

Transcript

Narrator:

Welcome to ReachMD. This is the Prova Education Activity: **Taking A Bite Out Of Food Allergies: From Assessment Through Management**. Host Dr. Matt Birnholz welcomes Dr. Robert A. Wood. Dr. Wood is a Professor of Pediatrics and International Health and Director of Pediatric Allergy and Immunology at Johns Hopkins University School of Medicine in Baltimore, Maryland. This CME activity is supported by an independent medical educational grant from Thermo Fisher Scientific.

Dr. Birnholz has nothing to disclose. Dr. Wood is a consultant for Sanofi and Stallergenes and has conducted research for DBV Technologies.

After listening to this activity, participants will be better able to discuss:

- The prevalence of food allergies in the US
- Appreciate the medical quality of life and financial burdens associated with food allergies
- Describe what the current best practices are in evaluating and recommending treatment for patients with suspected food allergies
- Discuss the current testing available to identify and interpret the results of individuals with specific food allergens, and
- Have an understanding of current pharmacologic strategies to treat those results

Dr. Birnholz:

This is ReachMD, and I'm Dr. Matt Birnholz. I'm joined by Dr. Robert Wood from Johns Hopkins University School of Medicine, and our focus today is on food allergies. Dr. Wood, welcome to the program.

Dr. Wood:

Thanks very much, a pleasure to be here.

Dr. Birnholz:

Good to have you with us. So, what is the actual prevalence of food allergy in the US for both children and adults?

Dr. Wood:

The prevalence of food allergy is a bit of a moving target, both because prevalence has been defined by different means in different studies, but even more so by the fact that we really believe food allergy is becoming more prevalent, particularly over the last 10 or 15 or 20 years; so the numbers that we're most comfortable with are that 6 to 8% of young children, say preschool-age children, and 3% to 4% of adolescents and adults have true food allergy.

Dr. Birnholz:

Why don't we consider the burdens then that patients face from food allergy and both from a quality of life perspective and from a financial perspective? What can you tell us about that?

Dr. Wood:

Very significant burdens, and it's largely underestimated by the general population. Food allergy is becoming more common and has touched more people personally, so it's not quite as hard to understand as it was 15 or 20 years ago; but in terms of day-to-day life, food allergy -- especially what we're talking about here is real food allergy, the kind that can cause anaphylaxis, a really dangerous reaction -- is something that really does require planning of every activity throughout everyone's day, and that's especially important when we're talking about young children who can't necessarily look out for themselves as well. But every food needs to be planned; every activity needs to be planned, and it always needs to be that medication will be readily available in the event of an accidental exposure, an allergic reaction, and that any adult caring for that child has to be ready to administer medications with a well-described plan of action.

So when we've looked at quality of life specifically, there have been some validated questionnaires that have assessed quality of life both for children, adolescents and their parents, and the results are really quite dramatic showing that quality of life in food allergy is lower than that, worse than that, than what is seen in, say, patients with juvenile diabetes or juvenile rheumatoid arthritis. These are diseases we consider to be quite debilitating in a lot of instances, but food allergy actually has a greater impact on day-to-day quality of life.

Dr. Birnholz:

Since we're really focusing on the idea of planning and the utmost importance of planning for patients, one of the best illustrations of planning on an ultimate scale would be looking at the guidelines that have been created.

Dr. Wood:

Well, the guidelines, you know, take a comprehensive view, and thankfully, the guidelines that have been done here in the US and internationally really have included a broad view of food allergy, not just from the allergist's perspective but from the patient's perspective, the nutritionist's perspective, the pediatrician's perspective, so it really has been an attempt to have a comprehensive approach that begins with an accurate diagnosis and then implementing an appropriate avoidance diet that will on the one hand keep someone safe by avoiding the foods they're truly allergic to but not over-restrict the diet based on either inaccurate testing or inaccurate perceptions about what someone may be allergic to. And with that the goal is to prevent reactions, then realizing that not all reactions are preventable, that accidents will happen, to then deal with the treatment of reactions when they occur in a way that will reduce severity and hopefully completely or nearly completely any life-threatening or fatal reactions.

