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Diagnosing NTM and Bronchiectasis: Best Practices for Early and Accurate Recognition

Announcer:
You're listening to *Deep Breaths: Updates from CHEST* on ReachMD. This program is produced in partnership with the American College of CHEST Physicians and is sponsored by Insmed Incorporated. Here's your host, Dr. Nate Falk.

Dr. Falk:
This is *Deep Breaths: Updates from CHEST* on ReachMD. I'm Dr. Nate Falk, a board-certified family medicine physician and Professor and Founding Residency Director for Family Medicine at Florida State University in partnership with BayCare Health System, where I also serve as the Assistant Dean for Graduate Medical Education at Florida State.

Joining me today to discuss the importance of the early recognition and diagnosis of non-tuberculosis mycobacteria, or NTM for short, and bronchiectasis is Dr. Ashwin Basavaraj. Not only is he an Associate Professor of Medicine at NYU Grossman School of Medicine and Section Chief of Pulmonary, Critical Care, and Sleep Medicine at Bellevue Hospital Center, but he's also the Director of the Bronchiectasis and NTM Education Program at NYU Langone Health. Dr. Basavaraj, thanks for being here today.

Dr. Basavaraj:
Thank you, Dr. Falk. It's a pleasure to be here.

Dr. Falk:
To start us off today, Dr. Basavaraj, can you give us some background on the early symptoms of NTM and bronchiectasis that are important for us to look out for?

Dr. Basavaraj:
Sure. And this is a very important topic. In terms of symptoms for NTM, they can be nonspecific. And oftentimes, similar symptoms can present in other conditions, such as COPD and asthma. But with NTM, patients can present with the chronic productive cough. They can present with shortness of breath. Sometimes, they can present with wheezing. Fatigue is a very common symptom for our patients with NTM, and weight loss, particularly unintentional weight loss, could be a marker of their NTM infection worsening. So we really take a close look at their weight at every clinic visit to ensure that their weight is stable and they're not losing weight from their visits.

Patients with NTM can also present with hemoptysis, or coughing up blood, particularly if they have bronchiectasis that's eroding into a nearby blood vessel in their lungs or the infection itself sometimes can lead to coughing up blood. And it's not uncommon for patients with NTM to present with recurrent pneumonias. Patients may have symptoms that could be suggestive of a pneumonia. They get a routine antibiotic, they may feel better, and then, oftentimes, their symptoms come back, and it's because their NTM is not being adequately treated.

In terms of bronchiectasis, patients can present with chronic cough and sputum production, but patients with bronchiectasis oftentimes have comorbid conditions associated with their bronchiectasis, such as heartburn, reflux, sinus disease, and aspiration when they have difficulty swallowing food or drinking liquids. So we oftentimes screen for those symptoms to assess whether reflux, aspiration, and sinus conditions could be contributing to their bronchiectasis and their chronic infectious process, such as NTM.

Dr. Falk:
And why are these conditions often misdiagnosed as COPD or asthma?

Dr. Basavaraj:

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Yeah, that's a great question. Oftentimes, the symptoms overlap with bronchiectasis, NTM, COPD, and asthma. As mentioned, we know that patients with NTM can have a chronic productive cough, and similarly, you can see those symptoms with COPD and asthma. Patients with COPD oftentimes do present with a chronic cough. They can present with shortness of breath and sputum production. And similarly, with asthma—patients with asthma can get a chronic cough, shortness of breath, and, at times, wheezing, so it's oftentimes difficult to differentiate between those conditions: COPD, asthma and bronchiectasis and NTM.

Dr. Falk:
So with that information in mind, what are the steps for accurately diagnosing patients?

