

## ORIGINAL ARTICLE

## KNOWLEDGE, ATTITUDE AND PRACTICES OF HEALTHCARE PROVIDERS TOWARDS DEEP VEIN THROMBOSIS PROPHYLAXIS IN FIVE TEACHING HOSPITALS OF RAWALPINDI

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**Background:** Prophylaxis of deep vein thrombosis (DVT) is underutilised in Pakistan. This cross-sectional survey was designed to evaluate knowledge, attitude and practices of healthcare providers towards DVT prophylaxis in teaching hospitals in and around Rawalpindi. **Methods:** Knowledge, attitude and practices was assessed by a 12-item questionnaire filled-in by healthcare providers in five teaching hospitals. Eleven out of 12 questions were multiple-choice type and one was open ended. **Results:** One hundred-sixty-nine, out of 200 questionnaires were returned and were analysed. Total 43.2% of the respondents were house-officers. Although 98.8% agreed that DVT prophylaxis is clinically important, but 39.4% actually prescribed it themselves. Out of these, only 10.3% respondents did it routinely. Low molecular weight heparin (LMWH) was the preferred prophylaxis used (36.7%). Most of the respondents underestimated the prevalence and consequences of DVT in hospitalised patients. **Conclusion:** Knowledge and practices of healthcare providers about DVT prophylaxis in hospitalised patients is less than ideal. Hospitals need to develop their own guidelines for DVT prophylaxis.

**Keywords:** Knowledge, Attitude, Practices, DVT Prophylaxis, Pakistan

### INTRODUCTION

Hospitalised patients, both medical and surgical, are at risk of developing venous thrombo-embolism (VTE). This risk depends upon a number of predisposing factors like increasing age, type of surgery, previous history of deep vein thrombosis (DVT) and immobility. Without any prophylaxis, the risk of developing deep venous thrombosis (DVT) in hospitalised patients is 10–40%,<sup>1</sup> in some groups of patients for example those having orthopaedic surgery it is much higher, about 60–80%.<sup>2</sup> Almost 10% of all hospital deaths can be attributed to pulmonary embolism (PE).<sup>3</sup> Moreover about one-third of patients with DVT develop chronic complications including post thrombotic limb syndrome, chronic embolic pulmonary hypertension and a higher risk of recurrent DVT.<sup>4</sup>

There is irrefutable clinical evidence that thrombo-prophylaxis reduces the risk of DVT and PE.<sup>5–7</sup> Although numerous guidelines on use of thrombo-prophylaxis are available for many years, yet thrombo-prophylaxis remains underused throughout the world.<sup>8–11</sup> Centre for Outcomes Research at the University of Massachusetts Medical School (UMMS) conducted ENDORSE (Epidemiologic International Day for the Evaluation of Patients at Risk for Venous Thrombo-embolism in the Acute Hospital Care Setting) study, which was a cross-sectional survey of VTE risk and prophylaxis provision in the acute care hospital setting using data provided by 358 hospitals in 32 countries including five hospitals from Pakistan.<sup>11</sup> It showed a significant percentage of patients were at risk

of DVT but of only 58.5% of at-risk surgical and 39.5% of at-risk medical patients received appropriate thrombo-prophylaxis.<sup>11</sup> For Pakistan this percentage was even lower —10% and 33% respectively.<sup>11</sup> This has also been shown by other studies.<sup>12,13</sup>

No published data exists about the reasons for underutilisation of DVT prophylaxis, awareness of health care professionals and availability of standard DVT prophylaxis guidelines in hospitals of Pakistan. We designed this study to gauge knowledge of healthcare professionals regarding prevalence of DVT, their attitude towards its importance and their practices towards its implementation. Based on the results of this questionnaire we can direct efforts to improve compliance with standard recommendations for DVT prophylaxis.

### MATERIAL AND METHODS

A questionnaire was designed to assess knowledge attitude and practices (KAP) of healthcare providers towards DVT prophylaxis. Questionnaire was kept simple and short so that it could be filled quickly and easily. To assess clarity and consistency of questions, an initial pilot run was carried out. After analysing the results of pilot 12 questions were finalised.

This study was carried out from March to July 2010. Five teaching hospitals in and around Rawalpindi region were selected for the study. These included Combined Military Hospital Rawalpindi, Military Hospital Rawalpindi, Holy Family Hospital Rawalpindi, Fauji Foundation Hospital Rawalpindi, and POF Hospital Wah Cantt. The questionnaires to healthcare

providers were personally delivered with a request to complete them to the best of their knowledge without consulting colleagues. Respondents were required to mention their speciality and grade. Name of the respondent and hospital were not required.