Dr. Birnholz:

Well, on the topic of diagnosis, how is the diagnosis confirmed, and is history and a physical exam enough to do that?

Dr. Wood:

Well, first, Matt, there's a large number of people who perceive they may have a food allergy who are not truly food allergic, you know, ways that food does not agree with you that are not a true food allergy. It turns out that even though I said the numbers of true food allergy were in that 6 or 8% for young children, 25 to 30% of all people will report that they have a food allergy.

So we do begin, as you suggested, with a history and a physical, and in some instances the history is virtually diagnostic, that you try peanut butter for the first time, and you're covered in hives in 30 seconds; a minute later; and the chance that you're peanut allergic just based on that history is extraordinarily high. But there are some food reactions that are a little bit more subtle. There are some that are more chronic. So some patients may

have more chronic skin conditions like severe eczema related to food allergy where you really don't see a clear cause and effect between eating the food and having, say, a worsening of your eczema or worsening of your itchiness. So the history can be really, really helpful in some cases, but in others, at least half of the time we find the history doesn't really pin down whether the patient has a true food allergy or not.

Dr. Birnholz:

So, what else is needed to identify specific allergens then?

Dr. Wood:

So there are 2 main next steps when you're trying to figure out whether that history is supported by test results. The most common test used in an allergist's office is skin testing, and with skin testing you're literally pricking the skin with an extract of a food and looking for a fairly quick reaction, where in 10 or 15 minutes you'll get a hive show up where you pricked the patient with that food extract if they're sensitive to that food. The problem is, though, there are lots of people who are sensitive who are not truly allergic, and that's been one of the real problems in the next step in diagnosing food allergy in that when you take all positive skin tests, depending on the population you're studying, between 50 and 90% will be wrong, will be falsely positive. So a negative skin test is very helpful, very accurate, almost completely rules out a food allergy, but a positive skin test is not necessarily the end of the story.

Dr. Birnholz:

Well, if you're just tuning in, you're listening to CME on ReachMD. I'm your host, Dr. Matt Birnholz, and I'm speaking with Dr. Robert Wood about the prevalence of food allergies in the US and how we can better assess and manage these conditions.

So, Dr. Wood, following up on that train of thought regarding the skin prick test, it sounds like you're dealing with a test that has a pretty remarkable specificity, perhaps, maybe a pretty lousy sensitivity. How does one use this test, interpret it and identify potential allergens with those challenges in mind?

Dr. Wood:

If you have a patient with more vague symptoms, more chronic symptoms, a less clear history about a specific food causing a specific symptom, you then need to use the skin test

as a screen where a negative test is providing substantial reassurance that that patient is not allergic to that food or those foods, and where a positive test suggests they may or may not be, which then leads us down a diagnostic pathway of doing some additional testing. So the next step is specific IgE testing, which is a blood test, a serologic measure, looking for the presence of IgE antibodies, and specific IgE testing is plagued by a similar false positive rate as a skin test but has some advantage in that a specific IgE is more quantitative than a skin test. And with skin testing you can look at the size of the skin test and have some additional predictive value as to whether the positive skin test is indicative of a true allergy or not, but with blood testing the more quantitative nature of the test has allowed us to develop some cutoffs where if your test score for a specific food -- say your test score to peanut comes out above a certain level -- the chance that you're truly allergic becomes quite high. So we typically do use that blood test as a next step in evaluation where the lower the result the more likely it is to not be a true allergy, the higher the result the greater the chance that it is representing a true food allergy.

Dr. Birnholz:

I see. So it's a great second screen or maybe a confirmatory test in this respect?

Dr. Wood:

It is, and for a primary caretaker who doesn't have access to skin testing, it may be a great first step because that negative predictive value is very high if the test is negative, but they will still need to carefully interpret the results and not assume that every positive test indicates a true food allergy.

Dr. Birnholz:

And it sounds like in both cases, even with specific IgE testing, there is the risk of a poor positive predictive value, in which case maybe something else is needed beyond there.

Dr. Wood:

Yes, and the final step is the food challenge procedure, and what a food challenge really refers to is eating the suspect food under observation in a clinician's office and using that as sort of the final determinant of whether you're truly reactive to that food or not. So we resort to food challenges in 2 main circumstances. The first is when our initial diagnostic evaluation has not convinced us one way or another and we don't want patients to be removing especially important foods, common foodstuffs from their diet unless it's really

medically indicated, and then we use them also when we're determining if a food allergy has been outgrown, either based on the passage of time or on a change in their other test results like their skin test or blood test.

Dr. Birnholz:

Do you find that the outgrowing phenomenon of food allergy is something that's commonly observed, or is that actually a pretty rare circumstance in your practice?

Dr. Wood:

The natural history of food allergy is different from one food to another and can even be different from one patient to another, but there are certain patterns that have held up very consistently over time. And the first is that several of the most common early childhood food allergies, particularly milk, egg and wheat allergy, are typically outgrown, with a majority of children outgrowing those allergies by the school-age years; whereas, among the other most common allergies -- peanut, tree nuts, fish and shellfish -- the chance of outgrowing that allergy is far smaller. For peanut, for example, only about 20% will outgrow their peanut allergy over their entire lifetime.

Dr. Birnholz:

Looking at the specific allergens, are there some allergens that you become more concerned about in terms of volatile reactions from the patient that you would want to do the 3-step testing quicker than others?

Dr. Wood:

There are, but there are no firm rules about that, and the general rules are that peanut and tree nuts are more often associated with severe reactions, full-blown anaphylaxis, than other foods. And when you look at studies of fatal food anaphylaxis, about 80% of them are related to either peanuts or tree nuts. On the other hand, it would be completely wrong to suggest that there aren't patients who have allergies to other foods like milk and egg that are every bit as dangerous as the worst peanut allergy. And that's one thing that patients really struggle with, because those families that are dealing with children who have just as severe an allergy to milk or egg often find that their concerns are really not being given much credibility.

Dr. Birnholz: I understand that recently there has been a new addition to the armamentarium: component resolved diagnostics. Can you tell me how this has added to your ability to increase the specificity of testing results?

Dr. Wood: A component resolved diagnostics is a technology that has been evolving over the last several years, and is just coming into clinical practice as we speak now. There have been tests that have been developed on a number of foods, including different nuts, milk, egg and peanut; and at the present time, for clinical use, peanut is the only food for which we are routinely using component resolved diagnosis.

The promise of this test is that it helps differentiate a patient who has a true peanut allergy from someone who might just test positive for peanut because of cross-reacting antibodies; and in regard to peanut, the cross-reacting anti-bodies are those of birch pollen or other tree pollens. So there are patients who have say allergic rhinitis with sensitivity to tree pollen who may test positive to peanut but not truly be allergic to peanut, and by running the component resolved diagnosis, which typically includes a panel of five peanut components the clinician is better able to understand whether there is a positive test for peanut is likely to represent a true peanut allergy or a falsely positive test due to these cross-reacting antibodies. Of note, one particular component designated ara h2, turns out to be the most specific for the diagnosis of true peanut allergy.

For patients who have a definite peanut allergy, a recent reaction, a clearly positive test – there's really no need to do components. But for patients whose diagnosis is less clear, or for whom you're considering doing a food challenge, the component resolved diagnosis really does add to the specificity of the diagnosis.

Dr. Birnholz:

What is your process when counseling patients and their families?

Dr. Wood:

It is a real challenge, and it's a challenge for families on a day-to-day basis. It begins with careful label reading, and thankfully now about 10 years ago there was a labeling law passed in the United States that requires that all of the 8 most common food allergens -- that would be milk, egg, soy, wheat, peanut, tree nuts, fish and shellfish -- be accurately labeled on any packaged food, and that's made a huge difference. Once you're good at

reading labels, it turns out that a lot of food reactions are actually occurring from unlabeled foods, foods that would be purchased, say, in restaurants, bakeries, ice cream shops, candy shops and those foods that are more ubiquitous are going to be hardest to avoid. So if you go into a restaurant, you can probably arrange a meal where you can safely avoid peanut if you ask the right questions and don't go to the wrong restaurant; whereas, if you're allergic to something like milk or wheat, it's going to be very difficult in many restaurants, if not most restaurants, to get a safe meal just because of the risk of cross-contamination, a mistake being made in the kitchen where a spoon was used to serve the patient's food after it served a gravy that contained milk or something like that.

Dr. Birnholz:

It seems like patient education then is paramount in this practice for the clinician who is faced with this kind of problem.

Dr. Wood:

It's paramount. It's how a huge amount of our time in managing food allergy is spent and has been augmented really dramatically by some really good online resources and printed resources over the last 10 or 12 years. We really find that patients have become really better educated and better advocates for themselves, not just because of the education being provided by their healthcare providers but also the information that they're able to seek out in the world of medically available information.

Dr. Birnholz:

Well, before we move in on interventions, let me ask you about the situation in which patients become allergic to more than one allergen, is cross-reactivity a common situation in your experience, and if so, how does that complicate exposure reduction?

Dr. Wood:

Well, there are many, many patients who are allergic to multiple allergens, and they may be unrelated foods, so in that instance it wouldn't be related at all to cross-reactivity. Someone can be allergic to milk, egg and peanut, even though the proteins bear no relationship whatsoever. There are some families with which cross-reactivity is very important, so within tree nuts it's unusual to be allergic to a single tree nut. Usually, if you have a single tree nut allergy, you have other tree nut allergies, and there are certain

relationships that hold up from one nut to another. If you have a shellfish allergy or a fish allergy, you're usually going to be allergic to other shellfish and other fish.

Dr. Birnholz:

Why don't we move in on some of the interventions then? Are there any pharmacologic interventions or exposure-based solutions, such as what people might think of as preventive or vaccine-oriented, that can be used here for food allergies?

Dr. Wood:

Well, at the present time, Matt, there are not. There are active investigations going on trying to find some means to prevent or treat or at least reduce the severity of food allergy, but what we really get down to at the current is what has been done for time eternity. You try to avoid the food you're allergic to and be prepared to treat reactions when they occur. So the main pharmaceutical intervention in food allergy is self-injectable epinephrine, and patients who have a food allergy are typically prescribed an autoinjector of epinephrine so that in the event of an accidental exposure, they can inject themselves with this lifesaving medication immediately, which typically turns a reaction off very effectively.

We're looking at treatments, and most of the treatments revolve around the idea of a gradual desensitization. So not unlike what we do with allergy shots, we're doing studies with foods using the same kind of approach of gradual exposure -- not with injections with foods but either giving it orally, or now we're experimenting with some patches on the skin -- that do appear to build some level of desensitization that in some instances will work well enough to allow the patient to introduce the food into their diet, in others just provide a measure of safety so that they're not going to be as prone to react to a low-level exposure as they might have in a cross-contaminated food. And even though we can inject somebody, say, with bee venom they're allergic to and really get away with that quite safely, with foods we had to spend a long time trying to find safer ways to deliver it or ways to change the allergen so that it would not produce as many adverse reactions, and it really has been a matter of safety driving the process, realizing that you can prevent most reactions just with careful avoidance and that we would not want to have a treatment that puts anyone at higher risk than they would have in their normal day-to-day life of just avoiding what they're allergic to. But we really think we're at least 5 or 6 years away from having anything in an FDA-approved form to offer our patients.

Dr. Birnholz:

Well, we covered an enormous amount of material; had some great insights here. I very much want to thank Dr. Robert Wood for joining us today and discussing food allergies from assessment through management.

Dr. Wood:

My pleasure.

Narrator:

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