Dr. Basavaraj:
Yeah, this is where an accurate history is very important. So with patients with COPD, we oftentimes look for a history of smoking to assess whether a patient may be at risk for COPD. And, for example, emphysema is normally the most common type of COPD. In patients with asthma, we oftentimes look for a history of an allergic phenotype, so are there allergies? Are there environmental triggers that are worsening their symptoms of cough and wheezing and shortness of breath? Is there a history of eczema, which oftentimes you can see in this allergic phenotype? Or is there a history of nasal polyps, which sometimes you can see in patients with asthma?

So oftentimes we ask those questions to assess the chances of a patient having COPD or asthma. If patients don't have a strong history of smoking or if they don't have those classic allergic symptoms that oftentimes we see with asthma, we then should ask ourselves, should this be another condition such as bronchiectasis and NTM that's causing their chronic cough? And to dive a little bit further, it's also important in those cases to get imaging. In patients that have a chest X-ray, but more commonly a CAT scan, that's really the way to try to detect the presence of bronchiectasis, which then can tell us whether patients do have symptoms from their bronchiectasis.

And along those lines, also check for sputum cultures such as bacterial cultures, fungal sputum cultures, and AFV cultures to assess for chronic infections, such as NTM. It's very important to get that history to try to differentiate between COPD and asthma, but also get imaging and sputum cultures to really detect for bronchiectasis or for chronic infections such as NTM.

Dr. Falk:
For those just tuning in, you're listening to *Deep Breaths: Updates from CHEST* on ReachMD. I'm Dr. Nate Falk, and I'm speaking with Dr. Ashwin Basavaraj about how we can accurately detect and diagnose NTM and bronchiectasis.

So now that we've shared some thoughts and insights, I'd like to turn it over to you, Dr. Basavaraj.

Dr. Basavaraj:
Thanks, Dr. Falk. If we zero in on misdiagnosis and prolonged diagnosis for a moment, what are some challenges you've seen with these during the diagnostic process?

Dr. Falk:
Yeah, that's a great question. I think as the saying sometimes goes in a primary care office, this is something that sees us much more often than we see it, and it's really about that early recognition. For many PCPs, this is something that we saw in early medical school, and for many of us when we were in training, it was thought that there wasn't much that could be done about it. And so this has led to a lot of treatment and diagnostic inertia because from a PCP standpoint, there's so many things that we're dealing with that we know if we identify them and there's not much that can be done potentially about them, we're less likely to look into it as aggressively as perhaps could be done. Now, we know that there are more treatment options and that 'time is lung' in a lot of cases, and so we really need more education to PCPs out there within the literature and our national conferences to try and really overcome this diagnostic inertia.

So, as you mentioned earlier, getting those spirometries and seeing what those are. I think one tricky thing about those is that bronchiectasis and NTM can kind of appear any way they want to on spirometry. It can be an obstructive pattern, it can be a restrictive pattern, or it can be normal. And so not being fooled into thinking, "it's obstructive so it must be COPD or asthma." Access to imaging, I think, is one of those barriers as well. I personally have had times when I've tried to order CTS very appropriately and have had them rejected by insurance companies and not be able to actually get them ordered. Even if they've been done, perhaps like in emergency departments or other things, EHR integration and getting records can be a challenge. So we know sometimes people go into the emergency department for things and they end up with CAT scans of their lungs, and bronchiectasis may be on those CT reports, either in the body or in the impression. But they don't really get to the PCPs, and ER doctors are pretty busy and don't always have the opportunity to get those images followed up, so it's really important to have that integration with EHR when it comes to imaging.

And then, exacerbations. Our patients go to Urgent Cares, they might see us, or they might see one of our ACP colleagues, and sometimes, those exacerbations either are not reported back to the PCPs or they're mistaken for COPD exacerbation. So I think recognizing that not all those exacerbations are due to COPD and having that high index of suspicion.

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And then finally, ordering sputum cultures and some of the other things we really need for diagnosing NTM is, as you know, difficult in any outpatient setting, but particularly in a PCP setting where we don't really do sputum induction protocols or anything in our clinics, and even just figuring out which labs to send them to and how to order them and get them back is a significant challenge to do out of a PCP office.

