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Making the Most of Biomarker Testing in NSCLC

Announcer:
You're listening to *On the Frontlines of Non-Small Cell Lung Cancer*on ReachMD. Here's your host, Dr. Steve Jackson.

Dr. Jackson:
This is *On the Frontlines of Non-Small Cell Lung Cancer*on ReachMD. I'm Dr. Steve Jackson, and joining me to discuss the role of biomarker testing in non-small cell lung cancer is Dr. Angel Qin, Clinical Associate Professor of Internal Medicine at the University of Michigan Medical School. Dr. Qin, thanks for being here today.

Dr. Qin:
Thank you, Steve. Thank you so much for having me today.

Dr. Jackson:
So if we start with the bigger picture, Dr. Qin, how has biomarker testing changed the way you diagnose and characterize non-small cell lung cancer?

Dr. Qin:
Yeah, I think that's a great question. Biomarker testing has 100 percent changed the way we think about lung cancer as well as the way that we treat lung cancer.

What is really exciting is, over the past decade, we have seen an explosion of biomarker-directed therapies that has truly revolutionized our treatment of lung cancer. Patients are living longer with better quality of life, because we're able to deliver targeted therapy, and we wouldn't be able to offer these patients these targeted therapies if we didn't do biomarker testing to understand that their cancer has these targets. And we also know that certain biomarkers actually have different prognostic value as well, so understanding that is really important to the patient's diagnosis, too.

Dr. Jackson:
Sure. So you have a patient who's newly diagnosed. How do you determine the best approach to the biomarker testing?

Dr. Qin:
This is the really tricky part, and I think it's an area of active research. Patients come to us diagnosed in different stages, right? Some are in early stage. In stage one, stage two, and sometimes even stage three, we would still consider things like surgery or chemoradiation. And then, of course, many of our patients unfortunately also come to us when they have stage four cancer.

I would say that the optimal way to obtain biomarker testing is through tissue. So, as one of my mentors always says, "Tissue is the issue." And we like to get as much tissue as possible. We're kind of greedy, us medical oncologists, because we have so many different biomarkers that we would like to test for. But we recognize that, especially in lung cancer, where sometimes all we can get is a small lymph node or maybe some malignant fluid, that getting maximal tissue is not going to be possible.

And so I like to think about it in a dual approach, where we also obtain a liquid biopsy. So these are specialized, blood-based tests that also look at circulating tumor DNA. And many times, I think about getting both the tissue and the blood at the same time when I'm meeting a patient.

Dr. Jackson:
And certainly, you're never going to forget tissue is the issue when it comes from a mentor.

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Dr. Qin:
Exactly.

Dr. Jackson:
That's a great pearl right there. When reviewing the biomarker test results, what findings can help predict the treatment response and prognosis?

Dr. Qin:
There's a difference between predictive biomarkers and prognostic biomarkers. So I think we sometimes confuse the two. Prognosis just means we know that, oh gosh, if a patient has this biomarker, that means the patient's cancer is more likely to be aggressive and maybe less respond to the therapy. The most classic example is a TP53 mutation.

And then there's predictive biomarkers, meaning, hey, if we have this biomarker, then I know for sure that you'll do well with this treatment, because this treatment is specific for this biomarker. And so it's really important that, again, when we're getting these biomarker tests done, we get the comprehensive panel, and then we can decide, well, are these biomarkers and these results predictive, meaning should I be offering therapy to these patients? And there's about, gosh, 10-plus predictive biomarkers now in lung cancer and, it's probably growing. And then, prognostically, again, classically with that TP53 mutation, are these patients we should think about treating more aggressively if that's possible? And so a classic example right now is for patients with EGFR-mutated non-small cell lung cancer. We know that if they have a TP53 mutation, we should really consider combination therapy rather than single agent.

Dr. Jackson:
For those just joining us, this is *On the Frontlines of Non-Small Cell Lung Cancer*on ReachMD. I'm Dr. Steve Jackson, and I'm speaking with Dr. Angel Qin about how biomarker testing can play a role in care for patients with non-small cell lung cancer.

