

AWARENESS AND PRACTICE OF THROMBOPROPHYLAXIS AMONG SURGEONS IN TERTIARY CARE HOSPITALS OF KHYBER PUKHTUNKHWA

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ABSTRACT

Objective: To find out the awareness and practice of thromboprophylaxis among surgeons working in teaching hospitals of Khyber Pakhtunkhwa.

Methodology: This was a descriptive study carried out in Hayatabad Medical Complex, Khyber Teaching Hospital, Lady Reading Hospital Peshawar and Ayub Teaching Hospital Abbottabad. Consultants from General and Orthopaedic surgery in four teaching hospitals working as senior registrar or above grades were included in the study and were interviewed using proforma about use of thromboprophylaxis. The results were analysed using SPSS version 10.0.

Results: A total of 48 consultants participated in this study. 20 of these were orthopaedic surgeons and 28 were general surgeons. Thirty two (66.6%) of the consultants were using thromboprophylaxis but out of these, only 7 (22%) were following the national guide lines. Out of the 16 (33.4%) who were not using thromboprophylaxis, 10 (62.5%) consultants had the impression that it is not necessary while 4 (25%) thought that it increased the risk of bleeding and 2 (12.5%) consultants had the impression that it is expensive. Eight (16.7%) consultants said that they have departmental policy for thromboprophylaxis.

Conclusion: Although majority of surgeons were using thromboprophylaxis, however few were well versed about the guidelines and very few were following these.

Key Words: Awareness, Practice, Thromboprophylaxis.

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INTRODUCTION

Major surgical and high-risk orthopedic procedures place patients at risk for Deep Venous Thrombosis (DVT), which present as a blood clot that developed in deep veins, usually in the lower leg¹⁻³. DVT has an estimated annual incidence in developed countries of one in 1000 people². An

estimated 300,000 individuals are hospitalized annually in the United States for deep vein thrombosis (DVT) disease. Pulmonary embolism is estimated to be responsible for about 150,000 deaths per year representing 5% of all perioperative mortality. DVT is thought to be the source of 90% of acute pulmonary emboli. It is estimated that 2 to 3% of patients undergoing THR and 4-7% of patients undergoing surgery for hip fracture suffer nonfatal pulmonary embolism⁴.

Proximal DVT having increased risk of pulmonary embolism (PE), whereas distal DVT is not associated with an increased risk of PE, but are associated with development of post-thrombotic syndrome.⁵ Patients operated under epidural or spinal anesthesia have a more than 50% decreased incidence of post operative DVT as compared to general anesthesia¹.

There are certain risk factors that make a DVT more likely to occur, these include; age more than 40 years, past history of deep vein thrombosis, prolong period of post operative immobility, surgery lasting more than 30 minutes, multiple fractures, and fracture of pelvis, hip and lower limbs⁶. Among surgical patients, the risk of

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DVT is highest for hip and knee surgery, and the patient remains at risk for up to 3 months⁷.

Patients having DVT usually presents with pain, tenderness and unilateral leg swelling.^{3,8,9} The clinical diagnosis of Deep vein thrombosis of the lower limb is unreliable. Individual signs and symptoms are of little value, and Homan's sign is of no value². The sequelae of venous thrombosis includes pulmonary embolism, post-thrombotic syndrome and recurrent venous thromboembolism¹⁰.

The gold standard for establishing the diagnosis of DVT is contrast venography.^{2,8} However it is invasive and carries a small risk of allergic reaction or venous thrombosis². Venography has been replaced by doppler ultrasonography as the most widely used test for the diagnosis of DVT showing an average sensitivity and specificity of 97% for proximal DVT and 73% for distal DVT^{2,8}. Diagnosing intrapelvic thrombi has been difficult until recently, with the advent of magnetic resonance (MR) venography. This technique has provided physicians with a sensitive and specific method to diagnose intrapelvic and proximal DVT in patients in whom venography is not possible or is unlikely to be diagnostic⁴.

The goal of prophylaxis is to prevent morbidity and mortality of venous thromboembolism. Prophylaxis involves the use of

one or more pharmacologic or mechanical modalities. Pharmacological modalities include, low dose unfractionated heparin (LDUH), low molecular weight heparin (LMWH) and warfarin. Mechanical modalities includes graduated compression stockings (GCS), intermittent pneumatic compression (IPC) and venous foot pumps^{3,11,12}.

