Diagnostic Utility of a Rapid Whole-Blood Assay for D-dimer in Pulmonary Embolism

A blinded comparison of D-dimer assay results, ventilation-perfusion (V/Q) lung scanning, and bilateral compression ultrasonography (CU) with watchful waiting (3 mo).

Participants
1177 consecutive adults (mean age 53.4 y, 59% women) who were referred for suspected PE. Exclusion criteria were suspected upper-extremity deep venous thrombosis, no symptoms within the previous 48 hours, receipt of anticoagulants for 72 hours, limited life expectancy, or contraindication to contrast media.

Description of tests and diagnostic standard
History and physical data were used to classify patients as having a high, moderate, or low pretest probability for PE. V/Q lung scans and bilateral CU from the common femoral vein to the calf trifurcation were done within 24 hours. Patients with nondiagnostic V/Q scans or high-probability V/Q scans and a low pretest probability had further testing done using a complex algorithm.

Main results
17% of patients had PE. For all patients, D-dimer assay results had a sensitivity of 84.8% and a specificity of 68.4%. The sensitivity, specificity, and likelihood ratios for patients with low, moderate, and high pretest probabilities and normal, nondiagnostic, and high-probability V/Q scans are shown in the Table.

Conclusion
A normal D-dimer assay result was useful for ruling out PE in patients with a low pretest probability of PE or a nondiagnostic V/Q lung scan.

Source of funding: Medical Research Council of Canada.

For correspondence: Dr. J. S. Ginsberg, McMaster University Medical Center, 1200 Main St West, Room 3W15, Hamilton, Ontario L8N 3Z5, Canada. Fax 905-521-6068.

Abstract and Commentary also published in ACP Journal Club. 1999;130:75.