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Closing the Time Gap with LDCT Screening: A Preventative Screening Technique for Lung Cancer

Announcer:
You're listening to ReachMD, and this episode of Project Oncology is sponsored by Lilly. Here's your host, Dr. Charles Turck.

Dr. Turck:
Lung cancer is often diagnosed in its later stages, which unfortunately doesn't leave much time for intervention or treatment. That makes early detection all the more critical for our patients. And one preventive screening technique using low-dose computed tomography might help us close that time gap. But what are some of the other benefits and possible risks associated with this screening option that we should know about?

Welcome to Project Oncology on ReachMD. I'm Dr. Charles Turck and here with me today is Dr. Andrea McKee, a practicing radiation oncologist at Beth Israel Lahey Health in Burlington, Massachusetts. Dr. McKee, welcome to the program.

Dr. McKee:
Thank you, it's great to be here.

Dr. Turck:
Now to start us off, Dr. McKee, would you briefly review the updated lung cancer screening guidelines from the U.S. Preventative Services Task Force?

Dr. McKee:
Yes. The guidelines are hot off the press, but the new recommendations takes into consideration some of the newer randomized control data out of Europe, namely the NELSON study, in particular, which included people who were younger than those studied in the National Lung Screening Trials, so 50-year-olds to 80-year-olds and it also included people who had smoked fewer pack years. So, there's a lower threshold for tobacco use for entry into CT lung screening program, now under the new, expanded guidelines.

The guidelines are estimated to increase the eligible population in the United States from about 8 million to about 15 million, or so almost doubling the size of those who will now have access to this prevention study.

Dr. Turck:
Well, thank you for that review, Dr. McKee. With those guidelines in mind, let's examine low-dose computed tomography. How might this form of screening benefit those individuals who are at a high risk of lung cancer?

Dr. McKee:
So, the main goal for CT lung screening is to detect lung cancer in its earliest stages of the disease and the randomized control data that has looked at this has demonstrated that there is, indeed, a stage shift, as well as the mortality benefit to screening with a CT scan for those who are at high risk for lung cancer. So eligible patients will have a yearly low-dose CT scan of the chest from the time they enter the program, which could be at age 50 now, to the time they exit out of the program, which is either at age 80 or 15 years after they have quit tobacco use.

And for those patients, we are diagnosing early-stage lung cancer in clinical practice, about 75% of the time Stage I lung cancer is diagnosed during the baseline year of screening, so when you first enter the program. And what we're actually seeing in clinical practice is once you've been in the program and you're on your annual years, in other words, you continue to come in year after year, we're finding lung cancer as it's developing, and so there's even earlier stage of disease that we're finding lung cancer at that time; about 85%

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have Stage I-II lung cancer and those cases are highly curable.

A screened-detected Stage I lung cancer, believe it or not, has about a 90% chance of being cured with surgical intervention, and so this is probably the most important thing that we want to focus on for people engaging in lung cancer screening. But there are other benefits, as well. In our program, at Lahey Hospital and Medical Center, we have screened over 7,000 patients, we've performed over 20,000 exams in the past 9 years for patients who are undergoing CT lung screening. And one of the things that we found, because the patients have been in the program for some time now, is that the longer the patient remains in a program, the more likely they are to actually quit tobacco use for those current smokers. It's about 50/50, the number of people who enter the program who are former smokers or people who previously smoked versus those who are currently smoking. And those who are currently smoking, we're really trying very hard to help educate them about the risks of tobacco use and we've published this, actually, that we're helping these people to quit tobacco. We have a 21% point prevalence quite rate, which is about twice to three times that the national quit rate. So we work very hard with the patients to help them to do so.

Then there's other areas that we're exploring. We're diagnosing other things off of the CT scan. That's not our intention, but we can't help with the CT scan but to see things other than the lungs. So we see the heart and we are finding coronary artery calcifications for some of the patients, we are also able to look at the lung fields very closely and we're diagnosing emphysematous changes in the lung, which may be pertinent to patients, but the other thing that we're finding are other cancers. So for every 7 ½ lung cancers that we find, we actually find 1 non-lung cancer, such as kidney cancer or liver cancer, or breast cancer. These are considered other significant incidentals. And some of these other significant incidentals end up being other cancers.

