International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR |Volume 7 | Issue 4 | Oct - Dec - 2019
www.ijamscr.com

Review article *Medical research*

A study on deep vein thrombosis prophylaxis in intensive care unit in SMCH

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ABSTRACT

Thromboembolism is a major complication in hospitalized patients. Intensive care unit (ICU) patients have a greater risk of thrombotic events. Medical thromboprophylaxis has been shown to reduce the incidence of DVT for patients with high risk of bleeding, mechanical thromboprophylaxis can be used. The following review summarizes the existing data regarding thromboprophylaxis in ICU patients with special consideration to the use of mechanical prophylaxis and pharmacologic prophylaxis.

Aim

To assess adherence deep vein thrombosis prophylaxis in intensive care unit

Methodology

This is a cross sectional observational study conducted on 75 patients admitted in intensive care unit by simple random sampling method using DVT prophylaxis assessment tool. The result of the above studies have been recorded and analysed.

Result

Thrombotic risk was found in 100% of the patient admitted in intensive care unit and among which only 64% patients are given DVT prophylaxis. Pharmacological prophylaxis are given for 53% patients and mechanical prophylaxis given for 8% patients

Conclusion

Thrombotic risk is in 100% of intensive care patients. Thromboprophylaxis is administered only in 63% patients among which pharmacological prophylaxis is given more than mechanical prophylaxis in both surgical and medical patients.

INTRODUCTION

Venous thromboembolism (VTE) is a condition that involves the formation of clots in the deep veins, particularly in the veins of the lower limb. This causes obstruction to blood flow resulting in symptoms like pain, swelling and discoloration. The most common complication of venous thrombosis is the migration of these clots into other blood vessels, called embolism, particularly pulmonary embolism [1]. Venous thromboembolism (VTE) is a common and potentially life-threatening complication that occurs in 4% to 15% of patients admitted to intensive care units despite the routine use of pharmacological prophylaxis [2].

Risk factors analysed according to Department of Health VTE risk assessment tool. (R7)are active cancer or cancer treatment, age>60, dehydration, known thrombophilias, obesity(BMI>30kg), on or more significant medical comorbidities (eg heart disease, metabolic, endocrine or respiratory pathologies), family history with DVT, use of hormone replacement therapy, contraceptive therapy, varicose veins with phlebitis, pregnancy or <6 weeks post partum, significantly reduced mobility for 3 days or more, hip or knee replacement, hip fracture, total anaesthesic + surgical time> 90 minutes, surgery involving pelvis or lower limb with a total anaesthetic + surgical time> 60 minutes, critical care admission, surgery with reduced in mobility. Patients with ≤2 risk factors but ≥1 risk factor were deemed to have a moderate level of risk for DVT, those with 3 risk factors deemed to have a high level, and those with ≥4 factors deemed to have a very high level [3].

The impact of thromboprophylaxis can be ascertained from the fact that it reduces the rate of thromboembolism in both medical and surgical patients. Thromboprophylaxis is given to prevent the occurrence of deep vein thrombosis (DVT), which includes pharmacologic therapy like unfractionated heparin (UFH), low molecular weight heparin (LMWH), fondaparinux or mechanical therapy like pneumatic and graduated compression stockings is given to the patients with bleeding risk like active bleeding, acquired bleeding, concurrent use of anticoagulants, acute stroke, thrombocytopenia etc [1].

Patients admitted to intensive care units (ICUs) are rated as high-risk patients. So, pharmacological and mechanical thromboprophylaxis in ICU patients reduce incidence of thrombosis to some extent than the patients not administered.

Hence this study was carried to assess adherence deep vein thrombosis in intensive care unit patients with thrombotic risk.

Aim

To assess adherence deep vein thrombosis prophylaxis in intensive care unit

Objectives

- To assess thrombotic risk in intensive care unit
- To evaluate the DVT prophylaxis among intensive care unit patients
- To evaluate adherence to different modalities of DVT patients admitted in intensive care unit

METHODOLOGY

This was hospital based cross sectional study conducted in Saveetha Medical College and Hospital, Thandalam.

Cross sectional observational study done on 75 patients admitted in intensive care unit. Duration of study was for 3 months from January 3rd to March 31st. Using simple random sampling technique data was collected from the patients and the data collection was done with the help of DVT prophylaxis assessment tool. The collected data was documented and recorded.

The collected data was entered in MS excel and analysed using spss. The result of the study is tabulated and compared with other studies and expressed in terms of numbers and percentages.

RESULTS

This Study is done on 75 patients in intensive care unit for deep vein thrombosis risk and assessment of DVT prophylaxis given to them.

