Original Article

Thromboprophylaxis awareness among hospital Pharmacists

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Abstract

Introduction: Several types of research have shown the benefits of pharmacist-induced anticoagulation services to reduce venous thromboembolism (VTE) and complications of bleeding while reducing hospital and health care costs. The aim of this study was to assess pharmacist awareness and practice regarding VTE risk factors and prophylaxis. **Method:** This was a cross-sectional study, in which questionnaires were distributed randomly among all pharmacists in each of the involved medical institutions between the period of November 2018 and April 2019. **Results:** A total of 250 questionnaires were distributed in both centers, 209 were retrieved with a response rate of 83.6%. Among the respondents, 79.90% declared that VTE is a problem among hospital patients. 84.21% of respondents believed that they are aware of the current VTE prevention guidelines/tools available at their hospital, and 73.68% completed the VTE prophylaxis label on their patients' admission notes. Cumulatively, 59.33% were educating their patients regarding VTE risk factors and preventive measures at very high or high frequencies. Similarly, 64.02% of participants were counseling their patients about their prescribed pharmacological VTE prophylaxis in very high or high frequencies. **Discussion and Conclusion:** Pharmacist practice regarding patients' education and counseling, in addition to the completion of the VTE prophylaxis label on patients' admission notes, need to be considered as a weakness that needs educational programs for the pharmacist to increase the level of VTE awareness among the hospital pharmacists.

Keywords: Venous thromboembolism (VTE), Hospital pharmacist, Awareness

Introduction

Many types of researches have shown the benefits of pharmacist-induced anticoagulation services to reduce VTE and complications of bleeding while reducing hospital and health care costs [1]. This can be done through an active role in taking responsibility for the management of anticoagulation; pharmacists must ensure that patients at risk receive appropriate medication at the appropriate dose for the appropriate duration, from the first visit to all internal and external follow-up visits [2]. In addition, pharmacists have a vital role in helping the hospital achieving an effective performance measure by assisting in the development and implementation of local VTE instructions, protocols, and guidelines. Moreover, Pharmacists can offer quality improvement initiatives by aiding to create critical protocols and providing a beneficial effective education to other health care professionals as well as patients [3]. The aim of this study was to analyze the pharmacist role and awareness regarding VTE risk factors and prophylaxis.

Method:

This was a cross-sectional study, in which the survey was performed randomly for all pharmacists in each of the involved medical institutions between the period of November 2018 and April 2019. Two medical institutions were involved, namely Prince Sultan Military Medical City (PSMMC) known as Riyadh Armed Forces Hospital, located in Riyadh, which is considered as one of the most advanced medical centers in the Middle East with a capacity of about 1200 beds, accredited by the Joint Commission International; and King Abd Allah University Hospital (KAAUH), which is in the southern area of Princess Noura University (PNU)

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Campus, a 300-bed teaching hospital serving PNU faculty, students, and community. All pharmacists regardless of their specialization were asked to fill the questionnaire. The questionnaire, that is adapted from [3] and [4], consisting of three parts: Part I: Demographic data, consisting of 5 items. Part II: Evaluation of knowledge and general attitude, consisting of 5 items (yes or no questions). Part III: Evaluation of patients' education attitude, consisting of two items. Content validity, face validity, and criterion validity were done as a pre-test for this questionnaire. The value of Cronbach's alpha is 0.847, indicating that the questionnaire is measuring what it's supposed to measure.

RESULTS:

A total of 250 questionnaires were distributed in both centers, 209 were retrieved with a response rate of 83.6% (172/200). Table 1 describes the results of the demographic characteristics of 209 respondents. Age distribution indicates that 49.52% of respondents were 30-44 years old, 36.19% were of age less than 30 years, and 13.81% were 45-59 years old. Out of 209 respondents, 60% were females and 40% were males. Qualification was the next important demographic measure of participants; 7.62% had a diploma degree and only 6.67% of them had a Ph.D. Majority (52.86%) had a bachelor's degree and 32.38% had Master' degree. Specialization of participants indicated that 38.57% were specialized in general pharmacy, 36.19% were specialized in clinical pharmacy, and 24.76% were Pharm D specialized. Table 1 also shows years of experience for respondents.

Table 1: Frequency Analysis of demographic characteristics.

Factor	Number	Percent. (%)
Age		
Less than 30 years	76	36.19%
30-44 years	104	49.52%
45-59 years	29	13.81%
Gender		
male	83	40.00%
female	126	60.00%
Qualification		
Diploma	16	7.62%
Bachelor	111	52.86%
Master	68	32.38%
Ph.D.	14	6.67%
Specialization		
General Pharmacy	81	38.57%
Clinical Pharmacy	76	36.19%
Pharm D	52	24.76%
Experience		
Less than 5 years	83	39.52%
5-10 years	78	37.14%
11-15 years	25	11.90%
16-20 years	11	5.24%
>20 years	12	5.71%

Ph.D. = Doctor of Philosophy

Knowledge evaluation and general attitude is the second part of the questionnaire. For all five items, the 'yes' answer obtained the highest percentage (**Table 2**). 79.90% of respondents think VTE is a problem among hospital patients, and 20.10% think VTE is not a problem among hospital patients. 84.21% of respondents believe that they are aware of the current VTE prevention guidelines/tools available at their hospital. 26.32% said they don't complete the VTE prophylaxis label on their patients' admission notes and 73.68% stated that they complete the VTE prophylaxis label on their patients' admission notes. Two-thirds of the participants have personally seen incorrect usage/prescription of VTE prophylaxis during the last 3 months, and around 70% corrected what they have seen.