Dr. Basavaraj:
And given those stakes, how would you recommend minimizing the time it takes to accurately detect NTM and bronchiectasis?

Dr. Falk:
Yeah, I think that high index of suspicion, like we were talking about, recognizing that we have advanced treatments, and time and lung are important considerations. So again, not all things that walk through a PCP office in relationship to pulmonary conditions can and should be attributed to COPD and asthma. Looking at those younger patients who have a limited smoking history and things that have been labeled with COPD by someone really should raise your antenna about, why did someone who maybe had just a 2- or 3-pack-year smoking history get diagnosed with COPD? Because that, diagnostically, should put up some red flags for you that that may not make sense.

Start the work-up early, as well. We know, even from an asthma standpoint, that choosing wisely says we should not diagnose or manage asthma without spirometry because our clinical diagnosis for a lot of these conditions just is not that accurate. History is really important, but continuing that work-up with PFTs, ordering the proper imaging, which in this case, is moving beyond just a chest X-ray. We often see these folks that have had a chest X-ray or two, but really, getting that CT scan to look for that bronchiectasis picture, and following up on those imaging studies when they're there. And then, again, having that curiosity for repeat exacerbations. Something just isn't making sense, you should dig a little bit deeper.

And then, I think the other thing is earlier referral processes to our community pulmonologists and to Bronchiectasis Centers once we have a diagnosis. Understanding that there are advanced treatments. Airway clearance needs to be started along with pulmonary rehab —some of those things that we can coordinate but are often more difficult to coordinate out of a PCP office than they are out of a pulmonologists office. So again, recognizing that that early referral is also really important.

Dr. Basavaraj:
Before we wrap up, Dr. Falk, what insights would you like to leave with our audience regarding best practices for referral in advanced treatment?

Dr. Falk:
Yeah, I think number one is getting the word out there to PCPs that advanced treatments exist and are important for preservation of lung function and for quality of life for our patients. So while we may not be the ones that are prescribing these advanced treatments, it's upon us to really get that diagnosis done early and start that process of getting people over to make sure that they can be getting these advanced therapies early in the disease course. So again, having that increased index of suspicion. The earlier we can get the work-up started, the better. I mean, we know that COPD and asthma are much more common than bronchiectasis and NTM in the population, and the volume of patients that we see in the PCP office that we can't just be CT-ing every person that walks through our office. But again, when things don't make sense, when it's not clear-cut asthma, when it's not a classic COPD patient, and when there are multiple repeat exacerbations, we need to really have that index of suspicion up, get people over and start that work-up, and be getting our CTs. And either us or the pulmonologists getting those sputum cultures and start that process for folks.

So, Dr. Basavaraj, are there any final thoughts you'd like to impart to us today?

Dr. Basavaraj:
Yeah, I just want to reiterate what you said, Dr. Falk, about having a high index of suspicion. I think, as you mentioned, in patients with COPD and asthma, if something's not fitting the picture, if patients are not clinically improving, for example, with treatment of their COPD or asthma, or if they're having recurrent symptoms or current pneumonias, having that high index of suspicion for bronchiectasis and NTM as a potential cause for their symptoms is important. Trying to get imaging early is really a key in diagnosing bronchiectasis and getting those sputum cultures early, particularly the AFV cultures which detects mycobacteria and an NTM, is very important because that's really how you diagnose those conditions. So if we think about bronchiectasis and NTM as a possible cause for their symptoms and check for it, we may be able to diagnose it early.

Dr. Falk:
This brings us to the end of our conversation. Thank you, Dr. Ashwin Basavaraj, for joining me to discuss how we can optimize the diagnostic process of NTM and bronchiectasis for improved outcomes. Dr. Basavaraj, it was great having you on the program today.

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Dr. Basavaraj:
Thanks, Dr. Falk. It was a pleasure to be here.

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