

**Evaluation of Appropriate Chemical and Mechanical Prophylaxis for Deep Vein Thrombosis and Pulmonary Emboli in Orthopaedic Trauma Patients**

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**Purpose:** Deep vein thrombosis (DVT) and pulmonary emboli (PE) occur frequently in patients who sustain traumatic orthopaedic injuries or undergo orthopaedic operations. Both chemical and mechanical means are used to attempt to decrease the incidence of these in the inpatient setting. The purpose of this study is to determine the incidence of DVT and PE in patients with traumatic orthopaedic injuries in the setting of guideline-directed DVT prophylaxis.

**Methods:** We conducted a retrospective review of patients treated by orthopaedic traumatologists and spinal traumatologists over a 72-month period who had vascular or radiographic studies looking for DVTs or PE. The electronic medical records were interrogated using a technical tool that electronically captures thrombotic event data from vascular and radiologic imaging studies using natural language processing. Information about application of mechanical prophylaxis was electronically pulled from nursing documentation in the medial record.

**Results:** 663 patients underwent vascular or radiographic studies after orthopaedic surgical procedures. 100 patients (age 52.3 years, SD 18.3; 70% male) had positive studies that met inclusion criteria for further review. 24 patients sustained upper extremity injuries, 40 single lower extremity traumas, 20 bilateral lower extremity traumas, 27 spinal injury, 35 pelvic fractures, and 41 patients had combinations of the above. Of the 100 patients with DVTs or PE, 63 DVTs (39 occlusive, 24 nonocclusive) and 49 PE were found. Appropriate chemical DVT prophylaxis as deemed by the hospital protocol/evidence-based guideline was given to 54% of patients while 46 missed doses due to operative procedures, comorbid conditions, or direct contraindication to chemical prophylaxis. Mechanical prophylaxis was applied appropriately to both or unaffected lower extremities >75% of the time in 40% of patients.

**Conclusion:** This study shows that despite appropriate use of chemical prophylaxis and near ideal use of mechanical DVT prophylaxis, DVTs and PE still occur in this high-risk orthopaedic trauma population.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.