Dr. Turck:
Now are there any safety risks associated with lung cancer screening that we should know about?

Dr. McKee:
Absolutely. As with any intervention in medicine, even taking an aspirin or applying sunscreen, there are risks associated with any medical intervention even though it might not seem that sometimes. But a CT of the chest does look very closely at a number of organ systems, and so one of the things that we see when we're looking for these tiny nodules in the lung is that we can find nodules that actually aren't lung cancer. That's called a false-positive rate or detecting a nodule that we flag and then we typically vantage those nodules through additional imaging. The risk of finding a nodule that's not lung cancer or finding a nodule on the baseline round of screening is about 10%. And some of those nodules end up actually being lung cancer, but the majority of them end up not being lung cancer or false-positives. So, that's something that we counsel patients about. That rate does go down to about a 5% risk per year, once they've gotten through the baseline screening band because, of course, now we have CT scans that we can compare back to on future studies. So the false-positive possibility is something we talk with patients about.

There's also exposure to radiation, which in the low-dose CT environment is really quite low; it's about that of a mammogram and there really isn't a whole lot of data that we're causing significant morbidity or mortality from women undergoing annual mammograms due to radiation exposure. So we're hopeful that that's a similar trend in this patient population who are older individuals. A CT lung exam wouldn't be appropriate for somebody who's younger. I'm a radiation oncologist and I work with radiation all the time; that radiation affects younger people in a much different way than older people. So, people who are over the age of 50 and who have smoked 20 to 30 pack-years, the radiation risk is really quite much lower compared to their risk of having lung cancer, which is about 2% at baseline in our study and was 1% on the NLST, and there's some VA studies, military personnel whose underlying baseline rate of malignancy has been reported in the literature to be about 4 to 5% and that's probably due to their additional exposure from other agents that can contribute to the diagnosis of lung cancer.

One of the other possibilities of risks associated with screening is overdiagnosis and this is a term that is applied to any patient who is diagnosed with a condition that they don't actually die of the condition. And so any screening test is going to have a certain amount of overdiagnosis associated with it. You could go in for a screening mammography or screening mammogram and a week later, you're diagnosed with breast cancer, and a week after that, you could die of some other disease or some other cause. So the overdiagnosis rate when it comes to lung cancer since lung cancer is really a pretty deadly disease, has been proven in the NLST long-term follow-up they published 11-year follow-up data a couple of years ago, is at about 3% so that's pretty low for a screening test. And again, that has to do with the underlying aggressiveness of lung cancer, as well as the systems that have been developed to perform lung cancer screening in the community. Now in order to have a CT lung exam, patients findings are reported out using a system called Lung-RADS and the Lung-RADS system actually makes sure that we, kind of, triage patients according to their findings and so we're not intervening on things like ground glass opacities or findings on the lung exam that are not particularly aggressive and therefore overdiagnosis is really quite low in the CT lung screening environment.

Dr. Turck:

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For those just tuning in, you're listening to Project Oncology on ReachMD. I'm Dr. Charles Turck and today I'm speaking with Dr. Andrea McKee about the benefits and risks of low-dose CT screening for lung cancer.

So, Dr. McKee, let's talk a little bit more about the efficacy of low-dose CT screening. I know you had mentioned your study that's in the process of being published; what does the rest of the literature show in terms of how effective this screening process is?

Dr. McKee:
The National Lung Screening Trial is the first study to publish their results in a randomized setting, which of course is required in order to demonstrate a mortality benefit and the National Lung Screening Trial demonstrated a 20% lung cancer-specific mortality benefit to those receiving and annual low-dose CT of the chest versus an annual chest x-ray. Now the way that that study was designed, it was 2 years of screening, 3 exams, so a baseline screen, and then 2 annual screens over the course of 2 years. So many in the field theorized that if you continue to do low-dose CT screening for these patients outside of a trial setting, there would actually be an even greater mortality benefit because that 20% threshold was reached with just 2 years of screening and then 6 years of follow-up, during which time during the follow-up years, there was no screening intervention being performed. So we do think that that 20% mortality benefit is probably a bit of an underestimate.

