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John and Patil
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Original Article

Assessment of Post-Operative VTE Prophylaxis amongst the Health-Care Providers

Nimmy N John*, Neha Patil
Department of Pharmacy Practice, NET Pharmacy College, Raichur, Karnataka, India.

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ABSTRACT

Background: Venous thromboembolism (VTE) is a common complication during and after hospitalization for medical and surgical patients, including orthopedic patients.
Objective: This study was aimed to assess post-operative VTE prophylaxis amongst the health care providers.
Materials and Methods: A Prospective observational study was conducted with a questionnaire based assessment of VTE among physicians in the orthopedic department of a tertiary care teaching hospital.
Results: 67% of surgeons reported that they had encountered VTE in their clinical practice, 47% of surgeons had encountered PE, and 37% had encountered mortality from PE in their clinical practice. Only 40% of surgeons said that they routinely scored patients preoperatively on their VTE risk, with 60% of all surgeons not scoring patients. All surgeons reported that there was no institute based protocol for VTE prophylaxis at their centre and 99% believed that same should be in place. For low-risk patients no specific prophylaxis methods were used whereas 33% advised no prophylaxis in moderate-risk group with 67% advised proper prophylaxis methods in high-risk group.
Conclusion: Patients undergoing major orthopaedic surgery are at highest risk for VTE during and after hospitalization; therefore patients should be administered with VTE prophylaxis, mechanical and pharmacological. It was found that majority surgeons have encountered VTE and mortality due to the same, and majority of surgeons do not score patients preoperatively for their risk and even do not follow any institute based protocols and surgeons do not follow particular prophylaxis methods. With greater awareness and education of surgeons on this topic and the adoption of national guidelines for VTE prophylaxis, the major cause of morbidity and mortality in surgical patients can easily be prevented.
Keywords: VTE, Prophylaxis, Orthopaedic Department, mortality

1. INTRODUCTION

Deep vein thrombosis (DVT) and pulmonary embolism (PTE) are known as venous thromboembolism (VTE). DVT occurs when a thrombus (a blood clot) forms in deep veins of the body, usually in the lower extremities. It can cause swelling or leg pain, but sometimes may occur with no symptoms. Awareness of DVT is the best way to prevent the

Corresponding author *
Nimmy N John,
Department of Pharmacy Practice,
NET Pharmacy College, Raichur,
Karnataka, India.
Mail id:Nimmyasish@gmail.com

VTE. Patients with trauma are at increased risk of DVT and subsequent PE because of coagulopathy in patients with multiple traumas, DVT prophylaxis is essential but the VTE prophylaxis strategy is controversial for the trauma patients. The risk factors for VTE include pelvic and lower extremity fractures, and head injury [1].

Critically ill patients in the intensive care unit (ICU) are at high risk for VTE because of their specific conditions, such as immobilization, post-operative status, sepsis, mechanical ventilation and central venous catheter use. A systematic review showed that the incidence of DVT ranged from 13–31% without prophylaxis [2].

The 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% i.e. in some groups of patients for example those having orthopaedic surgery it is much higher, about 60–80%, Almost 10% of all hospital deaths can be attributed to pulmonary embolism (PE). 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 [3]. In the US, DVT and PE together affect an estimated 350,000–600,000 people each year, leading to an estimated 100,000–300,000 deaths [4, 5]. In this context we performed a questionnaire based study among the health-care providers regarding the assessment of post-operative VTE prophylaxis in terms of VTE incidence, prophylaxis protocols and the various prophylaxis methods used.

2. MATERIALS AND METHODS

A Prospective observational study was carried out including physicians in the orthopaedic department of a tertiary care teaching hospital, Raichur for the period of three months with an objective to assess VTE incidence in the orthopaedic department of tertiary care hospital, to assess prophylaxis protocols and prophylaxis methods followed by orthopaedic physicians and provide feedback of obtained results to clinicians and other relevant groups.

A questionnaire was created in consultation with general surgeons, vascular surgeons, and pulmonologists. This covered various aspects including surgeons prior experience with DVT and PE; surgeons experience with mortality from VTE; diagnostic methods used for VTE; surgeons beliefs regarding incidence of VTE in Indian populations and need for prophylaxis; concerns regarding prophylaxis; presence of institute-based protocols; prophylaxis methods used for each risk group. This questionnaire was distributed to a cross section of practicing consultant general surgeons in Navodaya medical college hospital and research centre, raichur. A total of 30 questionnaires were distributed, collected, and analyzed using descriptive statistics.

3. RESULTS AND DISCUSSIONS

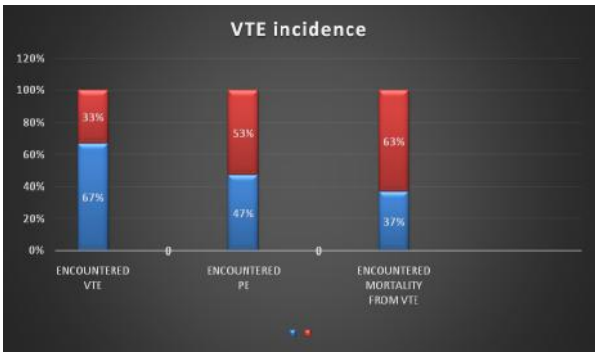

Fig 1: VTE incidence

VTE Incidence: An overwhelming 67% of surgeons reported that they had encountered VTE in their clinical practice, with 33% not having seen any episodes of VTE. 60% of surgeons believed that Indians were at higher risk than western population whereas 30% felt that Indians were at same risk as Caucasians for VTE with 10% saying they were not sure. All surgeons relied on clinical symptoms and venous Doppler to diagnose VTE postoperatively while 10% used scoring criteria. Pulmonary embolism: 47% of surgeons had encounterd PE, and 37% had encountered mortality from PE in their clinical practice.

