Chest Trauma and Early Pulmonary Embolism: The Risks

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Abstract: Purpose: Pulmonary embolism (PE) is a major cause of morbidity and mortality in trauma patients. Data suggests PE is occurring earlier in trauma patients, with attention being turned to possible de novo events. Here, we examine the incidence of early PE at a level 1 trauma center and examine the relationship with a chest injury. Method: A retrospective analysis was performed from a prospective trauma registry at a level 1 trauma center. All patients admitted from 1 January 2010 to 30 June 2019 diagnosed with PE following trauma were included. Early PE was considered a diagnosis within 72 hours of admission. The severity of the chest injury was determined by the Abbreviated Injury Score (AIS). Analysis of severe chest injury and incidence of early PE was performed using chi-square analysis. Sub-analysis on the timing of PE and PE location was also performed using chi-square analysis. Chest injury was present in 125 of 184 patients diagnosed with PE. Early PE occurred in 28% (n=35) of patients with a chest injury, including 24.39% (n=10) with a severe chest injury. Neither chest injury nor severe chest injury determined the presence of early PE (p= > 0.05). Sub-analysis showed a trend toward central clots in early PE (37.14%, n=13) compared to late (27.78%, n=25); however, this was not found to be significant (p= > 0.05). Conclusion: PE occurs early in trauma patients, with almost one-third being diagnosed before 72 hours. This analysis does not support the paradigm that chest injury, nor severe chest injury, results in statistically significant higher rates of early PE. Interestingly, a trend toward early PE was noted in those suffering chest trauma.

Keywords : trauma, PE, chest injury, anticoagulation

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