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A New Era in COPD Care: Exploring Breakthrough Bronchoscopic Treatments

Announcer:
You're listening to On the Frontlines of COPD on ReachMD. And now, here's your host, Dr. Charles Turck.

Dr. Turck:
Welcome to *On the Frontlines of COPD* on ReachMD. I'm Dr. Charles Turck and joining me to share his insights on emerging bronchoscopic therapies for COPD is Dr. Jonathan Kurman. He's an Assistant Professor of Medicine at the Medical College of Wisconsin, the Director of Interventional Pulmonology at Froedtert Hospital, and an investigator in four ongoing trials focusing on bronchoscopic therapies. Dr. Kurman, thanks for being here today.

Dr. Kurman:
Thank you, Charles. It's a pleasure to be here.

Dr. Turck:
To start us off, I was wondering if you would tell us a bit about what inspired you to focus on bronchoscopic interventions for COPD.

Dr. Kurman:
Sure. That's a great question. This area was particularly attractive to me because it represents an entirely new paradigm in COPD management. As you know, COPD affects millions and millions of people all around the world, and historically, we've been largely reliant upon pharmacologic therapies, which up until recently have not evolved at the pace that we need them to, and so many patients continue to suffer. And so bronchoscopic interventions represent a new possibility and a new frontier for this patient population that is in desperate need of improved symptom control.

Dr. Turck:
Well, let's zero in on some of these therapies, starting with bronchoscopic lung volume reduction. Would you walk us through that approach and where it fits into current clinical practice?

Dr. Kurman:
Sure. Bronchoscopic lung volume reduction was FDA approved in this country back in 2018, and because of the rigorous scientific data supporting it from the get-go, this was incorporated into the GOLD guidelines in 2020, and so it is neither new nor experimental. In fact, it's standard of care now. This is a treatment option for patients who have emphysema, which is one of the two forms of chronic obstructive pulmonary disease, or COPD. It involves the implantation of small one-way valves into the airways within one lobe in one of the lungs to reduce hyperinflation or overdistension of the lungs, which is the primary driver of shortness of breath, or dyspnea, in this patient population.

Dr. Turck:
And what about bronchoscopic fissure completion? How does that work for patients with collateral ventilation, and what problem does it address?

Dr. Kurman:
There are patients who want to get bronchoscopic lung volume reduction with endobronchial valves, but they can't because they have what are called collateral ventilation channels, which are small accessory airways that bypass the normal airways within the lungs.

What bronchoscopic fissure completion accomplishes is it seals up those accessory airways, or collateral ventilation channels, so that

people who were previously ineligible for valves can now get them. It involves installation of a polymerizing sealant, and then six weeks later, you go back in and verify that the sealant has worked. If it has, then you can proceed with valve insertion. If it hasn't, you can apply sealant for a second time, wait another six weeks, and then go back in. And this is all done with the patient under general anesthesia, so they don't feel anything, they don't remember anything, and it's all through a bronchoscope, so it's minimally invasive. There's no cutting involved. Out of an abundance of caution, we monitor patients in the hospital for one night after installation of the sealant, and then they go home the next day.

Dr. Turck:
For those just tuning in, you're listening to *On the Frontlines of COPD* on ReachMD. I'm Dr. Charles Turck, and I'm speaking with Dr. Jonathan Kurman about novel bronchoscopic therapies for COPD.

Shifting now to emerging approaches to chronic bronchitis, Dr. Kurman, what are the mechanisms behind bronchial rheoplasty and metered cryotherapy?

Dr. Kurman:
Bronchial rheoplasty and metered-spray cryotherapy are two different technologies that are designed to treat the same condition: chronic bronchitis, which is the other primary form of chronic obstructive pulmonary disease. Bronchial rheoplasty utilizes non-thermal pulsed electrical fields to reduce airway goblet cell hyperplasia and improve chronic bronchitis symptoms. This non-thermal energy targets the epithelium, smooth muscle, and some mucosal glands while leaving the extracellular matrix intact. This is a staged procedure, so you come in and have the right lung done first, and that's under general anesthesia; then about a month later, you come back and have the left lung done. This is all done just through a regular therapeutic bronchoscope. And we are treating all of the accessible lobes distally to proximally, all the way from the subsegmental airways to the main carina. We'll typically perform about 50 to 75 activations per lung, and that depends primarily on patient size and anatomy, and these activations are synchronized to the cardiac cycle so that we don't provoke any arrhythmias, and patients are typically discharged the same day.

