

Raising D-dimer Threshold Cuts Need for Chest Imaging by 30% in Suspected Pulmonary Embolism



Raising the D-dimer threshold for patients with low or moderate clinical pretest probabilities of pulmonary embolism (PE) effectively rules out PE and reduces the need for chest imaging by one-third (N Engl J Med 2019; 381:2125–34).

The primary goal of diagnostic testing for suspected PE is to determine which patients should be treated with anticoagulants and which should not, according to investigators in the Pulmonary Embolism Graduated D-Dimer study. Current practices generally rule out PE in patients with low clinical pretest probabilities when they have D-dimer results <500 ng/mL. However, only about one-third of patients being evaluated for PE fit this picture, and chest imaging with computed tomography (CT) is expensive, exposes patients to radiation and contrast reactions, and can be time-consuming.

The authors evaluated a strategy that prospectively ruled out further testing in patients who had a low clinical pretest probability and D-dimer results <1,000 ng/mL or moderate clinical pretest probability and D-dimer results <500 ng/mL. In all, the study enrolled and evaluated 2,017 emergency or outpatients at university-based clinical centers in Canada and followed them for 90 days to determine whether they

developed venous thromboembolism (VTE). Physicians used the Wells clinical prediction rule to assign pretest probabilities; patients with low or moderate pretest probabilities had their D-dimer results measured via locally available assays, including STA-Liatest, HemosIL HS 500, Innovance, Triage, Hemosil HS, and Roche Cardiac Reader.



Reference Ranges:

In all, 1,325 patients had either a low clinical pretest probability of PE and D-dimer results <1,000 ng/mL (1,285) or a moderate clinical pretest probability and D-dimer results <500 ng/mL (40). None of these individuals developed a VTE, and just one person had VTE out of 1,863 who received neither an initial diagnosis of PE nor anticoagulant therapy. This diagnostic strategy led to CT imaging in 34.4% of patients. In comparison, a strategy that would have ruled out PE in patients with a low clinical pretest probability and D-dimer results <500 ng/mL would have resulted in CT imaging in 51.9%.

