% of the sample) did not know if obesity causes thrombosis or not, while the majority of students (94%) stated that it may.

When asked if a prior case of deep vein thrombosis was a risk factor for the current illness, 120 students responded affirmatively (86%), compared to just 7 who responded negatively (5%), and 13 who responded "do not know" (9%).

When asked if intravenous catheters were a risk factor for deep vein thrombosis, 105 students responded affirmatively (75% of them), 17 students responded negatively (12%), and 18 students did not know the answer (13% of them).

When asked if venous thrombosis was a sudden cause of death for hospitalized patients, 86 students correctly identified the condition at a rate of 61%, while 23 students incorrectly identified the condition at a rate of 16%, and the remaining students correctly identified the condition at a rate of 22%. When asked if their risk of deep vein thrombosis will reduce after leaving the hospital, 58 students responded "yes" with a percentage of 41%, whereas 32 other students responded "no" or "I don't know" with a percentage of 36% and 23%, respectively.

Deep vein thrombosis is one of the fatal consequences that affect hospital patients, according to the majority of the students (81%), while only six students gave a negative response (4%), and the remaining 15% of the students indicated that they were uninformed of the situation.

The majority of students—106—answered affirmatively, with a proportion of 76%, when asked if a lengthy hospital stay may increase the risk of deep vein thrombosis by eight times. The remaining students—24%—did not aware that this risk existed. Out of the 84 students, 60% were aware of the clinical recommendations for the use of antithrombotic, compared to 40% of the other 56 students.

The majority of students who were asked about the medications used to prevent deep vein thrombosis said that heparin was used for this purpose by 19% of the students, whereas 19 students said that aspirin was the medication used by 19% of the students. Aspirin and clopidogrel were the two medications utilized to prevent venous thrombosis by 13% and 14%, respectively. Additionally, 14 students said that warfarin is a medication used for preventive that is 10%. While 13 students said that 9% of the population uses warfarin and heparin for prophylaxis. In addition, 16 students (11% of the group) were not aware of the drugs used to prevent thrombosis.

**Discussion:**

Venous thromboembolism (VTE), which includes deep venous thrombosis (DVT) and pulmonary embolism (PE), is a major global public health challenge with significant morbidity and mortality (6).

In the absence of clinical guidelines and protocol on thromboembolic risk assessment and the use of anti-thromboembolic prophylaxis; Identifying hospitalized patients at risk for VTE who may require VTE prophylaxis can be a major challenge for clinicians. This study assesses the level of awareness of risk
factors for venous thrombosis and blood clot prevention practices among students of the Syrian Private University.

This study found that 81% of students at the Syrian Private University were aware of the risk factors for VTE. This result is congruent with a study of general surgeons, where the majority (97%) of participants were aware of and had encountered a VTE during practice, whereas 49% had lost their lives to a pulmonary embolism (7).

In a different study, the researchers discovered that Southampton University Hospital's medical personnel, including physicians, had an excellent overall level of awareness of VTE risk and blood clot prevention (8). However, this finding contradicts the study by Majluf Cruz et al. Where the authors report a low level of awareness of VTE risk factors among Mexican internists (9).

Studies have shown that the practice of preventing thromboembolism in hospitalized patients is suboptimal globally. The awareness about medications used to prevent blood clots reported in this study appears to be in contrast to that found in other studies. However, close observation of clinicians' responses may cast some doubt on this relatively high rate of VTE prevention practices (10, 11).

The largest percentage of students (80%) answered that sepsis may predispose to the occurrence of deep venous thrombosis, and this is proven by international studies, which indicate that sepsis, especially when combined with hypotension and shock, is a risk factor for VTE, including DVT of the extremities Upper and lower pulmonary embolism (PE) (12–15).

The underlying cause of VTE in sepsis is still not fully understood but is thought to be the result of multiple factors, including immobility, activation of thrombotic pathways, disseminated intravascular coagulation, and venous stasis (12–15).

Most of the students in our study had indicated that obesity is a predisposing factor for the occurrence of deep venous thrombosis, and this was indicated by international studies, which indicated that obesity can act as a risk factor for some diseases, but it can also affect pre-existing diseases or lead to a range of comorbid conditions, including coronary artery disease (CAD), type 2 diabetes, high blood pressure, stroke, heart failure, obstructive sleep apnea syndrome, gastrointestinal disorders, depression, malignancies, and Venous thrombosis (16, 17).

57% of the students were aware that HIV is a predisposing factor for the occurrence of deep venous thrombosis, and many international studies have indicated that AIDS is associated with an increased risk of developing deep venous thrombosis, where HIV infection was recognized as a pre-thrombotic state. This link has now been proven by a large number of studies. Indeed, several epidemiological studies have reported an incidence of VTE among HIV-infected patients with a frequency ranging from 0.19 to 7.63% per year (18, 19).

In addition, the largest number of students, 106 students, knew that prolonged hospitalization leads to an increased susceptibility to deep vein thrombosis. According to the American College of Chest Physicians
(ACCP) 2012 standards, approximately 7.3 million hospitalized patients were suffering from acute illness at risk of venous thromboembolism (VTE) in the USA in 2014 (20). Many patients who are hospitalized for acute medical illnesses are at increased risk of VTE events while in the hospital and for a long time after discharge (21, 22).

The largest percentage of students indicated that tumors predisposed to deep venous thrombosis, where thrombotic complications in cancer can vary from arterial or venous thromboembolism to disseminated intravascular coagulation (23, 24). Despite the known association between cancer and thromboembolic disease, the mechanisms that promote thromboembolic events in patients with cancer are not clear and appear to be multifaceted (25).

**Study's Limitations:**

The sample was homogeneous and balanced in terms of gender, age, and the university in which the student's study. The students were subjected to logical questionnaires that discuss important aspects of the pathological condition. This cross-sectional study cannot determine the reasons underlying the findings of this research, and some of the findings may be subject to recall bias, given the nature of the study.

**Conclusion:**

According to the findings of our study, medical students at the Syrian Private University have a decent level of knowledge about thrombosis prevention. We advise conducting a future study with medical students from various universities in Syria to examine the level of venous thrombosis awareness among them and to emphasize the significance of venous thrombosis awareness and knowledge among students of medical branches due to the risk this complication poses to the patient's life. For the purpose of raising students' awareness of this complication and providing regular updates to physicians in various specialties about the risk factors that predispose patients to developing venous thrombosis, we as well advise holding educational workshops on the symptoms of venous thrombosis and its diagnosis techniques.

**Declarations**

**Ethical approval:**

Ethical approval was obtained from the Institutional Review Board (IRB), Faculty of Medicine, Syrian Private University.

**Funding statement:**

No specific funding was received from any bodies in the public, commercial or not-for-profit sectors to carry out the work described in this article.
Availability of supporting data:

The data that support the findings of this study are available from the Corresponding author, upon reasonable request.

Competing interests:

The authors declare that they have no competing interests.

Acknowledgments:

Not applicable.

References