Thrombotic risk among intensive care patients was 100% among which 9.3% had bleeding risk. This study comprises of 78.6% medical patient and 21.3% surgical patient. 63% patients were given DVT prophylaxis and 37% not given. Recommended pharmacological prophylaxis was 90.6% but only 52% were given pharmacological prophylaxis and 9.3% mechanical prophylaxis were recommended but 8 % have been given.

Table 1

	Frequency	Percentage
Thrombotic risk	75	100%
Bleeding risk	7	9.3%
Medical patient	59	78.6%

Surgical patient	16	21.3%
DVT prophylaxis given	47	63%
DVT prophylaxis not given	28	37%
Pharmacological prophylaxis recommended	68	90.6%
Mechanical prophylaxis recommended	7	9.3%
Pharmacological prophylaxis given	39	52%
Mechanical prophylaxis given	6	8%

Both pharmacological and mechanical prophylaxis were recommended but pharmacological prophylaxis was more recommended. Surgical patients was less than medical patients among which 69.3% medical patients were recommended for pharmacological prophylaxis but 41.4% only received them. Similarly 9.3% recommended for mechanical prophylaxis and 6.6% received. In surgical patient 21.3% were recommended for pharmacological prophylaxis but 10.6% were given and 0% recommended and 1.30% were given mechanical prophylaxis because of bleeding risks. (figure1)

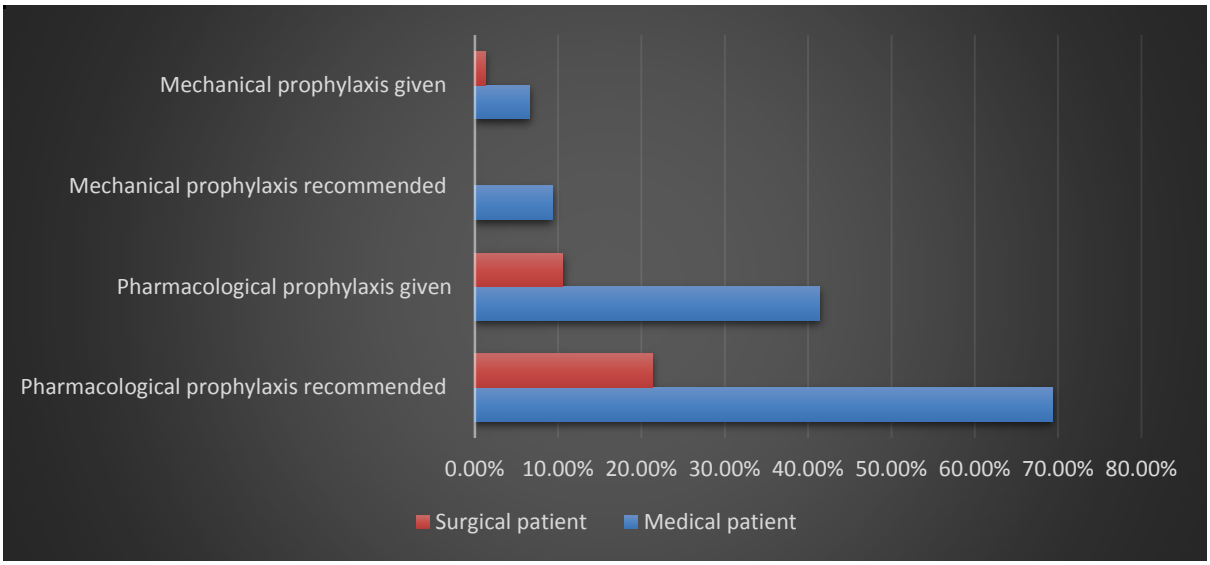

Figure 1

Among pharmacological prophylaxis inj. heparin was given more (37%), unfractionated heparin (UFH) at 8% and inj. Clexane at 6.6%. In mechanical prophylaxis mostly grip bandage were used more than compression stockings. (Figure 2)

