

## D-dimers vs. Age in Patients Suspected of Acute Pulmonary Thromboembolism

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**Introduction.** D-dimers test has been a core test in the diagnosis of acute pulmonary thromboembolism (PE), and has shown clinical value in the diagnosis of PE by its negative predictive value threshold of 0.50 mcg/mL.

**Aim, Materials and Methods.** The study aimed to evaluate a possible increase in a d-dimer test value as the patient's age increases for the group of patients 50 years old and older. A retrospective study was performed from 220 Computer Tomography Pulmonary Angiography (CTA) to patients suspected of having acute PE at the Emergency Department of Riga Eastern Clinical University Hospital, Riga, Latvia, from the 2014 CTA archive. A Spearman's correlation coefficient was computed separately for two groups according to the final diagnosis of positive or negative PE in patients 50 years old and older.

**Results.** For the positive PE group a moderate positive correlation between the variables age ( $\geq 50$  years) and the quantitative value of d-dimers was found with statistical significance ( $r_s = 0.425$ ,  $n = 67$  (2-tailed);  $p < 0.001$ ). For the negative PE group a very weak positive correlation between the two variables was also confirmed with statistical significance ( $r_s = 0.172$ ,  $n = 131$  (2-tailed);  $p = 0.005$ ).

**Conclusions.** A positive correlation between d-dimers test value and age in patients 50 years old and older was shown with possible involvement of physiologic and pathophysiologic mechanism in both positive and negative PE groups. The stronger correlation present in the positive PE group compared to the negative PE group is likely to be due to the presence of deep vein thrombosis in the PE pathophysiology. The practical use can be achieved by optimizing the d-dimers test thresholds for this age group. This supports the already reported benefits of an age-adjusted d-dimers test threshold in ruling out diagnosis of PE for patients 50 years old and older.

*This paper does part of research that aims to create a protocol based algorithm for the diagnosis of pulmonary thromboembolism, and with this gain an optimization in the pathway to diagnosis.*