Introduction to Alpha Gal Syndrome

Hello, everyone. My name is Dr. Richard Horowitz. I am the co-host of the Healing From Lyme Summit. And it's my great pleasure this morning to introduce to you Dr. Scott Commins.

We're going to be discussing Alpha Gal Syndrome prevention, risk symptoms and treatment options. Dr. Scott Commins is an allergist, an immunologist, and he sees patients at the UNC Allergy & Immunology Clinic.

He's theWilliam J. Yount Distinguished Professor of Medicine, Associate Chief for Allergy & Immunology, and Medical Director of the UNC Allergy & Immunology Clinic.

Dr. Commins is one of the world's leading experts on Alpha Gal and has helped many patients who have this condition actively investigating the cause of this allergy and his laboratory.

Scott I'm so him so happy you could join us this morning. Thank you for taking the time to do this. Well, I'm grateful for the opportunity. Great. So do you want to tell people a little bit about yourself and how you got into this?

Because you were really one of the first people to be describing Alpha Gal? And how did this happen in your clinical career? Just like with me, things happened, you know, to do.

Lyme, how did this happen with you? With Alpha Gal? Yeah, sure. So for me, it was joining Tom Platts-Mills's group, at the University of Virginia during my allergy and immunology fellowship.

And his group had been actively investigating a series of reactions to a cancer medication called cetuximab. And the interesting thing about this is that there was a very distinct geographic pattern of the reactions to cetuximab.

They were occurring in in a handful of Mid-Atlantic states in the US and really hadn't been described elsewhere. And so part of his process in the group was figuring out what it was about that medication that was causing the issue, in the long story short, is that that cancer medicine has Alpha Gal on it.

And so his group was thinking and reading about Alpha Gal when I joined. And so I started equally reading and and trying to understand more about this particular sugar.

And it's fascinating for a lot of different reasons. But in that process, as sort of science and the serendipity of life sometimes happens, there were a couple of patients that we had seen in the University of Virginia Allergy Clinic who were telling us a story about potentially being allergic to beef or pork or lamb, but the reactions were really unique in that they were delayed.

And so basically, Dr. Platts Miller said, look, you should start to think about this and so I started to do that. And over the course of a couple of years, you know, we put together roughly two dozen patients and published that in 2009.

And I was the first author and he was the senior author. And I think at that point we thought, gosh, this delayed the syndrome of delayed allergic reactions to red meat.

That was due to alpha gal allergy. Really interesting. But it didn't. I don't think either of us appreciated at that time that I would be talking to you 10, 15 years later when the CDC says that they think there are half a million cases now.

How Alpha Gal Was Discovered

Right? So yeah, serendipity usually happens in a lot of these fields of medicine. The way the way we do what we

do. and just for people listening, when you talk about delayed, we're talking like 4 to 6 hours after a meal, like the way it normally presented, like you have dinner, you're eating, right.

Some beef for pork, a lamb. And it's like hours later, 4 to 6 hours later in the E. R. with nausea, vomiting, rashes, respiratory symptoms. When when did you describe a little bit like exactly how people present what is the syndrome.

How do people get it? What are the symptoms they're looking for? Sure there's there's almost two now that we two sort of presentations, if you will, that we that we think about.

And one is kind of the classic one that that allergists typically are involved in, meaning someone gets hives or itching or swelling. But in the alpha gal syndrome case, as you mentioned, you have a hot dog or a hamburger for dinner and and literally nothing can happen for 3 hours or 4 hours.

And then all of a sudden you start to itch and maybe your palms are turned red. You'll get hives, you can have shortness of breath and gastrointestinal distress.

So those patients, if you interview them two hours after eating a hamburger, they would feel completely fine. The second way this often presents is in patients who just get gastrointestinal distress.

So they have a hamburger for dinner and a couple hours later, they'll have incredibly severe abdominal cramping and pain such that it it has taken countless adults to an emergency department in the middle of the night because their pain is that severe.

