

Simple diagnostic algorithm can be used to rule out pulmonary embolism

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Patients with suspected pulmonary embolism (PE) often undergo computed tomography pulmonary angiography (CTPA) to confirm or exclude the diagnosis.

However, CTPA exposes them to radiation, the risk of contrast-induced nephropathy, and increases [health care costs](#). Therefore ways to reduce the use of CTPA in this setting are needed.

Now, new findings presented at ESC Congress 2016, suggest a simple diagnostic [algorithm](#) can be used to rule out PE in a significant number of these [patients](#), eliminating their need for CTPA.

The YEARS algorithm "can replace current diagnostic algorithms which, although safe and accurate, are often not used in busy emergency departments because they are too complex," noted YEARS study investigator Tom van der Hulle, MD, from Leiden University Medical Center, in the Netherlands.

"The advantage of the YEARS algorithm over existing algorithms is a 14% reduction in the need for CTPA imaging and with that, reduced potential for radiation-induced harm and overdiagnosis."

Unlike other, multi-item, sequential algorithms used to assess PE risk, the YEARS clinical decision rule consists of one blood test and 3 items of the original Wells rule.

Patients presenting to the emergency department can be evaluated based on:

- clinical signs of deep vein thrombosis (e.g., swelling, edema);
- hemoptysis (coughing up blood);
- and whether the clinician considers PE to be "the most likely diagnosis."

Using this information combined with results of a blood test measuring D-dimer – a protein produced by blood clots – clinicians can either exclude PE, or recommend a CTPA for definitive diagnosis.

The YEARS study prospectively evaluated this algorithm in 3,465 patients (mean age 53 years), 88% of whom were outpatients.

Based on the algorithm, PE was excluded and CPTA was withheld in 1,651 patients who either had: no YEARS items and a D-dimer level

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