The seventh ACCP conference recommended that LMWH or other prophylaxis should be continued for a minimum of 10 days. In patients undergoing total hip replacement or hip fracture surgery as well as in other high-risk patients, prophylaxis should last 28-35 days or longer postoperatively^{4,13,14}.

The recommendations for DVT prophylaxis included in the National Guidelines for Pakistan have been developed after careful evaluation of the ACCP (American College of Chest Physicians) guidelines and have been modified according to the local settings¹⁵.

METHODOLOGY

This study was conducted in orthopaedic unit, Hayatabad Medical Complex, Peshawar, including other hospitals of Khyber Pakhtunkhwa, the Khyber Teaching Hospital, Lady Reading Hospital Peshawar and Ayub Teaching Hospital. This is a cross-sectional descriptive study. Consultants from General and Orthopaedic surgery in four teaching hospitals working as senior

Table 1: Recommendations for Orthopedic Surgery⁷

Indication	Recommendations
Total Hip Replacement (THR)	LMWH(Enoxaparin 30mg (3000 units) SC q12h) or 40mg (4000 units) qd, Dalteparin 5000 U SC qd started preoperatively or immediately after surgery Warfarin INR 2-3 Fondaparinux 2.5mg SC qd started 6-8 hours after surgery
Total Hip (extended/ additional 3 weeks)	LMWH Warfarin Fondaparinux
Total Knee Arthroplasty (TKA)	LMWH(Enoxaparin 30mg (3000 units) SC q12h) Warfarin (INR 2-3) Fondaparinux 2.5mg SC qd IPC
Hip Fracture	LMWH(Enoxaparin 30mg (3000 units) SC q12h) Warfarin (INR 2-3) Fondaparinux 2.5mg SC qd LDUH

registrar or above position were included in the study and were interviewed using proforma about use of thromboprophylaxis. They were asked to complete a tick-box questionnaire describing their use of thromboprophylaxis in General and Orthopaedic surgeries (Annexure 1). The results were analysed using SPSS version 10.0.

RESULTS

Total 48 consultants participated in the study, 20 were orthopaedic surgeons and 28 were general surgeons. 32 (66.6 %) consultants were

using some form of thromboprophylaxis but only 7 (21.8 %) were following the national guide lines.¹⁵ Thromboprophylaxis modalities used by these consultants (Table 3). 16 (33.4%) consultants were not using thromboprophylaxis, 10 (62.5%) consultants had the impression that it is not necessary while 4 (25%) thought that it increased the risk of bleeding and 2 (12.5%) consultants had the impression that it is expensive. 23 (47.9 %) consultants advised thrombo-prophylaxis to most of their high risk patients for 3-5 days. Out of 48 consultants only 8 (16.7%) consultants had Departmental policy for thromboprophylaxis.

Table 2: Recommendations for General Surgery⁷

Level of Risk	Successful Prevention Strategies and Recommendations
Low risk Minor surgery in patients < 40year With no additional risk factors	Early and aggressive mobilization No specific prophylaxis
Moderate risk Minor surgery in patients with additional risk factors Surgery in patients aged 40-60 year with no additional risk factors	Enoxaparin 20mg (2000 units) SC /LDUH GCS
High risk Surgery in patients > 60 year, or age 40-60 with additional risk factors (prior VTE, cancer, molecular hypercoagulability) Selected high-risk general surgery Patients, including those who have undergone major cancer surgery	Enoxaparin 40mg (4000 units) SC OD / LDUH TID GCS Post-hospital discharge prophylaxis with LMWH
Highest risk Surgery in patients with multiple risk factors (age>40 year, cancer, prior VTE) Major trauma; SCI, Hip or Knee arthroplasty, HFS	Enoxaparin 40 mg (4000 units) SC OD / LDUH TID / Fondaparinux GCS Consider oral VKAs (INR, 2-3)

Table 3: Methods of Thromboprophylaxis

Methods of Thromboprophylaxis	Frequency	Percent
Unfractionated heparin	7	21.9%
Low molecular weight heparin	15	46.9%
LMWH + Warfarin	4	12.5%
Asprin	1	3.1%
Early mobilization + compression stocking	5	15.6%
Total	32	100

DISCUSSION

The national guidelines for thromboprophylaxis have been developed in Pakistan¹⁵, so that a standardized approach can ensure that patient receive adequate thromboprophylaxis where indicated. Within the hospitals studied, we have shown that there was a significant lack of VTE prophylaxis. In fact, prophylaxis was consistently underutilized.

