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LUNG ALERT

Multidetector CT and the diagnosis of PE

▲ Stein PD, Fowler SE, Goodman LR, et al. Multidetector computed tomography for acute pulmonary embolism. *N Engl J Med* 2006;**22**:2317–27

Previous studies have reported that the diagnostic sensitivity of single slice computed tomographic angiography (CTA) is approximately 70%. However, the accuracy of multidetector CTA is uncertain. The PIOPE II study investigated the diagnostic accuracy of multidetector CTA in pulmonary embolism (PE) and whether the addition of peripheral venous phase imaging (CTV) improved diagnosis. Clinical assessment against a reference criterion was incorporated into this study.

824 patients were analysed, of whom 23% had PE. The significance of the 17% missed diagnoses is probably not clinically relevant: previous outcome studies suggest that in these patients most thrombi do not need to be treated. The sensitivity of CTA in combination with CTV was 90%.

The importance of a clinical risk score was highlighted in this study. An abnormal finding on multidetector CTA in combination with a high/intermediate clinical risk had a 93% positive predictive value (PPV). However, in those with a low clinical risk, the PPV of an abnormal CTA was only 58%. A normal CTA in combination with a low/intermediate clinical risk of PE had a high negative predictive value (NPV) of approximately 93% whereas, in those with a high clinical risk, the NPV was only 60%. Further investigation is therefore recommended when the clinical probability is inconsistent with the CTA result.

This study shows that the sensitivity of multidetector CTA for the diagnosis of PE is high. The importance of a clinical risk score was highlighted. CTA-CTV has an increased sensitivity over CTA alone. However, given the additional radiation, it may not improve the diagnostic yield enough to be routinely recommended.

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