

FAMILY HISTORY AND THE RISK OF DIAGNOSIS OF ACUTE PULMONARY EMBOLISM IN THE EMERGENCY DEPARTMENT

Deanna Lines, Kajsa Vlasic (Troy Madsen)
Division of Emergency Medicine



Background

Traditional scoring systems in the evaluation of pulmonary embolism (PE) do not utilize a patient's reported family history of venous thromboembolism (VTE). A high prevalence of genetic abnormalities among Caucasian patients, such as Factor V Leiden mutation, may predispose these patients to PE. It is unclear what impact family history may have on a patient's risk for diagnosis of acute PE in the emergency department (ED).

Objective

We sought to determine both the prevalence of self-reported positive family history of VTE and whether patients with this history have an increased risk of diagnosis of acute PE in the ED. We were particularly interested in the impact of family history in an ED population with a predominance of Caucasian patients who are at higher risk for genetic abnormalities predisposing to PE.

Methods

We conducted a prospective evaluation over the 40-month period from September 2010 through December 2013 at the University of Utah ED, an urban, academic ED. We enrolled a convenience sample of patients presenting with chest pain. We recorded baseline characteristics, including self-reported race, and outcomes of testing during the ED stay. Patients were asked if they had a positive family history of VTE, which was defined as a first-degree relative with a previous PE or deep venous thrombosis (DVT). We utilized Pearson's chi-square test, odds ratio (OR), and 95% confidence interval (CI) for evaluation, with $p < 0.05$ considered statistically significant.

Results

We enrolled 2,065 patients during the study period. Subjects were 77.4% Caucasian and 54.4% female, with a mean age was 50.1 years (range: 18-105 years). 20.1% of patients reported a family history of VTE. 1.5% of all patients were diagnosed with an acute PE during the ED stay. Of patients who reported a family history of VTE, 2.9% were diagnosed with an acute PE, while 1.2% of patients without a family history of VTE were diagnosed with an acute PE while in the ED. Patients reporting a family history of VTE were significantly more likely to be diagnosed with a PE while in the ED (OR=2.54, 95% CI=1.22-5.28, $p=0.01$).

Conclusion

Obtaining a positive family history may serve as an important risk factor for the diagnosis of acute PE during the ED visit. Further study of this risk factor, particularly among populations with a high prevalence of genetic mutations predisposing to VTE, may elucidate whether family history alters traditional scoring systems and risk of PE.