Prophylaxis protocols is given in fig 2

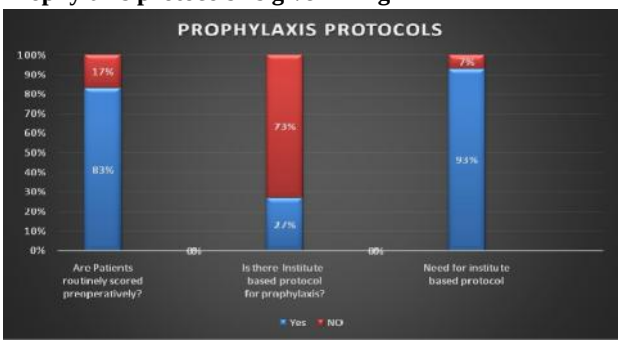

Fig 2: Prophylaxis protocols

Prophylaxis protocols: Only 40% of surgeons said that they routinely scored patients preoperatively on their VTE risk, with 60% of all surgeons not scoring patients.

All surgeons reported that there was no institute based protocol for VTE prophylaxis at their centre and 99% believed that same should be in place. The burden of cost (80%) and risk of post-operative bleeding (20%) were the most common concerns expressed regarding VTE prophylaxis.

Prophylaxis methods used for different risk groups is given in fig 3

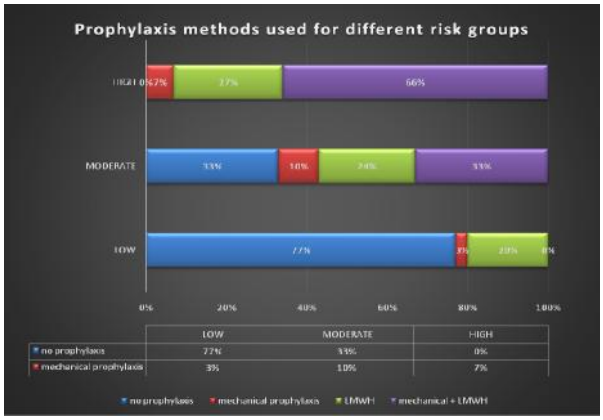

Fig 3: Prophylaxis methods used for different risk groups

Prophylaxis methods: For low-risk patients, 77% said they would give no specific prophylaxis, 3% advised mechanical prophylaxis whereas 20% advised LMWH.

For moderate-risk patients, 33% advised no specific prophylaxis, 10% advised mechanical prophylaxis, 24% advised for LMWH and 33% advised combination of mechanical and pharmacological prophylaxis. For high-risk patients, 66% of surgeons said they would advise a combination of mechanical and pharmacological prophylaxis, 27% advised only LMWH and 7% only mechanical prophylaxis.

Discussion: In my study 67% of surgeons had encountered VTE and 37% had encountered mortality due to VTE. This suggests that Indians are at same risk for VTE as western population. Indian studies on the subject are largely inadequate and conflicting, with older studies showing lower rates of VTE incidence [6, 7] and newer ones higher. This suggests that the perceived lower incidence in Indians might in fact be due to a lack of awareness and inadequate diagnostic facilities. Majority of the surgeons used clinical symptoms and venous Doppler as diagnostic test which might not be accurate for all diagnosis hence ultrasound or other diagnostic methods should be preferred [8].

60% of surgeons said they do not score patients preoperatively for VTE and 73% said there is no institute-based protocol for VTE. 93% of surgeons suggested the need of institute-based protocol for better VTE treatment. Despite the establishment of guidelines and protocols, numerous studies have shown that adequate prophylaxis is not being offered to a large number of surgical patients across the world. The ACCP advocates that each institute adopt its own protocol for VTE prophylaxis [9, 10].

80% of the respondents in our study said they believed thromboprophylaxis would add to the burden of cost, and 20% were afraid of postoperative bleeding.

My study revealed inadequate knowledge among surgeons regarding the prophylaxis methods used for each risk group. There was a wide disparity in the methods used particularly in the moderate-risk group patients, where 33% of surgeons said they would give no prophylaxis, and an equal 33% said they would advise a combination of mechanical and pharmacological prophylaxis. These findings suggest that efforts need to be taken to improve the awareness among surgeons regarding how to score patients for their VTE risk and regarding the appropriate prophylaxis methods to be used for each risk group. The disparity in methods used might also in part be attributed to a lack of national guidelines for VTE prophylaxis.

Adoption of national guidelines would increase awareness for VTE and ensure uniformity in prophylaxis protocols used. The study was limited by the fact that it was conducted only in one tertiary care teaching hospital. And the study suggests that there is a need to increase awareness among general surgeons regarding the need for VTE prophylaxis and the adoption of institute-based protocols for the same.

4. CONCLUSION

Patients undergoing major orthopaedic surgery are at highest risk for VTE during and after hospitalization; therefore patients should be administered with VTE prophylaxis, mechanical and pharmacological[10].This study was aimed at analysing VTE incidence, various diagnostic methods used, prophylaxis protocol and the prophylaxis methods used by the surgeons. It was found that majority surgeons have encountered VTE and mortality due to the same, and majority of surgeons do not score patients preoperatively for their risk and even do not follow any institute based protocols and surgeons do not follow particular prophylaxis methods. Greater awareness and education of surgeons on this topic and with the adoption of national guidelines for VTE prophylaxis, this major cause of morbidity and mortality in surgical patients can easily be prevented.

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