Switching gears now, spray cryotherapy involves the bronchoscopic application of liquid nitrogen spray, which, in a non-scarring way, ablates damaged cells that are responsible for mucus production without disturbing the extracellular matrix and the tissue architecture. This is also performed as two outpatient bronchoscopies, again, approximately four to six weeks apart, and each procedure generally lasts about 45 minutes. This is also done just using a regular therapeutic bronchoscope. And here we treat from the segmental airway all the way back to the trachea.

Dr. Turck:
And looking at one more emerging modality, how might targeted lung denervation impact COPD exacerbation rates?

Dr. Kurman:
Targeted lung denervation is an interesting technology that is focused now on reducing COPD exacerbation frequency, and it does so by disrupting pulmonary nerve input to the lung, which, in turn, reduces the clinical consequences of neural hyperactivity within the lung. This is slightly different than the two prior therapeutic options I mentioned because this is a one-time outpatient procedure, so you treat both lungs during a single procedure. And the way that you can think about this technology is it's essentially an always-on LAMA, or long-acting muscarinic antagonist. So it is primarily affecting acetylcholine release within the lung, and in turn, you're getting whole-lung-sustained bronchodilation, decreased mucus hypersecretion, and decreased airway hyperresponsiveness.

Dr. Turck:
And are there any other bronchoscopic techniques we haven't already discussed that you'd like to tell us about?

Dr. Kurman:
The only other thing that I want to mention in the bronchoscopic COPD management category is that there are two new trials that should hopefully be starting up here in the very near future that both involve implants. They are designed for the emphysema population, and hopefully, that will provide even more options, assuming the trials go well, for this patient population in the near future.

Dr. Turck:
Well, we've certainly covered a lot of ground today. So to bring this all together for us before we close, Dr. Kurman, what can pulmonologists do now to prepare for the possible FDA approval and rollout of these treatments?

Dr. Kurman:
I would encourage pulmonologists and really anyone treating COPD—and a lot of COPD is managed by primary care providers—to start thinking about COPD differently. Historically, we have had the goal of stability in this patient population, so a typical encounter might go something like this: Doctor walks in, says, "Hi, Mr. Smith. How you doing?" Mr. Smith says, "I'm fine. I'm about the same." Doctor says,

"Great. Keep doing what you're doing. I'll see you back in six months."

Now, because of these new procedural options as well as recently introduced pharmacologic options, providers should be digging a little bit deeper during COPD patient encounters. When a patient says they're fine, what does that mean? Oftentimes, it means that they are not having significant dyspnea or they're not having frequent COPD exacerbations, but more often than not, it's because those patients have self-restricted in order to not provoke their dyspnea. So they are largely sedentary. They may be rarely leaving the house. They have really decreased their quality of life out of necessity. And so once you dig a little bit deeper and you elucidate that from the patients, then you can start being more aggressive in terms of how you treat them. If you have patients who are on inhalers and are still dyspneic, even if it's just dyspnea with exertion, those patients should be referred to a center that offers either bronchoscopic lung volume reduction or some of the new COPD bronchoscopic procedural trials for evaluation. The goal now with COPD management is to be symptom-free even when you are exerting yourself. We won't always be able to achieve that, but that should be the new target. We have new options. We can do more.

Dr. Turck:
Well, with those calls to action in mind, I want to thank my guest, Dr. Jonathan Kurman, for joining me to talk about emerging bronchoscopic treatment options for COPD. Dr. Kurman, it was great having you on the program.

Dr. Kurman:
Thank you so much, Charles. It was terrific to be here.

Announcer:
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