
RSNA Press Release

CT Venography Increases Detection of Dangerous Blood Clots

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OAK BROOK, Ill. - Recurring blood clots in the lungs could be prevented with computed tomography (CT) scans of the legs, according to a study in the February issue of the journal *Radiology*.

Researchers found that indirect CT venography (CTV) could identify blood clots in the legs that have the potential to break free, travel to the lung and block an artery—a life-threatening condition known as pulmonary embolism.

Pulmonary emboli and blood clots in the legs, also called deep vein thrombosis, are both manifestations of thromboembolic disease.

CT pulmonary angiography (CTPA), a type of lung scan, is commonly used to detect the presence of blood clots in the lung. But because many clots in smaller arteries are not visible on this lung scan, thromboembolic disease may go undiagnosed in some patients. Indirect CTV can help identify a blood clot problem.

"Studies have shown that inadequately treated deep vein thrombosis is associated with recurring pulmonary emboli," said lead author, Matthew D. Cham, M.D., a radiology resident at the University of Rochester School of Medicine and Dentistry in Rochester, New York.

In a large-scale study, Dr. Cham and colleagues, David F. Yankelevitz, M.D., and Claudia I. Henschke, Ph.D., M.D., from New York Presbyterian Hospital-Weill Medical College at Cornell University in New York City, found that performing CTV in addition to CTPA increased the detection rate of thromboembolic disease by 20 percent.

Each year, more than 600,000 people in the United States suffer from pulmonary embolism, and more than 60,000 of them die, according to the National Heart, Lung and Blood Institute. Most pulmonary emboli occur when a blood clot in the leg breaks free and travels to the lung.

At A Glance

- Each year, more than 600,000 people in the U.S. suffer from pulmonary embolism, and 60,000 cases are fatal.
- Most pulmonary emboli occur when a blood clot breaks free from the leg and travels to the lung.
- Performing CT venography of the legs in cases of suspected pulmonary embolism can increase detection of thromboembolic disease by 20 percent.

The researchers studied 1,590 consecutive patients undergoing both CTPA and CTV at New York Presbyterian Hospital-Weill Medical College at Cornell University for suspected pulmonary embolism between 1998 and 2001. CTPA detected pulmonary embolism in 15 percent, or 243 patients. CTV detected deep vein thrombosis in 148, or 9 percent, of patients. Of those 148 patients, only 100 had been diagnosed with pulmonary embolism by CTPA.

The addition of indirect CTV following a CTPA exam requires no additional contrast material and only three minutes to perform. In both the CTV and CTPA, a series of x-ray beams is directed through the body from different angles, creating cross-sectional views of the body that are assembled by computer into a stack of pictures that can be rapidly viewed like flipping through a deck of cards.

"Combining CTV with CTPA also eliminates the need for a separate lower extremity examination that can further delay diagnosis," Dr. Cham said.

For interviews or a copy of the complete study, contact RSNA Media Relations at (630) 590-7762.

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"Thromboembolic Disease Detection at Indirect CT Venography versus CT Pulmonary Angiography." Collaborating with Dr. Cham on this paper were David F. Yankelevitz, M.D. and Claudia I. Henschke, Ph.D., M.D., from New York Presbyterian Hospital-Weill Medical College at Cornell University in New York City.

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