

## Low radiation scans help identify cancer in earliest stages

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A study of veterans at high risk for developing lung cancer shows that low-dose computed tomography (LDCT) can be highly effective in helping clinicians spot tiny lung nodules which, in a small number of patients, may indicate the earliest stages of the disease. LDCT uses less than a quarter of the radiation of a conventional CT scan.

Results of the study will be presented at the ATS 2013 International Conference.

"Lung [cancer](#) is the leading cause of cancer-related death and has a poor survival rate," said Sue Yoon, [nurse practitioner](#) at VA Boston HealthCare West Roxbury Division. "Most of our veterans in these ages have a heavy smoking history and early [screening](#) is desirable to improve outcomes. Our study was undertaken to learn how often we would discover significant abnormalities and how to adapt our existing processes and interdisciplinary approaches to accommodate additional [patients](#)."

Conducted according to guidelines set forth by the National Comprehensive Cancer Network (NCCN), the study was based in part on the results of the National [Lung Cancer Screening](#) Trial (NLST) which found that LDCT resulted in a 20 percent reduction of lung cancer mortality compared to [chest x-ray](#) among [heavy smokers](#) aged 55 to 74 years.

The study enrolled 56 patients with a median age of 61 to 65 years and

who had a smoking history of more than 30 pack years or 20 pack years and one additional [cancer risk factor](#), such as occupational exposure to carcinogens or personal or family history of cancer or COPD.

After reviewing LDCT scans of each patient, the researchers found that 31 patients had a nodule of 4mm or larger or another abnormal opacity, six of which were deemed suspicious for malignancy. The study also found that 34 patients had more than one nodule. Four patients were diagnosed with biopsy-proven lung cancer.

"Our preliminary rate of [lung cancer](#) diagnosis after the first round of screening was 7 percent, which was significantly higher than NLST group, which had a preliminary rate of 3.8 percent at its first round," Ms. Yoon said." In addition, detection of nodules larger than 4mm was 55 percent in our group compared to 27 percent in the NLST group."

The difference in nodule prevalence rates between the current study and the NLST are likely due to three primary factors, she noted: First, the current study had much smaller numbers than the multicenter NLST; second, the scanning technology used during the current trial had advanced since the earlier NLST trial was conducted; and finally, the populations studied in the NLST and the current study had significant differences - for instance, the VA population was predominantly male and most patients had COPD.

While the results of both this study and the NLST suggest regular screening with LDCT technology can help identify patients in the early stages of cancer, establishing and supporting a regular screening program requires significant resources and may not be feasible in all locations or for all populations, Ms. Yoon added. In addition, because the LDCT is highly sensitive, most of the nodules it spots are benign, and are often due to inflammation or scarring.

"Our previous experience with diagnosing and managing a high volume of incidentally discovered pulmonary nodules suggested that a low dose CT scan screening program, in which patients are screened annually, could be a substantial undertaking," Ms. Yoon said. "Considerable effort goes into each step of the process: selecting patients, tracking abnormalities, further selecting patients with suspicious abnormalities for additional diagnostic and therapeutic interventions.

"Although we plan to continue and expand the LDCT screening program, this will require additional planning and, potentially, resources," she added. "Currently we are using a gatekeeper approach, to ensure tracking of nodules and other abnormalities that are discovered during screening LDCT."

Provided by American Thoracic Society

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