So they think there's something else going on, whether it's a gallbladder or appendicitis, etc. but those patients cramping, vomiting, nausea, diarrhea, but they don't necessarily get hives or the things that would basically come to an allergist attention.

So those seem to be the two predominant presentations, but they are later classically delayed by several hours. Right. So so this is almost a great imitator in your field, just like Lyme is described, the great imitator.

This one is a great imitator with the gastrointestinal symptoms where people have to be careful. And, you know, when I, when I teach doctors about even tickborne co-infections, regular relapsing fever or licking at a plasma Rocky mountain GI symptoms, right, with nausea, vomiting, diarrhea.

People don't think of it. But every one of these can be associated with it. So people really need to know. They've got to pay attention that if it's that severe with this, it's got to be on your differential diagnostic list.

Yeah, it's an excellent point. I really hadn't thought of it as the as a great imitator, but I think I will. And now. Yeah. Well especially in our practice you know, we don't see we do see some GI symptoms when people get tickborne co-infections.

But most of the time like if they if they've gotten lucky and a plasma rickettsia it's, you know, look a low white cell counts, low platelet counts, thrombocytopenia elevated liver functions.

This classic stuff right. That we'll say, oh they need doxy cycling right. This this might be the cause. How are you making the diagnosis early on. What what blood test are you doing for these people to be able to assure them that they, in fact, you have Alpha Gal.

Right, so a great question. And and we're really fortunate, I think, in this particular space where we have a blood test that checks for the allergic antibody, which is called IgG, and it checks for IgG that is directed against alpha gal.

So you can you you know, you can order an alpha gal allergy blood test. It is a little tricky to pick up by skin testing, which is much more common certainly in the allergist office.

But for the for the alpha gal syndrome or alpha gal allergy patients, it really seems like the blood test perhaps is a more direct route to finding that diagnosis is the sensitivity specificity of the test.

I would say we're still trying to work out. I, I, I think it's a great test. I don't know that it's perfect. We certainly have people who test negative, but if we feed them beef or pork, they react 3 or 4 hours later.

so it as with any medical test, as you know, we probably missed some people on either end of the bell curve, but, but it's a good it is. It is a really good test.

And it's typically done in the blood work. Great. So you and that can be done through LabCorp. Quest by all the major laboratories will run it. Correct.

So but that's a great point that, you know, people normally think, oh, I think most people know the Lyme testing has certain false negatives, false positives.

But I don't know that people know that with alpha gal. And that's an important issue, because if they were to present not with the hives and the respiratory, but with the GI, and you do the test and it's negative, you might tell the patient, hey, go home, you're going to be fine, but you're actually doing challenge.

If you're really suspecting it. You're doing challenges sometimes in these patients and then and then retesting where they just challenge themselves. Right.

Just because they're eating right. These things, you're not necessarily doing that yourself. We correct. So there is some of both.

Symptoms and Delayed Reactions

I think some patients, if they get a negative test, they may assume, well, now I can eat what I thought I needed to avoid because I thought I was allergic to it.

And then those and in those cases, some people then react as they sort of re challenge. You're correct. And and we do some of this in the clinic ourselves.

we call it a food challenge test in the allergy office. And, and in large part it's really to help patients sort out if they have a negative test but they're still asymptomatic, then we tend to do it under observation.

And I think the whole point is, do you reintroduce a food because the test is negative. And what's the safest way to do that? And for people who have had really severe reactions, we feel like the safest way to do that is in the clinic.

So we can provide care if it's needed. Right. So in other words, you're calling it the Big Mac test. You're having your nurse run out to go get them a Big Mac.

Excuse me. This is going to be your medical, procedure for the day. We're going to go get your Big Mac. You're going to sit in the office for a couple of hours.

Just eat the fries. Just leave off the fries. Don't do too much of the other stuff. And then we'll check you in a couple hours. And, that's not something I think I've ever done, but it's interesting to.

Consider what we do. We we use Jimmy Dean sausage, because the reactions are delayed. So we tend to start this in the morning and, and so we've picked a breakfast food, so to speak.

And also the fat content, it turns out is quite important. So you want to use a chalice and food that has a fairly high percentage of fat to make sure that you're appropriately challenging the patient.

Right. Because it's too late, because it's a late absorption. When you've got that fat, it's going to take a couple

hours for the absorption. Exactly. Yeah.

So someone now has alpha gal. What do you do to prevent them to get from getting symptomatic? Like what medications? nutraceuticals do you do? How do you protect them?

You give them EpiPens, you go to H1, H2 blockers. What? What's your protocol? When someone has developed this. So it's it's a really timely discussion because in had we had we talked about this say a month ago, I would have told you that there really is no approved FDA treatment for food allergies and really avoidance plus your emergency medicine, whether you need an epinephrine auto injector or, as you mentioned, some long acting H1, H2 and a histamines.

But but now, just in the past few weeks, the FDA has approved Zoll er, which is an anti IgG molecule for a food allergy indication. And so it begins now to shift our focus a bit to say can we move from truly just saying there's avoidance and nothing else to help protect you to avoidance.

Plus. So that's how the indication is written. It doesn't allow for you to consume what you're allergic to, but it gives you an added layer of protection, which a lot of patients with food allergy need.

Because we know that accidental ingestion, accidental exposures occur even amongst patients who are really diligently trying to practice in avoidance style.

So it's great for us now to have another tool in the in the toolbox for our patients with food allergy. Great. And so there if I remember, I have not prescribed and I know of the drug.

It's a monoclonal antibody. It's used for like asthma right. Some of these people with severe allergies and asthma, that's what it's mainly been used for correct.

Correct. Yeah. so as far as the efficacy of Zoller, have they examined it yet or this is, are there any studies that we're looking at the efficacy right now.

Right. So they're the study that led to the the food allergy indication was one related to peanut allergy mainly it was a multi allergen study. But but patients had to have a peanut allergy amongst others.

And we we have been we have seen some some early efficacy in our allergy clinic for exactly what you mentioned, where patients may have underlying allergic asthma or chronic hives or nasal polyps.

They could have qualified for Zoll ER. So we probably have about three dozen patients over the years who have been on XL er for other reasons, but also have a concurrent alpha gal allergy, and we've seen that their rate of reactions is reduced.

And so that is you know, we're working to publish that. But there's not out there currently because the current data relate to to other food allergies.

But there but there are data for that aspect. Got it. Now you know, the tricky part from my perspective is some of our patients that we see a fair amount have mast cell activation and they can get leaky gut.

we're now starting to see with Covid, we're starting to see microbiome changes, Candida overgrowth in the gut. it's interesting about long Covid is the 16 point message model that I've been developing for the last almost 40 years.

I did a scientific review. I it's in a paper that's in review right now as part of the case studies, publishing. Turns out all 16 points have now been associated long Covid and and one of these is because so many of our patients with Marcelle have Lyme or tick borne or they've got mold toxicity, other things that are stimulating it.

It could actually be a little bit tricky because Marcel Plus is nausea and vomiting. It can cause sudden episodes of diarrhea. a lot of these patients will get severe allergic reactions, including allergic rhinitis, hives, asthma.

So in in a differential diagnosis when you see these patients, if you finding overlap with mast cell like trip taste chromatogram and a prostaglandin D2 histamine to do you look for those overlaps and do you find them in these patients.

Yeah. It so you definitely, I think hit the nail on the head when it comes to this idea of overlapping, tick borne illness. Tick related diagnoses and mast cell activation syndrome, or Marcus for short, perhaps.

And in fact, we are working with the Clinical Trials Network at Columbia University, funded by the the Cohen Foundation, to to have a clinical trial where we use because we see this so much, the mast cell based therapies in our patients who have some longstanding, post tick bite illness where clinically we've seen them improve dramatically when we can sort of quiet down the mast cells.

I think, I think your point is, is really well taken that this overlap is distinct from what I think of as an immunologist from true kind of master psychosis or like a de novo mast cell activation syndrome.

Testing and Diagnosis

I think you're correct that there's something about the tick aspect to this that really seems to unnerve the mast cells. Right? And we still don't know in the saliva of the tick.

And for those listening, I think many know it's from the Lone Star tick. Right. That you're getting this. It's not from the usual Ixodes deer tick. and I have a question at a second about Haemophilus longy coyness about the Asian bush tick.

And you know where I'm going with this one, because it's been known to cause alpha gal in Asia and in parts. But we have not yet, as far as I know, seen it. I've not.

I mean, I look at the literature as best I can, but they people need to be aware, right? That it is from the Lone Star. Tick bite and it's from something in saliva, but it's not been exactly identified.

Right? I mean, I've seen high IgG levels in some of these patients. Right. but but we don't know exactly what it is that's triggering it at this point.

Correct? Correct. We think we are on the trail. And a lot of this work has been done by Shaheed Karim at the University of Southern Mississippi. And he is, I think, on the track of, of tracing down some of the galactose transferase enzymes that are in the tick saliva.

And you're correct when I say tick here I'm meaning allium American, or the Lone Star tick. And when he silences a couple of these sort of suspect enzymes, the ability of these ticks to induce the syndrome in the mouse model is significantly suppressed.

So we think we're making good strides to, to really identify the culprit. Enzymes present in the tick saliva. But you know what I I'm in my framework.

There's two things going on. One is and I could I could certainly be wrong. But as I conceptualize it now, it's the the tick bites a human. And one possibility from these lone Star ticks is that you develop an allergy to alpha gal and we call it alpha gal syndrome, etc., AGS for short.

I think the other thing that happens is you mentioned something about the tick bite really induces an itchy response. So we will see what we call a total Ige or basically just the sum of all of the allergic antibody responses.

We see that total Ige jump significantly in patients with a history of tick bites. And as you know, that total IGA response really is, something that feeds mast cells.

So you I think there's two different arms of this. One is sort of that alpha gal arm, but I think the other is just that the

overwhelming IgG response.

And that probably pushes the mast cells to be activated. So, so in some of those patients, they might get help from Cromwell and Sodium. They might get help from Monty Lucas.

Singulair quercetin PR luteal and all these things that are basically marcille inhibitors. They might get some help. And do you sometimes use those in combination now with Solaire, is that something people maybe should be considering?

If they've got a severe case? I think, yes. is the short answer. The Zoll er part of this I would say, is we're behind a little bit because it doesn't have a mast cell related indication.

The food allergy indication is so new. But you're correct that when we can get it in the past for patients who may have allergic asthma, it really settles their mast cells down.

and there's this feedback loop between IgG E and mast cells. And if you can take IgG out of circulation, so to speak, by through through placing a patient on Solaire, then eventually those mast cell IgG receptors go unoccupied.

And when that happens the mast cell will internalize the receptor. And over the course of months that really seems to settle down those mast cells. So we use exactly, several of those mast cell based stabilizing or inhibitor, medications and supplements that you mentioned and even ketoprofen some as well.

Yeah, a lot of our patients are on tart often at this point for for basically severe, severe mast cell and even chemical sensitivity. Some of these people, I have a patient from, the South.

They cut grass in her backyard. She is so sensitive. If the window is open, she has anaphylactic reactions. at this point, just from smelling the grass, and and she's on high dose ki tart, often an h1 h2 blockers, and she's doing all of it, and it keeps her under control.

Treatment, Avoidance, and New Options

But every once in a while, she needs an EpiPen. she needs a medical dose pack. she has to take high dose Benadryl, like I've. It's fortunately not that often, but she is so sensitive, including the chemicals that, I'm doing everything I can to, you know, keep this woman from having severe reactions. You.

