Lung Cancer Screening: Has Its Time Come?

By David S. Ettinger, MD, FACP, FCCP [5]

The simple answer, according to some, is that lung cancer screening’s time has come. However, in my opinion, the answer is not that simple.

Reflecting lung cancer screening’s potential for complexity, the article in this issue by Drs. Brawley and Flenaugh points out that there are so many different solitary nodules found on the low-dose helical computerized tomography (LDCT) used for lung cancer screening that algorithms are being developed to more effectively and accurately distinguish benign lesions from malignant ones. The majority of the lesions found on LDCT are benign, and their assessment should be resolved, if possible, without invasive procedures. The authors review the history of screening for lung cancer, types of radiologic features of solitary pulmonary nodules (SPNs), and management of these nodules; they also discuss the issue of overdiagnosis, since most SPNs are not malignant.

Over the past 2 years, the American Society of Clinical Oncology,[1] the American College of Chest Physicians,[1] the American Thoracic Society,[1] the American Lung Association,[2] the American Association for Thoracic Surgery (AATS),[3] the American Cancer Society,[4] the National Comprehensive Cancer Network (NCCN),[5] and more recently the US Preventive Services Task Force[6] have recommended LDCT screening for those who are at high risk for lung cancer (based on the results of the National Lung Screening Trial [NLST]): persons aged 55 to 74 years who have a >30 pack-year smoking history and who currently smoke or have quit in the past 15 years.[7] Both the AATS and the NCCN also recommend screening in individuals aged 50 or older who have at least a 30 pack-year smoking history and an additional risk factor for lung cancer.

If you can identify a lung cancer early with lung cancer screening, as in the NLST, you can reduce mortality from lung cancer by approximately 20%. However, there is a possibility of harm associated with LDCT screening: false-negative and false-positive results, radiation exposure, overdiagnosis of incidental findings, anxiety, the potential of unnecessary testing, and financial cost. According to the NCCN Non–Small-Cell Lung Cancer Guideline Version 3.2014[8] (full disclosure—I am the panel chair), if a nodule is suspicious for lung cancer, a multidisciplinary evaluation that involves thoracic surgeons, thoracic radiologists, and pulmonologists should determine the likelihood of a cancer diagnosis and the optimal diagnostic or follow-up strategy. Smoking cessation counseling is also recommended. Finally, a risk assessment should be done; this should include patient factors (age, smoking history, previous cancer history, family history, occupational exposures, other lung disease, exposure to infectious agents, risk factors or history suggestive of infection), and radiologic factors (size, shape, and density of pulmonary nodule; associated parenchymal abnormalities [eg, scarring or suspicion of inflammatory changes]; and fluorodeoxyglucose [FDG] avidity on positron emission tomography [PET] imaging, if done).

Healthcare providers who recommend LDCT for screening, in order to serve effectively those who are candidates for screening, need to become knowledgeable with regard to:

• What screening involves.
• How often it needs to be done.
• Risk associated with radiation exposure.
• What additional studies/procedures need to be done if a solitary nodule is found.
• What risks are posed by a lung biopsy, if this is needed.

Educational material, including videos that explain the various studies/procedures, should be available for both the healthcare providers and individuals potentially to be screened so that the latter will be able to make a well-informed decision.

Yet, even if all these recommendations are followed with regard to the role of the referring healthcare provider, important concerns and questions remain. I, as well as some others who are specialists in thoracic diseases, am concerned about whether every hospital—big and small, academic and nonacademic—should be doing lung cancer screening in light of the possible risks for
the patient. Should there be restrictions on the settings and providers that can be involved with lung cancer screening? Is there a need for a credentialing process for such screening in order to safeguard patients who meet the criteria for screening and who want to be screened? Questions such as how long screening should continue once it is initiated and whether it must be done annually need to be answered as well. Finally, there is concern as to whether the availability of reliable screening would lull people into complacency about continuing to smoke. Those of us involved in the treatment of lung cancer certainly would not want screening to work against efforts to decrease smoking.

In summary, nothing is simple with regard to lung cancer screening. We are, I believe, at the beginning of a complex discussion of lung cancer screening, not at the end. What is clear is that the focus of what we do with regard to LDCT should be centered on the needs and history of the individual being screened. That is, as always, our obligation.

**Financial Disclosure:** Dr. Ettinger serves on the Board of Directors of the National Comprehensive Cancer Network, has been Chair of their Non-Small-Cell Lung Cancer Clinical Practice Guideline Panel, and is a member of the committee that prepared their Lung Cancer Screening Guidelines; he has also been an author on the American Cancer Society Lung Cancer Screening Guidelines.

**References:**


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