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Another Validation of Clinical Assessment and D-Dimer to Rule Out PE

Among patients with low or intermediate risk, the sensitivity and negative predictive value of D-dimer testing were 100%.

Despite research showing that clinically important pulmonary embolism (PE) can be excluded when patients with low clinical probabilities have negative D-dimer test results, many clinicians continue to order pulmonary computed tomography angiograms (CTAs) in virtually every patient with suspected PE. Researchers conducted this study at a community teaching hospital in Chicago to determine the accuracy of clinical risk assessment plus D-dimer testing in 627 emergency department patients in whom clinicians considered PE as a diagnostic possibility. All patients underwent clinical risk assessment (using the previously published revised Geneva score [see Table]), D-dimer testing (using a quantitative immunoturbidimetric assay by Dade Behring), and CTA.

According to Geneva scores, the proportions of patients with low, intermediate, and high probability of PE were 45%, 53%, and 3%, respectively. Outcomes were as follows:

- Among 69 low-probability patients with negative D-dimer test results (<1.2 mg/L), CTA showed no PE cases.
- Among 103 intermediate-probability patients with negative D-dimer test results, CTA showed no PE cases.
- Among 212 low-probability patients with positive D-dimer test results, CTA showed 6 cases of PE.
- Among 227 intermediate-probability patients with positive D-dimer test results, CTA showed 17 cases of PE.

Comment: Among patients with low or intermediate risk for PE, the sensitivity and negative predictive value of D-dimer testing were 100% — i.e., no false-negatives were reported. Thus, patients with low or intermediate clinical probability scores and negative D-dimer test results — 27% of the cohort — could safely have avoided CT angiography. For patients with high clinical probability, the current consensus is to skip D-dimer testing and go directly to imaging.

— *Allan S. Brett, MD*

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