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Latex D-Dimer for Diagnosing Pulmonary Embolism

TO THE EDITOR: We read with interest the article by Harrison et al. in which the usefulness of a latex D-dimer assay in the exclusion of pulmonary embolism was emphasized (*1*). We too are very interested in using the D-dimer assay in the diagnostic work-up of patients with suspected pulmonary embolism, but feel that a few comments are in order.

First, as discussed by the authors, several reports have shown that ELISA D-dimer assays may be of potential use in the exclusion of pulmonary embolism (*2–4*). The only problem is that to date, no management studies have been published which show the safety of withholding anticoagulant therapy in patients with normal D-dimer results. This makes the suggestion that it is now safe to use D-dimer assays in the clinical practice premature, and may cause readers to believe that such a practice is definitely established.

The most important point of interest, however, is the fact that this report is the first one to advocate the use of a latex method for the exclusion of pulmonary embolism. Many reports, using various latex methods, have shown that latex tests are not sensitive enough for screening in suspected venous thromboembolism (*4–6*). Although the detection limit of the latex technique used in the study by Harrison et al. may be better than previous assays, a sensitivity of 94% in 16 patients with proven pulmonary embolism results in a 95% confidence interval with a lowest value of 70%. This means that up to 30% of patients with proven pulmonary embolism may remain undetected when relying on a normal latex D-dimer result alone. Furthermore, in a recent study of 151 consecutive patients with suspected pulmonary embolism, we found that latex tests were normal in 7%–15% of patients tested, while at the same time the same manufacturers (ELISA) showed elevated values (*4*). This could easily lead to pulmonary embolism to be missed by latex tests in a substantial number of patients.

Therefore, we would like to conclude that D-dimer should presently only be considered a research tool and should be used with great caution in the routine management of patients with pulmonary embolism until careful clinical studies have proven its reliability.

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Negative Predictive Value of C-Reactive Protein Testing

TO THE EDITOR: In a 1989 article, Drs. Thomas and Cobby (*1*) reported on the negative predictive value of the C-reactive protein test in patients with clinical suspicion of deep venous thrombosis. We wanted to see if this observation would be applicable to the detection of pulmonary embolism.

We asked our colleagues in the emergency department to request a C-reactive protein test in patients referred to us for lung scans for possible pulmonary embolus. This was no small undertaking in a private hospital practice, but eventually we were able to collect data on 47 patients. The C-reactive protein test was performed in a clinical laboratory and reported as positive if the serum level equaled or exceeded 6 μg/ml. A discharge diagnosis of pulmonary embolus was supported by clinical and laboratory data including mismatched perfusion/ventilation defects in a lung scan, angiography in three cases and clinical grounds in all. A discharge diagnosis excluding pulmonary embolus was supported additionally by no hospital readmissions or significant clinical events during a follow-up period of 6 mo. The C-reactive protein test was positive in 20 patients including 15 with a discharge diagnosis of pulmonary embolus. The C-reactive protein test was negative in 18 patients, none of which had a discharge diagnosis of pulmonary embolus.

In this small series, a negative C-reactive protein test has a high negative predictive value for pulmonary embolus. Given the simplicity and low cost of the test, it might be a good idea to start a multi-institutional prospective study of the C-reactive protein test in patients suspected to have pulmonary embolus.

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