Tomographic imaging advances considered good yet can lead to overdiagnosis in PE patients

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Although advances in tomographic imaging have improved the sensitivity of ventilation-perfusion (V/Q) scans for pulmonary embolism (PE), they may lead to overdiagnosis by revealing small and clinically insignificant PEs, according to a state-of-the-art review published in the March 2017 issue of the *American Journal of Roentgenology (AJR)*.

Titled "Current Status of Ventilation-Perfusion Scintigraphy for Suspected Pulmonary Embolism," the article reviews various imaging techniques and interpretation systems that can be used in accordance with the medical practice environment and specific patient groups. The paper may be accessed on the *AJR* website available here.

"In the United States, V/Q scan interpretation is transitioning from a probabilistic interpretation to a more definitive interpretation that harmonizes with the reporting of pulmonary CT angiography (CTA) scans," said Darlene Metter, study coauthor and radiologist at UT Health San Antonio. "V/Q SPECT/CT has improved the sensitivity for clot detection compared with planar imaging; however, the additional radiation dose from the CT component, especially to the female breast, should be considered."

Tomographic and hybrid imaging have not only created the dilemma of overdiagnosis, but also overtreatment of the clinically insignificant subsegmental PE. Given the practice of defensive medicine in the

United States, the use of V/Q planar imaging is favored over tomographic techniques at this time. The 2016 American College of Chest Physicians policy statement supporting surveillance over treatment for small PEs without associated proximal deep venous thrombosis (DVT) and the current international prospective trial assessing the significance of the small PE may change practice recommendations in the United States regarding optimal V/Q imaging in favor of the tomographic technique.

"This practice change would, of course, be contingent on U.S. physicians accepting these proposals and ending their defensive practice of unnecessarily treating these clinically insignificant small PEs," said study coauthor Leonard Freeman, professor of radiology at Albert Einstein College of Medicine and chief, Moses Division of Nuclear Medicine, Montefiore Medical Center, Bronx, N.Y.

More information: Darlene Metter et al, Current Status of Ventilation-Perfusion Scintigraphy for Suspected Pulmonary Embolism, *American Journal of Roentgenology* (2017). DOI: 10.2214/AJR.16.17195

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