Our results show that 66.6% of our consultants used thromboprophylaxis, but only 21.8% consultants were following national guidelines. Selective thromboprophylaxis is used by surgeons in up to 99% cases in Malaysia¹⁶.

The most widely used methods of prophylaxis in our study was LMWH (46.9%), unfractionated heparin (21.9%) and early mobilization along with compression stocking (15.6%). According to a survey in the UK 74.7% were using low molecular weight heparin, 58.0% using elastic compression stockings and 33.4% using aspirin¹⁷.

16 (33.4%) consultants were not using thromboprophylaxis, The reason for not using thromboprophylaxis for patients were lack of awareness, assumed risk of bleeding, cost and some consultant think that it is uncommon in Asian population, but recent study in Malaysia showed that 43% doctors were of the opinion that this is as common in Asia as in the west¹⁶.

The guidelines from the American College of Chest Physicians recommend a minimum of 10 days of anticoagulant prophylaxis extending it to up to 35 days for total hip replacement and hip fracture¹⁸. In our study 23 (47.9%) consultants advised thromboprophylaxis just for 3-5 days and 9 (18.7%) consultants used 6 weeks duration of thromboprophylaxis to most of their high risk patients.

Failure to continue prophylaxis after discharge is the result of several factors. The physician may feel that the patient's increased mobility after discharging home reduces the risk of venous thromboembolism, this risk however exists for up to 3 months after surgery. In some patients, cost may be a factor in the decision to continue prophylaxis¹⁸. In our study, 2 (12.5%) consultants had the impression that it is expensive.

16.7% of our consultants had departmental policy for thromboprophylaxis, while in UK 34.4% had hospital guidelines for thromboprophylaxis¹⁷.

CONCLUSION

Although majority of surgeons were using

thromboprophylaxis, however few were well versed about the guidelines and very few were following these. There is no departmental policy for thromboprophylaxis in most of these tertiary care hospitals and despite availability of national guidelines, the level of awareness and practice of thromboprophylaxis is not as per national guidelines.

RECOMMENDATIONS

There is a need for sensitization of consultants to follow the national guidelines and should have a departmental policy for thromboprophylaxis to ensure that patients receive adequate prophylaxis where indicated. There is a need to create awareness about venous thromboembolism amongst primary care physicians, patients and their attendants.

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CONTRIBUTORS

ZK conceived the idea and planned the study. MJI, SW & MK did the data collection and helped in the write-up of the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.

ANNEXURE 1

Speciality: Orthopaedic Surgery General Surgery

Name of Institution: LRH KTH HMC AMC

Do you prescribe for Thromboprophylaxis:: Yes No

If No

- Expensive
- In effective
- Not needed
- Not Needed
- Risk of Complications
- Required Strict Monitoring

If Yes

Do you follow National Guidelines for Thromboprophylaxis:

Yes No

Do you categorize patients for DVT risk:

Yes No

What type of Prophylaxis:

- 1. Mechanical
 - Early Mobilization
 - Compression Stockings
 - Intermittent Pneumatic Compression Stockings
- 2. Pharmacological
 - Unfractionated Heparin
 - Low Molecular Weight Heparin
 - Warfarin
 - Asprin
 - Dextran

Type of Surgery:

- Minor Surgery (<30min)
- Major Surgery (>30min)
- Additional Risk Factors

Timing of Prophylaxis:

- Before Surgery
- During Surgery
- After Surgery

Duration of Prophylaxis:

✦ 3-5 Days ✦ 6 Weeks ✦ 4-6 Months

Do you have departmental policy for Thromboprophylaxis:

Yes No

Comments: