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Defining Severe & Difficult Asthma

Announcer:
Welcome to CME on ReachMD. This activity, titled “Defining Severe & Difficult Asthma,” is brought to you by CHEST. This educational activity is supported by an educational grant from GlaxoSmithKline and an educational grant from Genentech, a member of the Roche Group.

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Here’s your host, Dr. Sandra Adams, a Professor of Medicine in the Pulmonary and Critical Care Division of UT Health San Antonio and Staff Physician at the South Texas Veterans Health Care System.

Dr. Adams:
Asthma affects people of all ages and has a broad spectrum of severities. Given how important it is to identify and monitor the severity of disease in our patients so as to initiate the most beneficial treatments, today we’ll focus on how we can better differentiate difficult-to-control and severe or refractory types of asthma.

This is CME on ReachMD, and I’m Dr. Sandra Adams. Joining me is Dr. Linda Rogers, Associate Professor of Medicine in the Division of Pulmonary Critical Care and Sleep as well as Clinical Director of the Asthma Program at the Icahn School of Medicine at Mount Sinai.

Linda, welcome to the program.

Dr. Rogers:
Sandra, thank you for having me. I’m glad to be here today.

Dr. Adams:
Great. So, can you start us off by telling us how the European Respiratory Society, ATS, American Thoracic Society Task Force, defines severe asthma?

Dr. Rogers:
Yes, so the European Respiratory Society, or the ERS, and the American Thoracic Society, or the ATS, put together a guideline in 2014 that was published in the European Respiratory Journal that talked about defining, evaluating and treating severe asthma, and in that document they talked about severe asthma as asthma with 1 or more of the following features: first off, poor control symptoms, and that includes patients who are not well-controlled by either NAEPP or GINA guidelines, and those are people with symptoms twice or more a week, or if you can use one of the standardized questionnaires, such as the ACQ or the ACT, and ACQ consistently greater than 1.5 or an ACT or A-C-T score less than 20. The second feature is frequent severe exacerbations, and by frequent they mean 2 or more bursts of oral corticosteroids in the previous year with each course consisting of treatment for 3 or more days. The third feature is the presence of severe exacerbations as defined by 1 or more hospitalizations or ICU stays or need for ventilation, mechanical or noninvasive ventilation in the previous year. And the fourth characteristic is persistent airflow limitation with an FEV1 less than 80% predicted post-

bronchodilator and an FEV1/FVC ratio less than the lower limit of normal. So, if you have 1 of those 4 features, you qualify as severe asthma. And one last category is really asthma that happens to be well-controlled on very high-intensity therapy, usually high doses of inhaled corticosteroids and typically a second controller or multiple other controllers, but once you try to taper off of high-intensity therapy, that control can't be maintained. And one last group are patients who are really almost chronically on oral corticosteroids during at least 50% of the prior year. And so anyone who meets any single one of those criteria would be considered someone who has at least difficult-to-control asthma and possibly severe or refractory asthma, and we'll talk about that distinction later on.

Dr. Adams:
Sounds great. Thanks for that review of the definitions and everything. So, Linda, if we look at the prevalence, risk factors and disparities in asthma, what's the overall scope of the problem, specifically in severe asthma?

Dr. Rogers:
So, if you think about the universe of patients who have asthma, nationally about 8–10% of adults have current asthma, and if you look at how well they are controlled, unfortunately, in most series about half of patients don't have optimal control of their asthma. And there are a number of risk factors that have been identified that have been associated with poor asthma control. The most important ones include poor adherence to controller therapy and incorrect inhaler technique. But there are other risk factors that include the existence of exacerbations in the prior 12 months, again a prior, near-fatal episode, which is usually defined as need for intubation or noninvasive ventilation, patients who are frequent short-acting beta agonist users, those who smoke actively, those who come from low income or have low health literacy, obesity, low lung function; and actually, the presence of elevated peripheral blood eosinophils has been identified as a risk factor more recently. Of those patients who have uncontrolled asthma, which is about 50% of all people with asthma, the vast majority of them I would say, about 85–95%, have what we like to call difficult-to-control asthma, and I'll define that shortly, whereas only about 5–15% have either refractory or true severe asthma, and we'll talk about what we mean by that.

