

The Incidence of Deep Vein Thrombosis and Pulmonary Embolism in Fractures of the Tibia: An Analysis of the National Trauma Data Bank

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Background/Purpose: The incidence of deep vein thrombosis (DVT) and pulmonary embolism (PE) after a fracture of tibia is generally believed to be low. There is disagreement in the literature and in clinical practice with regards to chemical prophylaxis after fracture and its subsequent treatment in tibia fractures.

Methods: The National Trauma Data Bank (NTDB) data set (2009 to 2011) was used to evaluate the incidence of thromboembolism after tibia fracture. Risk factors associated with the thromboembolic events were identified (Tables 1 and 2). The NTDB data included demographic information, comorbidities, procedure codes, diagnosis codes, and complication data, including DVT and PE, which were collected from the data set for analysis. We identified 148,936 patients with tibia fractures and excluded 51,569 with other lower extremity orthopaedic trauma and 11,291 with polytrauma. The remaining 86,076 patients were examined to evaluate the incidence of DVT and PE and identify risk factors for these complications

Results: The incidence of DVT and PE was 0.48% and 0.31%, respectively. The risk factors statistically significant for DVT and PE in tibia/fibula trauma were older age (DVT, odds ratio [OR] 1.02, 95% confidence interval [CI] 1.02 to 1.03; PE, OR 1.02, 95% CI 1.01 to 1.03), male gender (DVT, OR 1.64, 95% CI 1.27 to 2.12; PE, OR 1.46, 95% CI 1.09 to 1.97), and higher ISS (DVT, OR 1.16, 95% CI 1.12 to 1.20; PE, OR 1.08, 95% CI 1.04 to 1.12).

Conclusion: The incidence of thromboembolic events after fracture of the tibia is low. Those at low risk for DVT/PE with isolated fractures of the tibia can be treated safely without the routine use of antithromboembolic chemoprophylaxis.

Tables 1 and 2: Logistic Regression Analysis Results, Including Only Significant Variables, for Risk Factors Associated With DVT (Table 1) and PE (Table 2) (N = 66,952)

Deep Vein Thrombosis				Pulmonary Embolism			
Variable	Odds Ratio	95% Confidence Interval	p-value	Variable	Odds Ratio	95% Confidence Interval	p-value
Gender	1.64	1.27-2.12	0.0002	Gender	1.46	1.09-1.97	0.0117
Age	1.02	1.02-1.03	<.0001	Age	1.02	1.01-1.03	<.0001
ISS	1.16	1.12-1.20	<.0001	ISS	1.08	1.04-1.12	0.0003
Obesity	2.51	1.72-3.65	<.0001	Impaired sensorium	1.98	1.30-3.03	0.0016
Prophylaxis	3.04	1.12-8.25	0.0290	Myocardial infarction	5.58	1.70-18.28	0.0045
Myocardial infarction	6.20	2.40-15.97	0.0002	ARDS	5.89	2.54-13.65	<.0001
ARDS	5.90	3.02-11.52	<.0001				

ARDS= Acute respiratory distress syndrome

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