I'm sure you must get some of those really severe overlaps in in your clinic. Some of those overlaps. Correct? Some some. I don't consider myself a mast cell expert.

So some of those I have to refer out. Yeah, yeah. But we you're right there. I think the mast cell in my mind will become in the next decade, I think a cell that we really are focused on and study much, much more because as you mentioned, with some of the long Covid, and even the, the other host viral post acute infection syndromes, it just seems like the mast cell is sitting at the center of a lot of these symptoms.

Yeah. It's it's becoming common. So question I brought this up before and I've never seen any published case reports. But the Asian push to come off list longer coyness is now spreading rapidly because it's a hermaphrodite.

Right. And in in Asia it has been associated with alpha gal. We're, we're finding lots of bugs in this tick. We're finding Lyme disease and rickettsia until the refining of bourbon viruses, they're finding all kinds of things.

As far as you know, though, there's never been a case of alpha gal from, an H larger canis bite so far. Right? It's just mostly in Asia. It's not happened yet here. correct.

I haven't heard of any well documented h langit cornice associated alpha gal syndrome cases in the US, and I. I like you, and I'm worried as well, given its spread and the literature from from Japan.

about this. Yeah. So you know question in our, in our patients when I do the work up, when they come in for chronic Lyme and what I call Lyme sits which, which is I describe like you go to a doctor with 16 nails in your foot.

You tell the doctor you have foot pain and the doctor finds a nail and pulls it out and says, come back in a month and tell me how you feel. I usually find this up to like 16 nails and one of them.

And because you're an allergist, I'm curious because I didn't learn this in med school, this is something I had to pick up in the integrative community.

I learned, of course, to do ECG, to do skin testing for allergies. I was not taught about delayed food sensitivities from the point of view of like an ECG for reaction, but like lab has a panel of like a 95 or 96 food allergy panel.

for leaky gut and leaky gut, I think was poo years ago. You'd see high sign on levels. You know, they didn't really know. Was it a real disease or wasn't it?

It's now showing that these these tight junctions are really affected both in Covid and Lyme and analogies. Do you ever look for these like because this is not something I was taught and it was something I started expanding.

Is this something you've ever looked at or you might have an interest in looking? Because we do find that some of these patients that have like high levels and even a lab or IgG4 allergy test that don't show up on an ECG, they don't show up on skin testing, but let's say they've got, citrus or something else that shows up on their they avoid it and they say, you know something?

My itching is better, but it's not like they're having severe hives. It's not like they're having a lot of sneezing. They're allergic rhinitis or asthma.

But it's it's like they're almost they're getting a mild mast cell reaction with all of these inflammatory mediators that are coming out. And I was just curious if you've looked at it and if not, it might be something interesting to look at because I'm starting to find it in a lot of our patients.

Yeah, we we have not. I think the traditional teaching in the, in the allergy immunology space is that IgG4 is typically thought of as a marker for tolerance.

and, and but you know, that being said, clearly there are some diagnoses that where high levels of IgG4 are related to inflammatory conditions and some of those are handled by the rheumatologist.

So if we have not spent much time looking at G4, but at least in this scenario, perhaps a little more in the eosinophilic esophagitis area, but I, I think we're not opposed to the idea that there could be a story related to G4, particularly, as you said, in some of these instances where people seem to have repeated reactions to specific food exposures but lack IgG.

Could G4 explain that? I think it's certainly reasonable to to study it in greater detail. Yeah, yeah. No, I know it's an interesting point. So if somebody now has gotten this, they've got Alpha Gal, they're coming to you.

the problem is from, you know, when I was on the HHS tick borne disease working group and, working with the panel there, we were definitely highlighting.

We discussed Alpha Gal. And one of the things that came up, from some of the support groups was the alpha gal is showing up, for example, in people that are even taking certain nutritional supplements which have bovine capsules.

is there a list, like, do you have a place on a website or someplace that you have so that someone who's sensitive can go, all right, this is the list of all of the major allergens I should be looking at.