So there are also many unfortunate socioeconomic disparities when it comes to asthma. Non-Hispanic blacks and those of Puerto Rican heritage have some of the highest rates of current asthma in the United States with rates as high as 11% in non-Hispanic blacks and as high as 16% for those of Puerto Rican ethnicity based on data from the Centers for Disease Control. There's also a higher prevalence of asthma in those who live below the poverty line. In many low-income neighborhoods, there is excessive outdoor pollution with higher volumes of vehicular traffic and industrial pollution sources present in low-income areas and also higher levels of indoor pollution with higher exposures to environmental tobacco smoke and the presence of mold, rodents and cockroaches and substandard housing. In addition to that there are the stresses of poverty, violence, and financial instability, lack of health insurance or underinsurance, issues with access to care and issues with cost of medication that result in excessive emergency department use for asthma care, so there are many factors that result in socioeconomic disparities in asthma.

Dr. Adams:
Yes, it sounds like it. And with all those factors in mind, Linda, can you just clarify for us the differences between difficult-to-control asthma and those with severe or refractory asthma?

Dr. Rogers:
Yes, I can do that, Sandra. So, when we talk about difficult-to-control asthma, we are typically referring to a situation when the lack of asthma control is due to factors other than the intrinsic severity of the disease itself, and those factors include poor adherence to controller therapy, incorrect inhalation technique, the presence of comorbidities that are complicating asthma, and modifiable environmental factors. In those situations, typically if you can modify those external factors, then the asthma can be controlled. When we talk about true refractory asthma or severe asthma, it's when these causes of difficult asthma have been addressed or excluded but someone still has poor asthma control and 2 or more exacerbations per year despite being on high-intensity therapy, usually high-dose inhaled corticosteroids and secondary controller when adherence has been verified, when technique has been verified and when comorbidities have been addressed.

Dr. Adams:
Well, that really helps clarify things.

For those just joining us, this is CME on ReachMD. I'm Dr. Sandra Adams, and here with me is Dr. Linda Rogers, who is helping us understand the severity spectrum of asthma as a critical step toward appropriate treatment selections.

So, Linda, let's turn our attention to therapeutic considerations. What's your systematic approach to arriving at the best treatment and management approach for each patient?

Dr. Rogers:
So, for those of us who evaluate patients who are not achieving adequate asthma control, one of the first steps really in our approach to

patients is making sure the diagnosis is correct, and that usually involves the performance of spirometry and typically, at the very least, pre- and post-bronchodilator spirometry sometimes with hold of their controller medication, and if we cannot confirm airflow obstruction with reversibility, in addition we may need to do a medication hold and do something like a methylcholine challenge test to confirm the diagnosis. Often times we also have to exclude other conditions that either are mimicking asthma and asthma is not the correct diagnosis or other conditions that can occur along with asthma, including things like airway stenoses, laryngeal hypersensitivity coughs or vocal cord dysfunction, aspiration, bronchiectasis, tracheomalacia, other pulmonary disorders. So one reason one might not respond to asthma therapy is that it's not the only diagnosis or it's not the diagnosis at all.

But once we've confirmed the diagnosis, we really need to do a deep dive into comorbidities and triggers of asthma. Comorbidities include things like rhinosinusitis with or without nasal polyps, and that can be allergic or nonallergic, gastroesophageal reflux, sleep apnea, again upper airway or laryngeal disorders, obesity, anxiety and panic disorders. Moreover, we want to look for things that may be triggering asthma in the patient's environment, and those can include allergic triggers, either indoor or outdoor, pollens, pets and other allergens. Patients can have exposures in their workplace, and those can be also allergic and nonallergic triggers, or chemicals, dusts and fumes. Respiratory infections are a big trigger of asthma, and usually we do seasonal vaccinations, particularly for influenza, to try to reduce the frequency of respiratory infections. Both personal tobacco use and secondhand smoke exposure is a really important factor in asthma control, and so, if a patient is smoking and has asthma, we work very assiduously to work on smoking cessation, and if they live with or are in close contact with someone else who's smoking, we work on strategies to reduce exposure to secondhand smoke. Pollution is something that's much harder to control, but often times we'll counsel people to remain indoors or reduce their outdoor activities during poor air quality days. And lastly, reducing problems with asthma that may be related to other medications that patients are taking, and that can include aspirin, nonsteroidal anti-inflammatory drugs and things like beta blockers and ACE inhibitors.

