

**Tibial Shaft Fracture and Thrombosis:
Is Chemical Prophylaxis Necessary for DVT Prophylaxis?***John T. Riehl, MD*

Purpose: The use of chemical venous thromboembolism (VTE) prophylaxis agents in total hip and knee surgeries, as well as in hip fracture surgeries, is routine. The need for VTE prophylaxis in fractures in other body regions is less well understood. Some physicians routinely give chemical prophylaxis for VTE following treatment of tibial fractures while others do not. Currently, there is little direct evidence to support either approach to VTE prophylaxis. Despite guidelines available recommending against the routine use of chemical VTE prophylaxis in isolated tibia fractures, some experts continue to recommend its use which has profound legal implications. The purpose of the current study was to assess the impact of chemical prophylaxis on the rate of VTE in the treatment of tibial fractures.

Methods: A retrospective database review was performed looking at all patients with tibia fractures. Exclusion criteria were (1) incomplete or incorrect database entry for data points used in the regression analysis (age, gender, body mass index, etc), (2) patients with a diagnosis of cancer, and (3) patients who were pregnant at the time of fracture. End points were VTE diagnosis within 30, 60, 90, 180, and 365 days from injury.

Results: 10,126 patients were included in the final analysis. Overall, 14 of 1010 (0.14%) in the no VTE prophylaxis group, and 227 of 9116 (2.24%) who received VTE prophylaxis were diagnosed with VTE after treatment of their tibia fracture ($P = 0.0379$). Logistic regression was performed and found increased age to be statistically significant in predicting the odds of a patient developing VTE for older age groups compared to the youngest age group (18-29 years old). Smoking status (current vs never) was predictive of the odds of VTE as well ($Z = 2.114$, $P = 0.035$). Interestingly, the use of VTE prophylaxis was also found to be significantly predictive of the odds of developing VTE ($Z = 1.979$, $P = 0.048$). Pertinent patient variables that were not found to be associated with VTE after chi-squared analysis were birth control use, Elixhauser Comorbidity Index, fracture location in tibia (proximal, shaft, distal), and immobilization of the fractured limb (boot/splint/or cast).

Conclusion: Consistent with the American College of Chest Physicians evidence-based clinical practice guidelines, this review of over 10,000 patients with tibia fractures found that standard of care would dictate routine use of chemical VTE prophylaxis is not warranted.