Because as you said, you're right. Even people strip. They try avoiding it, but it sneaks in. And they didn't realize it

might have been in a in a capsule or a supplement they were swallowing.

Where can they find out about this? Yeah, this is a major issue and one that we're hoping to sort of change some minds in Washington about, because the short answer is there really isn't a list.

And and some of that. Yeah, I think there's two points. One is it I, I this is why I like to call it alpha down syndrome. Because it's not just avoiding beef, pork, lamb, venison, rabbit in your foods.

It becomes important in medications in certain, procedures and, and devices and, and even over-the-counter things. So what I would recommend to people is vegan med.org.

And that is a great, website where they, they have pharmacists kind of on the other end of it, and they can do some research for you.

Mast Cell Overlap and Tick Saliva Research

The problem really is that if you're providing an over-the-counter medicine and let's say you have gelatin in that formulation, all that is really required is that the that it be gelatin.

You you don't have to these manufacturers don't have to really know whether the source of gelatin is fish plant or animal. Right. And so you can at times be safe with something.

And then if the, if the source of some of these inactive ingredients changes, it could, you could have a reaction. Equally, you could have a reaction initially, but later on, be safe because the plant based gelatin has now become cheaper.

And so that's what's used by the manufacturer. So the labeling part of this is really a challenge, and one that we hope we can change. Right. We we discussed this a little bit at the working group.

The need for that because, this can theoretically be a life threatening condition, right? I mean, most people fortunately don't die from it, but it can theoretically be life threatening in theory. You're right.

It could. Yeah. so what the people that you're seeing with AlphaGo, what are they carrying around? Are they carrying around the typical, auto EpiPen with Benadryl, with a medical dose pack?

Like, what are you doing to protect them just in case they have an accidental exposure? Yeah. So great. Great question. The epinephrine auto injector is obviously the the first and foremost type of thing in the, in the setting of the avoidance diet.

But often we'll have them have a, you know, they may have a prescription for some, some oral prednisone or, or medical dose packet and that I don't like for, you know, that that initial kind of saving portion, it takes the steroids a couple of hours to kick in.

So we we talk through that with patients and then we usually like to arm them with a long acting H1 blocker like Zyrtec, Allegra, XYZ, all those type of things generic seem to be fine.

These are all over-the-counter medicines then, typically an H2 blocker for some patients really described difficult to control heartburn and, upset stomach.

So we'll use the H2 blockers like, a famotidine for them for that. And then often we still will have them carry kind of the old fashioned Benadryl, if you will.

as, We realize it has some off target effects and it wears off, fairly quickly, but it can also be quite helpful for these reactions, in terms of quieting symptoms within a, within a quick, quick period.

Yeah, yeah. And those are, those are the recommendations we've also been giving. But I'm glad to hear it from you. I don't have a lot of patients, but I, I do have somebody in the Carolina regions who's, become a good friend over the years and just lovely woman.

And she got out for gal a couple of years ago and yeah, she's had to be on a vegan diet and very careful. Fortunately, she has not had any major episodes because she's super strict.

But boy, it really changes your lifestyle when you know, if you're a foodie like me, if you grew up in New York and you happen to be a foodie boy, getting a tick bite is, not the end of your life.

But boy, it certainly changes your lifestyle. in significant ways. Yeah, it sure can. I've. I've had patients tell me that they feel less southern because they can't eat pulled pork barbecue or or these type of things.

But I think it gets to what you're bringing up is that for adults to have maintained an open diet for, for decades and then to suddenly have that change, we don't really talk about this too much in the food allergy landscape, but there there can be some real feelings of loss, in terms of the social activities and, and the things that one liked to do, such as eating, eating out and enjoying, really good food.

