Evaluation Of Missed Doses Of Pharmacologic Venous Thromboembolism Prophylaxis And The Incidence Of Venous Thromboembolism In Patients With Traumatic Orthopedic Injuries

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Background

• Trauma continues to be a significant contributing factor in death in the younger population, accounting for the leading cause of preventive death in people younger than forty-four (1).
• It has been extensively studied that physical trauma places patients in a hypercoagulable state (2).
• Many factors contribute to venous thromboembolism, or VTE, rates, and can be as high as 65% in the absence of thromboprophylaxis (3).
• Advocate Christ Medical Center’s (ACMC) Department of Orthopedic Surgery has subjectively observed increased amounts of intraoperative bleeding with enoxaparin administration and ACMC’s VTE prophylaxis guidelines for trauma patients were modified due to the orthopedic surgeons’ concerns.
• Previously, VTE prophylaxis for all trauma patients at ACMC was administered pre- and post-orthopedic intervention without interruption.
• Now, all trauma patients at ACMC undergoing orthopedic surgery have their VTE prophylaxis dose held immediately before surgery.
• To date, only a few studies have examined the impact of missed prophylactic doses on patients, specifically trauma patients.

Disclosures

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

Purpose

Primary objective: to examine the relationship between missed prophylactic enoxaparin doses and rates of VTE formation in the orthopedic trauma population at ACMC

Secondary objective: to determine if there is an increase in the incidence of bleeding complications during orthopedic surgery in patients with traumatic orthopedic injuries who receive pharmacologic VTE prophylaxis pre- and post-operatively

Methods

• IRB-approved, single center, retrospective review
• Data pulled from trauma registry and electronic medical records for all trauma patients
• January 1, 2010 – July 31, 2021
• Patients with orthopedic injuries admitted to ACMC under the care of the trauma service

Inclusion Criteria

• Patients admitted to the trauma service with an orthopedic injury (long bone or pelvic fractures)
• 1/1/2010-07/31/21
• Age ≥ 18 years
• Patient undergoes orthopedic surgery during the hospital stay

Exclusion Criteria

• Pregnancy
• History of venous thromboembolism
• Contraindications to pharmacologic VTE prophylaxis (thrombocytopenia (<50K), history of heparin induced thrombocytopenia, presence of a spinal epidural hematoma, allergy to enoxaparin or heparin)
• Patients receiving therapeutic anticoagulation or anti-platelets pre-injury (therapeutic dose enoxaparin, heparin infusion, warfarin, dabigatran, rivaroxaban, apixaban, ticagrelor, aspirin, clopidogrel, and prasugrel)

Results

• 79 patients included
• 61 patients (77%) experienced interruption in enoxaparin prophylaxis
• 3 patients (3.8%) developed a VTE
• 0% VTE rate (0/18 patients) in the uninterrupted group

Conclusions

• There is a trend towards an increase in VTE rates with interrupted VTE prophylaxis doses.

References