Venous Thromboembolism Prophylaxis in Coronary Care Unit in a Cardiology Centre (A Clinical Audit & Re-Audit)

Mohsin Saif, Fahd Ur Rahman, Shoaib Iqbal Safi, Sikandar Azam Khan, Anwar Hussain, Husnain Yousaf, Javeria Kamran, Muhammad Bilal Siddique, Waleed Hassan, Daniyal Ahmad Kamal

Armed Forces Institute of Cardiology/National Institute of Heart Diseases (AFIC/NIHD)/National University of Medical Sciences (NUMS) Rawalpindi, Pakistan

ABSTRACT

Objective: To assess the adherence of current practice of VTE prophylaxis prescription in patients in Armed Forces Institute of Cardiology (AFIC) and compare it to NICE guidelines.

Study Design: We designed a classic audit of assessing current practice against guidelines.

Place and Duration of Study: AFIC/NIHD, Rawalpindi, from Jan 2021 to Jul 2021.

Methodology: Two audits cycles were performed 6 months apart. Each cycle contained of two-point prevalence days, two weeks apart. 50 patients were evaluated each day making a total of 100 patients per cycle. Data was collected on preformed proformas. Repeat audit cycle was performed after 6 months similarly.

Results: In first audit cycle, we assessed n=100 patients. (n=81; 81%) patients were prescribed VTE prophylaxis within 48 hours of admission and n=19; 19% patients were not prescribed any form of VTE prophylaxis. n=11; 11% patients were getting incorrect dosage of VTE according to weight and renal function. Following education and awareness, second audit cycle was repeated after six months. Second cycle showed n=94; 94% patients were correctly receiving VTE prophylaxis. 100% of patients were getting correct dosage of VTE in second cycle.

Conclusion: Repeat audit cycle showed significant improvements in total adherence to VTE protocols and also improvements in prescription of correct dosage.

Keywords: Audit, Incidence, Prophylaxis, Venous thromboembolism (VTE).

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INTRODUCTION

Venous thromboembolism is a severe, under-diagnosed entity referring to blood clots in veins. It broadly encompasses two interrelated conditions of the same spectrum i.e., Deep vein thrombosis (DVT) and Pulmonary Embolism (PE). The spectrum of clinical presentation in VTE ranges from asymptomatic to potentially life threatening clots causing death.[1] In UK VTE results in approximately 25,000 deaths per year.[1] High incidence of morbidity and mortality resulting from VTE's has been a subject of discussion and research. It amounts to huge socioeconomic burden & results in significant mortalities.[2,3] Both mechanical & pharmacological methods are used to prevent VTEs.[2]

VTE is a potentially preventable problem if patients at risk are identified and are provided with appropriate VTE prophylaxis.[2] As many hospital follow local or international guidelines, it seems that main hindrance may be compliance with these guidelines.[2]

Correspondence: Dr Fahd Ur Rehman, Department of Adult Cardiology, Armed Forces Institute of Cardiology, National Institute of Heart Diseases (AFIC/NIHD), Rawalpindi, Pakistan

Aim of this audit was to assess the adherence of VTE prophylaxis prescription in patients of Coronary Care Unit 1 & 2 in AFIC as compared to NICE guideline.

METHODOLOGY

We designed a classic audit of measuring current practice against guidelines. Guidelines used were;

- Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism-NICE guidelines [NG89]
- Quality standard; Venous thromboembolism in adults: reducing the risk in hospital-Quality standard [QS3].

Inclusion Criteria: All patients being admitted in CCU1 & CCU2 in AFIC/NIHD.

Exclusion Criteria: Patients with bleeding disorders-Patients already on anticoagulation Patients on palliative care pathway

Two audits cycles were performed 6 months apart. Each cycle contained of two-point prevalence days, two weeks apart. 50 patients were evaluated each day making a total of 100 patients per cycle. Repeat audit cycle was performed after 6 months similarly.

It was mandatory for all patients admitted in CCU1 & CCU2 to have a VTE risk assessment within 4 hours of admission.

It was also required for all patients to have either pharmacological or mechanical VTE prophylaxis prescribed according to their risk stratification (low, moderate, high risk).

RESULTS

First Audit Cycle: (Jan2021) 100 patients (n=100) were assessed on two different days in two coronary care units. There were 64 males and 36 females. Out of 100, 68 patients (68%) received their VTE prophylaxis as per recommendations either in pharmacological or mechanical form on the same day in less than 4 hours. 13 (13%) started having VTE prophylaxis between 04-48 hours of their admission and 19 patients (19%) did not receive any form of VTE prophylaxis despite indication. 11(11%) patients were prescribed incorrect doses of either LMWH or unfractionated heparin. The main factors identified for incorrect dosing were dosing according to weight and renal function.

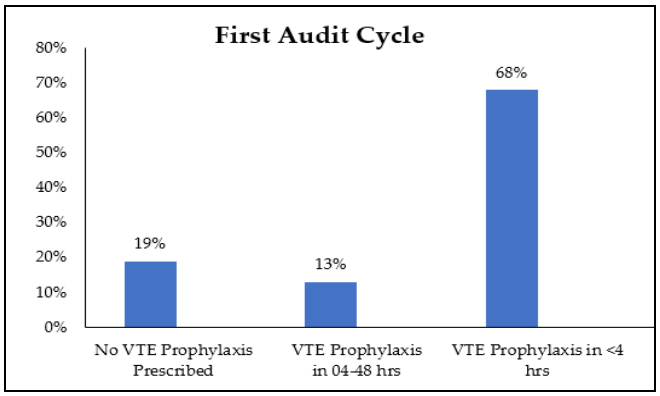

Figure-1: VTE prophylaxis (Cycle-I)

Factors identified for suboptimal performance were; Lack of awareness and importance of VTE prophylaxis. Lack of confidence in prescription due to apprehension of bleeding. Lack of VTE prescription according to proper weight and renal function.