**RESULTS**

Out of 200 questionnaires distributed, 169 were completed and returned. Results were analysed using SPSS-15. Table-1 show grades of healthcare professionals who responded to the questionnaire and Table-2 shows distribution of respondents according to speciality. Maximum (43.2%) respondents were house officers, out of whom 57.05% worked in medical units, 18.8% in surgery, 17.0% worked in gynaecology, and 2.9% worked in anaesthesia/intensive care. Responses to each question are listed in Table-3.

Although most (98.8%) of the respondents agreed that DVT prophylaxis was clinically important, only 63.3% (107/169) had actually prescribed it themselves; out of these only 10.3% (16/155) respondents did it routinely and 29% (45/155) did it most of the time. Routine prophylaxis prescription was claimed by 23% of respondents in surgery, 7.2% in medicine, and by 3.4% of gynaecologists.

Among the responders 54.8% thought that DVT in hospitalised patients is symptomatic most of the times and 60% felt that the international prevalence of DVT among hospitalised patients is below 5%. Prevalence of pulmonary embolism as a cause of death among hospitalised patients was similarly underestimated to less than 5% by 87.8% of respondents. Low molecular weight heparin (LMWH) was the preferred (36.7%) prophylaxis used followed by combination of methods (34.2%), and un-fractionated heparin (UFH) (20.6%).

Non-prescribers (23.4%) thought that DVT prophylaxis is not relevant to our setup and we have very low risk of DVT. Almost 16% thought that risk outweighs benefit and 17.7% had been told by seniors not to prescribe it. Almost half (50.6%) of medical/surgical units have no set policy for DVT prophylaxis as per respondents.

**Table-1: Respondents by grade**

Grade	Respondents (%)
Nurses	4.7
House officers	43.2
Junior Residents	18.9
Senior Residents	14.2
Consultants	17.8

**Table-2: Participants by speciality**

Speciality	Respondents (%)
Surgery	19
Medicine	58
Gynaecology	17
Anaesthesia/Intensive Care	3
General Practice	3

**Table-3: The questionnaire and responses**

QUESTIONS	RESPONSES	No. (%)
Do you think DVT prophylaxis is clinically important?	Yes	167/169 (98.8)
	No	2/169 (1.2)
Have you ever prescribed DVT prophylaxis yourself?	Yes	107/169 (63.3)
	No	62/169 (36.7)
If yes, how frequently you do it?	Routinely	16/155 (10.3)
	Most of time	45/155 (29.0)
	Occasionally	48/155 (31.0)
	Never /rarely	46/155 (29.7)
	Did not respond	14/169 (8.3)
Does your hospital/unit have a policy regarding DVT prophylaxis?	Yes	80/162 (49.4)
	No	82/162 (50.6)
	Did not respond	7
What prophylaxis you have prescribed?	Unfractionated heparin	32/155 (20.6)
	LMWH	62/155 (40.0)
	Anti-embolic stockings	2/155 (1.3)
	Combination of above	59/155 (38.1)
	Did not respond	14
In your opinion, are most of hospitalized patients who develop DVT, symptomatic?	Yes	91/166 (54.8)
	No	75/155 (45.2)
	Did not respond	3
What percentage of hospital deaths could be attributed to pulmonary embolism?	<1%	56/163 (34.4)
	2%	51/163 (31.3)
	5%	36/163 (22.1)
	10%	14/163 (8.6)
	20%	6/163 (3.7)
	Did not respond	6
Prevalence of DVT (symptomatic and asymptomatic) in hospitalized patients is approximately?	<1%	30/155 (19.4)
	1-5%	63/155 (40.6)
	5-10%	28/155 (18.1)
	10-20%	25/155 (16.1)
	>20%	9/155 (5.8)
Did not respond	14	
A Significant number of patients develop DVT after discharge?	True	57/152 (37.5)
	False	5/152 (62.5)
	Did not respond	17
If you do not prescribe DVT prophylaxis routinely, why is that?	Do not feel important	16/124 (12.9)
	Risk outweigh benefit	20/124 (16.1)
	Cost	17/124 (13.7)
	Not relevant to our setup	29/124 (23.4)
	Told by seniors not to prescribe	22/124 (17.7)
	Other	20/124 (16.1)
	Did not respond	45
Which patients in your opinion should have DVT prophylaxis?	Bed ridden/ immobilised	102/342
	Prolonged surgery, post op	38/342
	CVA, bed ridden COPD	23/102
	Previous DVT or PE	23/102
In a patient is on prophylactic dose of unfractionated heparin (5000 u BD), when do we need to stop it before surgery or invasive procedures?	Stop a day prior	47/156 (30.1)
	Stop 12 hrs prior	36/156 (23.1)
	Stop 6 hrs prior	31/156 (19.9)
	Do not stop	25/156 (16.0)
	Any other	17/156 (10.9)
	Did not respond	13

**DISCUSSION**

VTE is a major cause of hospital deaths and morbidity; this can be easily prevented by simple measures. Guidelines for thrombo-prophylaxis are available for past many years but the compliance remains disappointing throughout the world.<sup>10,11</sup> There are many reasons for poor compliance for

example lack of knowledge, lack of hospital guidelines and fear of complications.