Now they have to be so, so careful that it can take on a different, connotation perhaps. Right? And I know there's some really great support groups, that are out there.

just just about every year with HHS, the alpha gal support group would show up. And I know that they would keep talking and talking about raising awareness.

you know, to know that the average cases are at least a half a million, you know, that we're always underestimating at this point. I mean, the CDC just came out and said, oh, we we changed our surveillance criteria.

It was in 476,000 cases, you know, from a year or two ago. Now it's like it's closer to 650,000. It went up 70% because of this surveillance criteria.

So, you know, who knows among the allergists, there may even be allergists that these people are having hives. They think it's due to something else. And we may find actually, it's even a lot worse than what we know.

Yeah, absolutely. I think there probably are patients with that gastrointestinal presentation, alpha gal syndrome that may not even be kind of in the allergists purview at all.

Right. So do you when you tell your patients about tick prevention, most of the time, my, my favorites are using, like, a picaridin 20% on the skin. really? Lemon eucalyptus.

If they don't want to use chemicals for women pregnant. The only one I've seen that's safe seems to be I, 35, 35, from Europe. It was studied in pregnant women for like 35 years.

It's an amino acid base. and then, permethrin, you know, on clothing, deep woods, Deet. I mean, it's fine if you're going to do it from time to time, but do you do you like any other prevention apart from, you know, where like clothes tuck in your your socks, take off your clothes and put them in the dryer when you come in.

But you you have these kind of conversations with patients as far as like standard tick prevention measures. Yeah. We do have these conversations. And and I think we all benefit from the great work that you and others have done in the, in the field of, of Lyme disease and, and other tick borne infections, because we pull those recommendations from those who have gone before us.

Right? We we stand on the shoulders of each other. I think the only thing that I would probably add to what you said is just the typical idea of, you know, wear boots if you if you can.

And, and we usually tell people, yeah, at least my understanding is that ticks often will be kind of where they prefer

that sort of knee high grass. So if you can stick to the trails, perhaps you're you're slightly safer in that regard.

But it's really this very similar advice that that I feel like we have taken in large part from, from our friends in the northeast. Right.

Tick Species, Spread, and Prevention

You know, the and and as you know, with climate, it was just an article this morning, about how climate change is increasing these vector borne diseases.

It's roughly been like 70% of the world's infectious diseases. And the tick situation now, it used to be that May was Lyme Awareness Month. And Rick Aspell from our area would say, well, it really should be April because the ticks are coming out three weeks earlier.

And now with the climate, it's like I'm reading reports year round that the ticks are out in December. You know, when it's over 40 degrees, people are getting tick bites.

It's like this is unheard of right? That year round tick prevention. I don't think people realize it's gotten as bad as what it has. I think you're correct.

And to me, some of that evidence to support some of this is now from the the tick surveillance related to the Lone Star tick seeing their their expansion in into even areas within the Great Lakes and moving westward, across the U. S.

Right. Because it because it started obviously in the Lone Star State, but from us it's gone from Long Island all the way up to Maine, into the Canadian border.

at this point, I mean, the Lone Star tick is actually spreading faster than Ixodes ticks. And, you know, the moniker I used for doctors when I'm training them.

You you're like, you did mathematics in med school. You may like this, but I call it tears with a V, which is tularemia or licky alpha gal rickettsia star.

I and viruses like heartland bourbon. That's how I remember what's in the Lone Star tick. So if anybody gets bit, I have that moment in my head of like, oh, I should be checking maybe antibodies for this and just, you know, seeing like, is it possible that that's what's going on.

Now I love it. I'm glad you shared that. Yeah, I did my monarchs throughout med school. This was my favorite one of my favorite ways to memorize stuff when I was when I was doing it.

So. So question why don't you get Alpha gal if people are able to avoid for long enough symptoms, get better, does it ever go away? Do you see milder cases over time that there's some type of tolerance?

Yeah, this is obviously a very hot, hot topic and frequently asked question amongst people who develop it. And the short answer is we do see it go away.