Next, we really want to make sure that patients are adherent consistently to appropriate controller therapy, and so we work hard to verify adherence and technique, and that can include checking pharmacy records, either through our electronic medical records or directly with pharmacy, having patients bring in their inhalers and looking at prescription dates and making sure that the doses on their inhaler counters match up with what they should be for when the prescription was filled and observing patients taking their medicines and verifying that they're using their inhalers with the correct technique.

Persistent adherence, meaning staying with a controller medication, is often suboptimal, and often times many of us assume, and surveys have shown this, that patients often take 50% or less than what is prescribed, and so I'd like to be open and acknowledge the likelihood that patients are maybe not completely adherent in a nonjudgmental way and review some of the barriers to adherence, try to elicit what some of their attitudes are towards their medication and what their understanding is of their medication. Have they received asthma education, or do they need additional education? Do they understand how their medications work and the control of their controller versus their quick-relief therapy? Do they have a good routine that facilitates good adherence? What are their families and friends telling them about their medications, and are very getting mixed messages from people? Do we need to reassure them about adverse effects about their medications? Can they afford their medications? Are there financial barriers to getting their medications?

Dr. Adams:
That's great information. It sounds like a lot that we need to address. But as long as we have a systematic fashion and way of doing that, it sounds very reasonable. Since each patient presents with unique characteristics of his or her disease, how do we make sure that we're looking at a case-based, personalized approach?

Dr. Rogers:
Well, that's a great question, Sandra. So, in addition to what we talked about before in terms of verifying diagnosis, excluding complicated diagnoses that asthma mimics and assessing and ensuring adherence and inhaler technique, everybody has a unique set of issues, and so really taking a comprehensive history to assess and treat comorbidities and really taking a deep dive into what's going on in that individual's life, what's going on in their home, are there pets? are there smokers? are there other triggers in the household? what kind of work do they do? What are the potential triggers in their workplace and exposures in their workplace? And really provide a tailored education around the issues that we identify with a detailed history.

Then, once we've sort of done all that, if we are really not achieving the goals of therapy after we've done all of these things, then we may need to take the next step of considering escalating therapy to the use of advanced therapy, such as injectable biological therapies or things like bronchial thermoplasty. .

Dr. Adams:
Okay. And lastly, Linda, what are some key takeaways from our discussion that you want to share or reemphasize with all of our colleagues and listeners?

Dr. Rogers:
So I can't emphasize enough how important it is to verify adherence to controller therapy and verify that a patient is using correct inhaler technique for whatever device they're using. That can be by an in-person visit where I have the patient bring their inhalers to the office, and I actually have them take their daily dose with me in the office. These days that could also be by telemedicine, which recently we've been doing a lot of inhaler verification by telemedicine. It can involve checking prescription fill dates, either if you have the capability through your electronic medical record or sometimes by actually calling pharmacy and verifying fill dates, and again, doing this repeatedly because patients often lose their skills and need reinforcement in terms of how to take their medications correctly.

Using controller therapy consistently and having what we call persistent adherence is difficult for patients at times, and it's often suboptimal, and in some series it's been estimated that patients are generally taking 50% of less of what's been described, and so I often like to have a really open conversation and acknowledge the likelihood that they have not taken their medications consistently, to do that in a manner that is without judgment for the patient, and then to really review with them any barriers that they have to adherence, get a feel for their attitudes and their knowledge about asthma and assess if they have actually received any asthma education—do they understand how their medications work and what the roles and appropriate ways are to use their controller and reliever medication? —to establish if they have a routine and if that routine really supports being able to be consistent in taking their controller therapy, asking them about what the messages they're getting from their friends and families about their medications and if any concerns have been raised about the safety of their medications and seeing if you can provide reassurance about the safety of their medications and specifically assessing their concern with adverse effects about their medications. And lastly, I really ask in almost every encounter about whether patients are having difficulty affording medication and whether there are financial barriers to medications because many inhaled therapies can be quite expensive.

Dr. Adams:
That's great. Well, with all of these important thoughts in mind, I want to thank Dr. Linda Rogers for joining me to explain the spectrum of severities we see in uncontrolled and severe asthma and what we need to know to select the most appropriate treatments for our patients.

Linda, it was great speaking with you today.

Dr. Rogers:
Thank you for having me on this great program.

Announcer:
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