Pakistan is no exception to poor compliance with DVT prophylaxis guideline.<sup>11,13,14</sup> This questionnaire was an effort to find out the reasons so that we can direct our efforts to improve the situation. The results of questionnaire gave an insight to knowledge, attitude and practices of doctors of all grades involved in patient care. Out of the respondents 43.2% were house-officers and 33.1% were residents. It is the junior grade doctors who look after the patients in the wards and responses that we got represent this category mostly. Participation by consultants was also good (17.8%) showing that all grades of doctors actively participated in this study.

Although 49.4% of the respondents claimed that their unit or the hospital had a policy regarding DVT prophylaxis but as the responses to question show, they were either not aware of the policy or the guidelines were not explicit. Moreover, there were conflicts about presence of guidelines between doctors of the same units and hospital. It has been suggested in a recent study that adopting common hospital wide guidelines improves DVT prophylaxis prescription rate<sup>15</sup>, therefore it is important that our hospitals should have clear guideline about DVT prophylaxis and these should be disseminated among the health care providers.

Out of the reasons cited for not prescribing prophylaxis, 17.2% mentioned that it was not relevant to their setup and 9.5% believed that they "do not feel it is important" (total 26.7 %). This reflects an erroneous belief in our doctors that probably DVT is less common in our part of the world than West.<sup>16</sup> A few studies have shown the DVT risk in hospitalised Pakistani population undergoing major surgical procedures to be between 3.5–12.8%.<sup>16-18</sup> These studies had a small sample size and their results need to be verified by larger studies.

Questions 6–9 dealt with core knowledge about venous thrombo-embolism. One of the key fact about VTE is that most of the hospitalised patients who develop DVT are asymptomatic and that may be the reason we believe that either DVT is "not common here" or we are immune to this problem.<sup>19,20</sup> There is also strong association between asymptomatic DVT and pulmonary embolism.<sup>21,22</sup> Studies have also shown that quite a few numbers of patients develop DVT and pulmonary embolism after discharge from hospital.<sup>6,9,11,23</sup> In our study 62.5% of doctors were not aware of this fact.

About 5–10% of all hospital deaths are attributable to pulmonary embolism.<sup>9,11</sup> Majority of our respondents (87.7%) believed this incidence to be less than 5% and 65.5% considered this risk to be less than 2%. This shows a lack of awareness of the

gravity of situation as well as a lack of knowledge. A significant percentage (87.7%) believed that 5% or less hospital deaths are caused by PE and 65.6% even believed that this figure is 2% or less. Another majority (78.1%) of respondents said that Prevalence of DVT (symptomatic and asymptomatic) in hospitalised patients is 5–10% or less. A review of literature reveals that the figure usually cited is 10–40% this is even higher in orthopaedic and cancer patients.<sup>1,9</sup>

Question 11 was an open ended question asking about reasons for prescribing DVT prophylaxis. We got a total of 342 responses from 156 respondents who answered this question. Thirty common themes from the responses were selected. The most frequent were: Bedridden or immobilised 102/342, prolonged surgery or post-op 38/342, previous history of DVT and CVA/stroke (each 23/342). Although a general awareness about the patients at risk was present but risk stratification as per ACCP guidelines were not mentioned. This shows a need to improve awareness among health care providers about the patients requiring DVT prophylaxis.

Question 12 dealt with practices of omitting heparin before any procedure. More than half of respondents (53.2%) believed that we should stop UFH either a day or 12 hrs before the procedure. The half life of heparin ranges from 1–5 hours depending upon dose administered.<sup>24</sup> Depending on the type of surgery we only need to stop heparin about 6 hours prior to surgery or not at all.

The results of this questionnaire reveal that the knowledge of health care providers about the importance of DVT prophylaxis, the prevalence and clinical implications of hospital acquired DVT is less than adequate. Healthcare professionals are aware of the importance of DVT prophylaxis but this does not translate into their practice of prescribing adequate prophylaxis. Reason seems to be lack of knowledge about prevalence and seriousness of DVT, scarcity of hospital or unit-wide policies for prophylaxis and lack of encouragement by seniors. Most of the respondents were not aware of International guidelines on the subject as well.

## CONCLUSION

Knowledge of healthcare providers and availability of DVT prophylaxis guidelines in five teaching hospitals in and around Rawalpindi is less than ideal, leading to non-adoption of standard practice for DVT prophylaxis. There is need to improve their knowledge and encourage them to adopt best practice guidelines. Hospitals and units should be urged to formulate their own guidelines for managing common medical problems including DVT.

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