The NELSON study, which is the European trial that was published several years ago, does demonstrate an even great mortality benefit for those undergoing a low-dose CT of the chest. Their trial design is slightly different. It was compared to no screening versus, as you recall, the NLST was a chest x-ray versus a low-dose CT, so this was low-dose CT versus nothing. And they extended the study out for more years. So there were additional screens done, there were 4 screenings done over 5 years. And then they waited to 10 years to report the mortality benefit and they did report a higher mortality benefit in the NELSON study, about a 24% and an even greater mortality benefit that was seen for women during a particular period of time in the study follow-up. They didn't have that many women in the NELSON trial, so it really wasn't powered specifically to look at that.

Dr. Turck:
And of course, a very important aspect we need to keep in mind is how patients are going to pay for this type of screening. Would you be able to tell us what resources are available to our patients to help them with that aspect of the healthcare experience?

Dr. McKee:
According to the USPSTF recommendations, they've issued a category B recommendation for the patients we've just discussed, 50 and older, 20+ pack-year history and currently smoke or quit within the past 15 years, those patients, according to the Affordable Care Act will have access to the screening exam for free; in other words, it's considered an essential health benefit according to the Affordable Care Act and so the insurance carriers is not able to charge a co-pay. So the baseline screen is free to all of those patients who carry private insurance and meet those eligibility criteria. CMS, the Centers for Medicare and Medicaid, have yet to weigh in on the updated USPSTF guidelines. They are currently in the process of reassessing their national coverage termination and so we're hopeful that we'll hear about CMS recommendations in the next several months to be updated to come into line with the USPSTF recommendation.

So where it runs into cost issues for patients, and this is the same with mammography and colonoscopy, is that if we find something on the screening exam that requires further evaluation, like a CT in 6 months or at 3 months, a follow-up CT, that then becomes a diagnostic study, it's no longer a screening study and it's not considered part of the screening process, according to insurance coverage, but it is part of the screening process.

Dr. Turck:
Finally, Dr. McKee, I'd like to open up the floor to you for any closing remarks you'd care to share with our listeners.

Dr. McKee:
As with anything in medicine, it takes a little bit of time for new guidelines to be adopted into clinical practice. It requires time for clinicians to become aware of the new guidelines and importantly, it takes time for insurance carriers to update their policies to reflect the new guidelines. According to the Affordable Care Act, insurers do have a year to update their policies from the time at which the USPSTF recommendation came out. So, we're in this, kind of, awkward period of time where we know that the data supports screening for this new population of patients, these younger patients who smoked less, but there may still be insurance challenges. And so, you know, I would encourage all people who think they may be eligible for screening to talk to their provider; there are also resources, the American Lung Association, the Go2 Foundation, there's a variety of places where people can go online to learn more about their eligibility. The American Lung Association has savedbythescan.org; it's a good resource for patients who think they might be eligible for screening. And I would encourage all patients who think they're eligible but are running into insurance issues to contact their insurance provider and advocate for coverage of the exam. We are doing this with our patient population, we're actually helping them with letters that they can write to their insurance company if they run into an insurance issue. But for the next year, it's gonna take a little bit of time for everybody to get this translated into clinical practice, which is the case with any new discovery in medicine.

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Dr. Turck:
That's all really great information, Dr. McKee, and seeing as how earlier detection of cancer is a significant concern of many clinicians, I'd really like to thank you for joining me today to walk us through this screening option for those at high risk of lung cancer. It was great having you on the program, Dr. McKee.

Dr. McKee:
Thank you, Dr. Turck. Appreciate it.

Announcer:
This program was sponsored by Lilly. To revisit any part of this discussion and to access other episodes in this series, visit ReachMD.com-slash-ProjectOncology, where you can Be Part of the Knowledge. Thanks for listening.

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