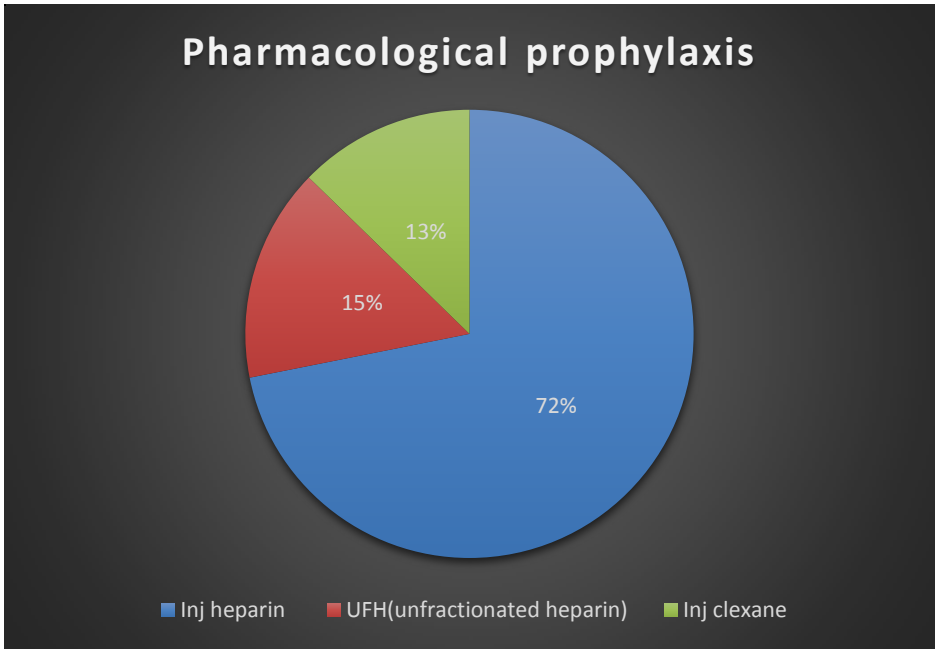

Figure 2

DISCUSSION

This study was carried out to assess the adherence deep vein thrombosis prophylaxis in intensive care unit patients.

But less than 65% of the patients are receiving prophylaxis inspite the risk 100% in intensive care patients.

The risk of DVT can be decreased by using guidelines and interventions. The incidence of DVT in India is highly underestimated because of lack of adequate studies highlighting the incidence of DVT especially in medical patients. In some surveys it is believed that Indians were at the same risk for DVT as western populations. A recent study conducted at CMC Vellore reported an incidence of DVT is 17.46/10000 hospital admissions which is comparable to other Asian results [4].

This suggests that the perceived lower incidence in Indians might in fact be due to a lack of awareness and inadequate diagnostic facilities. This study suggest that use of routine thromboprophylaxis is less for all cases so it should be considered for patients with at high risk.The overall knowledge on DVT prophylaxis among our respondents was far below the ideal [4].

This study shows that DVT prophylaxis is not given as recommended because of bleeding risk, procedures or inappropriate prophylaxis is given among intensive care patients the percentage in receiving prophylaxis is low in both mechanical (8%) and pharmacological (52%) .

Same as this according to a study conducted on patients to evaluate if prophylaxis was given in the right manner, it was concluded that 54.9% of patients were not being given appropriate prophylaxis. This included patients who had absolute indications for prophylaxis but were not given prophylaxis, patients who had no indications for prophylaxis but were given prophylaxis, and patients who received the incorrect type of prophylaxis [1].

Another study involving 364 patients showed that 16% of the patients were not receiving thromboprophylaxis and 45% of patients were not receiving pharmacological prophylaxis. The most common reasons were recent bleeding or surgery, provision of mechanical prophylaxis and thrombocytopenia. Strategies to improve thromboprophylaxis compliance include the education of physicians and electronic reminders [1].

The ACCP advocates that each institute adopt its own protocol for VTE prophylaxis. 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. Out of 19842

surgical patients at risk for VTE, 41.5% of cases did not receive proper prophylaxis.In the Indian patients enrolled in the ENDORSE study, only 16.3% of at-risk surgical patients received adequate prophylaxis [4].

These findings suggest that efforts need to be taken to improve the awareness among surgeons and physicians regarding how to score patients for their DVT risk and regarding the appropriate prophylaxis methods to be used for each risk group in Saveetha Medical College and Hospital.

CONCLUSION

Intensive care patients are at greater risk for DVT due to additional intensive care unit risk factors. Routine thromboprophylaxis is standard of care in this patient population using pharmacological, mechanical prophylaxis or both. The latest edition of the ACCP guidelines on the recommend the use of IPC combined with heparin for thromboprophylaxis in critically ill if no bleeding risk is present. But prophylaxis is given only to the half patient admitted so awareness of DVT risk should be increased among the doctors and medical care faculties. Appropriate prophylaxis should be given as per guidelines. This study will help to improve the administration of appropriate prophylaxis for DVT risk intensive care patients.

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How to cite this article: R.S.Shalini, lll MBBS, DR.Arunkumar, HOD, ICU. A study on deep vein thrombosis prophylaxis in intensive care unit in smch. Int J of Allied Med Sci and Clin Res 2019; 7(4): 1204-1208.
Source of Support: Nil. **Conflict of Interest:** None declared.