Alongside clinical factors like disease stage and performance status, how can biomarker findings help refine our understanding of a patient's prognosis?

Dr. Qin:
I think this is an area of really active research right now. We're just kind of exploring the surface of these prognostic biomarkers. So I mentioned a little bit earlier about the TP53 co-mutations that seem to portend a poor prognosis, indicating more aggressive disease. We're starting to see that, if patients develop RB1 loss, that sometimes that means they're at high risk of having their cancer transform from something like a non-small cell lung cancer to a small cell lung cancer.

We're also learning about SDK11 KEAP1 mutations, which we think portend a negative prognosis in terms of patients being less likely to respond to single agent immunotherapy with these biomarkers. So I think we're learning a lot in this space, as now we're doing more and more comprehensive biomarker sequencing in our patients.

I think the next big step is, how can we turn these prognostic factors into something maybe more predictive, meaning how can we actually act on these poor prognostic factors? Do we have therapies that can help overcome some of these poor prognostic factors? And I really think that's the next frontier for lung cancer research.

Dr. Jackson:
Sure. The more data we have, the more we're going to move into those channels. Now, how do biomarker results influence clinical decision-making for these patients, and what challenges can arise when testing results are delayed or incomplete?

Dr. Qin:
Oh, my goodness. I think, at this point, when I see a new patient with non-small cell lung cancer, if I don't have their biomarker testing results available, it's really difficult to make the right clinical decision. And we always want to put our best foot forward, so we want to make sure that the decision we're making for the patient is the most appropriate. And now, in non-small cell lung cancer, biomarker testing is everything. If I can stand on a soapbox: if we can somehow have more uniform guidelines in terms of doing biomarker testing and if our medical record systems can all share equally across different institutions, that would be such a huge win for our patients.

But we do the best that we can. So if the results are delayed or incomplete, we think about how urgent it is that we get therapy going right away. Can we perhaps wait an extra week or two if we know that these results are going to come in? If we cannot wait—if it's clinically urgent, as we sometimes see—then we think about what therapies we can use that will, A, be effective, but B, not negatively impact a potential new treatment option that may be dictated by the biomarker testing once that results.

And a classic example is with immunotherapy. We really try to avoid giving immunotherapy prior to a targeted pill therapy, something called TKI or tyrosine kinase inhibitors, and that's because we can see increased risk for certain adverse side effects. And so, a lot of

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times, if I don't have that result ready in front of me, I might consider just giving patients some chemotherapy without the immunotherapy and wait for the biomarker testing to come back.

Dr. Jackson:
And finally, as a patient's disease progresses, how might the role of biomarker testing change, and how do you use this evolving information that you spoke of to guide ongoing care and conversations about prognosis?

Dr. Qin:
Right now, we talk about biomarker testing not only at the beginning of diagnosis, but really along the trajectory of a patient's journey with cancer. And this is because we know that lung cancer is not static. It's an evolving entity. It changes over time as we put different therapeutic pressures onto it. And so we know that the cancer that's progressing on this treatment is not likely to be the same cancer that was there when it was initially diagnosed. And so this is where I would continue to do biomarker testing—again, ideally tissue, but really focusing at this point on my blood biopsies to really understand how that biomarker landscape has changed since I initially diagnosed this patient.

Are there new therapeutic options now? That's changing so rapidly in lung cancer. And am I now seeing the development of maybe some of these poor prognostic factors? And maybe this time, the patient and I really have a conversation about, gosh, if we don't have a good therapeutic option available, what's going to be important for them in terms of a goals of care?

Dr. Jackson:
And with those final thoughts in mind, I want to thank my guest, Dr. Angel Qin, for joining me to share her perspective on biomarker testing in patients with non-small cell lung cancer. Dr. Qin, it was great having you on the program.

Dr. Qin:
Thank you so much for having me, Dr. Jackson. This is a wonderful and very timely conversation.

Announcer:
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