Awareness and education was done on subject of VTE between the two audit cycles using power point presentation at the end of weekly cath conference, publishing flyers on guidance and adherence to VTE and placing them in CCU1 and CCU2 and education of staff including doctors and nursing staff.

Second Audit Cycle: (July 2021) Second audit cycle was performed similarly by collecting data of 50 patients each on two different days, two weeks apart.

Total number of patients included in second cycle were 100 (n=100). There were 61 males and 39 females. Patients in both cycles were demographically similar. Out of 100 patients 86 patients (86%) received their VTE prophylaxis on the same day in less than 4 hours. 8 (8%) were prescribed VTE prophylaxis between 04-48 hours of their admission and 6 patients (6%) were not prescribed any form of VTE prophylaxis despite indication.

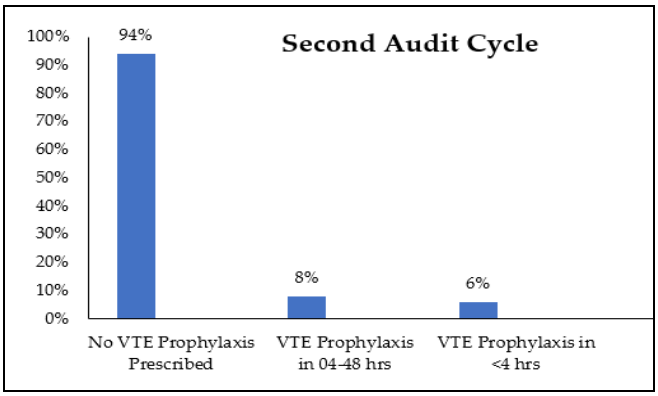

Figure-2: VTE prophylaxis (Cycle-II)

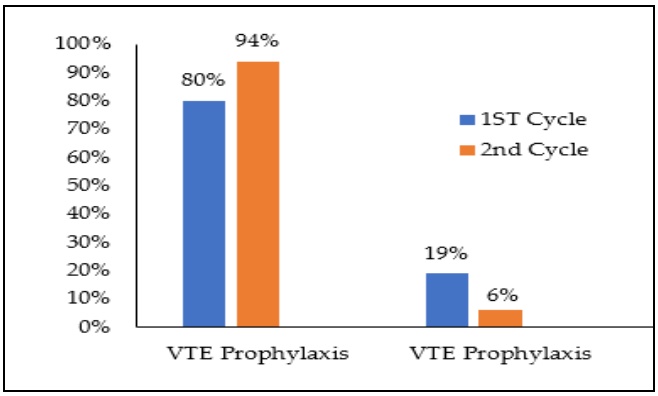

Figure-3: Comparison of Cycle-I and Cycle-II

Second cycle showed significant improvement (from 81% to 94%) in prescription of VTE prophylaxis. 100% patients (Cycle-II) as compared to 89% (Cycle-I) were prescribed correct dosage for weight and renal function.

DISCUSSION

Venous thromboembolism is an underdiagnosed yet preventable condition. Thromboprophylaxis has shown to reduce morbidity in acutely hospitalized patients. Old age, gender, intensive care unit patients, patients with malignancies and cerebrovascular accidents (CVA) are at highest risk of developing venous thromboembolisms.

Our audit was aimed to assess the adherence of VTE prophylaxis prescription in patients being admitted in a tertiary care cardiology hospital and compare it with NICE guidelines. This result of first audit cycle was below our expectations and also below the recommended 100% in NICE guidelines. However, there have been other studies and audits with similar findings.[2,3] Issues surrounding influence of weight on VTE prophylaxis have also been demonstrated by Barbra *et al.* 2005.[2]

There were a few factors which were identified for possible suboptimal results. These factors were addressed before re-audit. Repeat audit cycle showed improvements in total adherence to VTE protocols (94% VTE prescribed) and also improvements in prescription of correct dosage (100% patients prescribed correct dosage) of either LMWH or unfractionated heparin according to clinical picture. Final results show that with some encouragement and education, significant improvement can be seen to adhere to guidelines and recommendations.

RECOMMENDATIONS

- Awareness and education of doctors and paramedical staff should be done regarding impor-tance of VTE and its prevention by prophylaxis.
- Regular repeat audit cycles should be carried out to make sure adherence to guidelines improves and continues.
- Drug kardex should be amended to include VTE prophylaxis risk stratification on front page.

LIMITATIONS OF STUDY

No clinical pharmacist was included as part of audit team.

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Conflict of Interest: None.

Author Contribution

Following authors have made substantial contributions to the manuscript as under:

MS: Intellectual contribution, concept and final approval

FUR: Manuscript writing, concept and editing

SIS: Audit design, drafting the manuscript & critical review

AK: Proof reading, Intellectual contribution, final approval

AH: Data management, data collect and manuscript writing

HY: Review of article, formatting and critical review

JK: Analysis, proof reading and feedback

MBS: Intellectual contribution, concept and final approval

WH:Data management, data collection & manuscript writing

DAK: Formatting, critical review and data collection/entry

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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