Table 2: Evaluation of knowledge and general attitude.

Item	Options	Number of Responses	Percent
Do you think venous thromboembolism (VTE) is a problem among hospital patients?	**No**	42	20.10%
	yes	167	79.90%
Are you aware of the current VTE prevention guidelines/tools available at your hospital?	**No**	33	15.79%
	Yes	176	84.21%
Do you consider that completing the VTE prophylaxis label on your patients' admission notes is important?	**No**	55	26.32%
	Yes	154	73.68%
Have you personally seen incorrect usage/prescription of VTE prophylaxis during the last 3 months?	**No**	51	24.40%
	Yes	158	75.60%
If yes, do you take action to try correcting the above error?	**No**	59	28.22%
	Yes	150	71.77%

VTE =Venous thromboembolism

Part 3 of the survey consists of an evaluation of the patient's educational practice (Table 3). 9.57% claimed that they

educate their patients about VTE at a very low level. 26.32% educate their patients at a high level. Cumulatively, 59.33% educate their patients at very high or high frequencies. Similarly, 64.02% of participants counsel their patients about their prescribed pharmacological VTE prophylaxis, dose, schedule, route of administration, and possible side effects like bleeding and its signs and symptoms in high or very high frequencies.

Table 3: Evaluation of patients' educational practice.

Items	Options	Number of Responses	Percent
How much do you educate the patients about VTE (DVT, and PE), risk factors, signs and symptoms, and preventive measures?	very low	20	9.57%
	Low	21	10.05%
	Average	44	21.05%
	High	69	33.01%
	very high	55	26.32%
How much do you educate the patients about their prescribed pharmacological VTE prophylaxis, dose, schedule, route of administration, and possible side effects like bleeding and its signs and symptoms	very low	16	7.66%
	Low	14	6.70%
	Average	45	21.53%
	High	59	28.23%
	very high	75	35.89%

DVT= Deep Vein Thrombosis, VTE =Venous thromboembolism

Chi-square analysis in **Table 4** was used to know the association of awareness of the current VTE prevention guidelines/tools available and demographic characteristics of respondents. Awareness and age were significantly associated with their p-value<0.05, but gender awareness showed no dependence with age as its p-value>0.05. Qualification, experience, and specialization of participants had a significant association with the awareness of VTE prevention guidelines with p-value<0.05.

Table 1: Contingency table of demographic variables and awareness effect.

		Are you aware of the current VTE prevention guidelines/tools available at your hospital?		
	Categories	No	Yes	P-value
Age	Less than 30 years	20	56	0.006
	30-44 years	9	95	
	45-59 years	4	25	
Gender	Male	10	73	0.229
	Female	23	103	
Qualification	Diploma	10	6	0
	Bachelor	19	92	
	Master	4	64	
	Ph.D.	0	14	
Specialization	General pharmacy	27	54	0
	Clinical Pharmacy	3	73	
	Pharm D	3	49	
Experience	Less than 5 years	24	59	0
	5-10 years	5	73	
	11-15 years	0	25	
	16-20 years	2	9	
	>20	2	10	

Ph.D. = Doctor of Philosophy

Discussion

More than half of the respondents (60%) were females, indicating a higher female pharmacist percentage. Cumulatively, 85.71% of respondents had age less than 45 years. Most of the respondents were general pharmacists with a bachelor's degree. As the results show, all the knowledge part questions had a high "yes" percentage; all percentages are more than 75% except for the completion of the VTE prophylaxis label on patients' admission notes (73.68%), which considered an acceptable level for VTE awareness. As indicated by Gao & Kause, 2010, a percentage higher than 75% for yes response is acceptable for VTE knowledge awareness [3]. Regarding error corrections, 95% of the pharmacists that have seen incorrect usage/prescription of VTE prophylaxis, correct that error, which is considered a high positive result. For the pharmacist role regarding patients' education about VTE, DVT, and PE, and their risk factors, signs and symptoms, and preventive measures in one hand only 59.33% educate their patients in high/very high level and this percentage is considered low (below 75%), in the other hand, cumulatively, 80.38% educate their patients at average and high/very high level. 64.12% of pharmacists

counsel their patients regarding their VTE medication at a high/very high level and 85.65% of pharmacists do VTE medication counseling at an average/high/very high level. But for the results of pharmacist practice to be acceptable, the high/very high level of patients' education and counseling should exceed 75%. A question regarding the awareness of VTE prevention guidelines is chosen to measure the effect of demographic data on the participants' VTE guidelines awareness, age, qualification, experience, and specialization of participants are making a significant association with an awareness of VTE prevention guidelines. Pharmacist attitudes regarding patients' education and counseling, in addition to the completion of the VTE prophylaxis label on patients' admission notes, need to be considered as a weakness that needs educational programs for the pharmacist to increase the level of VTE awareness among the hospital pharmacists. Moreover, the Middle East region people are considered at very high VTE risk as indicated by Alamiri *et al*. [5], so pharmacists should educate and counsel their patients on a regular basis.

Conclusion:

This was a cross-sectional study that assessed VTE awareness between hospital pharmacists. VTE knowledge between pharmacists was acceptable, but patients' educational and counseling practice for pharmacists was weak, and both medical institutions need to enhance the pharmacist awareness regarding the importance of patients' education about VTE risk factors, signs, symptoms, preventive measures, and counseling regarding their VTE medication.

Conflict of interest

None to declare.

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