And and I think what happens is from our, our work and that of others, that the, the cells that make the alpha gal IgG response initially seem to be basically short lived.

Kind of not. They're they're plasma blasts. So they're young and immature. They're not memory cells importantly. So if we can prevent additional bites and that becomes obviously the big thing, it it often is the case that alpha gal syndrome will, will sort of resolve over a 3 to 5 year period.

And people can kind of get back to eating, as they once were without restrictions. The the real caveat in all of this is that if you get additional bites, it almost seems to act as a booster, to those allergy producing cells and your alpha

gal blood test number will rise and sometimes your sensitivity will change.

But I think the the other aspect of is it prolongs that time to resolution and. that that's that at least gives some people hope that with really strict tick prevention.

Right. Which, you know, I think most people at this point, including myself, I like to garden. I like to get out there. I'm in the Hudson Valley. I mean, there's ticks.

We've had New York tick control come and spray, twice a year with ultra tempo, which does not get into the groundwater. It's got a seven day half life.

And, you know, we have pond and fish and the rest, and we have not seen ticks on our property, but we had to get an electric fence for our dog because a dog on our property, Molly, used to play with the fox.

They grew up together. There's a fox den and Molly would think it was a lot of fun to go running in the woods with the Fox, and she would come back with ticks and it's like, it's by the way, I'm a huge dog lover, but it's the reason I had not had a dog for many years is because I was worried about, you know, the dogs bringing ticks.

And so now we got an electric fence, and we feed the fox. She got mange. Unfortunately, I tried giving her some ivermectin. By the way, I found that it's scabies.

And I went, hold on, I've been feeding this fox. Maybe I could get her to eat the ivermectin and like, the dog food I've been feeding her. So I haven't seen her yet to see if she grew back her hair.

But I'm hoping, she'll come back soon. But it's. It's an issue keeping out the ticks. We've we've had a had a tick control property, literally 15 years.

We have 50 to 60 bait boxes around over four acres of property for the mice. So every time they're going to eat, eating the oats in there. Right. The permethrin roller is killing the ticks.

And that's how we stay safe on our property. But I'll tell you, people invite me over for barbecues and for stuff. It's like I'm scared to walk on people's lawns after what I've seen at this point.

And I think of the Caroline, you've got it also down there. I mean, it's it's like you got to really be vigilant that the world has changed. You really do have to be vigilant.

And as you mentioned, these Lone Star ticks seem to be quite prolific in their ability to to spread into diverse regions and expand. And they I think the tick experts often say that they are kind of the hunters of the tick world.

And are fairly willing to bite humans, unfortunately. Right. And for those who don't know that much about it, it's when you say the hunter, these guys will come running from 50ft away smelling your carbon dioxide and heat resist.

So these ticks, it's something like 12 to 15ft, right? So, you know, I put out a lot of heat and carbon dioxide. So I'm I'm normally a tick magnet. and I by the way, I did pick up even ten years ago, I picked up one of the first Lone Star ticks in our area.

One of the patients brought it in, and I saw the watermelon seed, you know, on the back of the tick. And I went, oh, my God, this is the beginning. That was probably about a decade ago in New York.

but by the way, one thing I realized when we were talking about Lone Star and I don't know if you've seen this with patients, the nymphs for the Lone Star can look like chigger bites.

We've had patients on Long Island and Montauk come in with these, you know, rashes on their legs. They said, oh, doc, I got bit by chiggers. And I realized that, you know, these were actually these may have actually been Lone

Star tick bites that can resemble chiggers.

And, do you know if there's any difference in risk between the nymphs and the adults as far as the transmission? So, yeah, it's a really good point. And, and we've seen very similar stories.

And I think you're right, when you ask people about ticks, they think about adult attached ticks. And and yet we think about nymphs and larvae and, and that it really can look like chiggers, so to speak.

I my sense and this is all clinical. It's not really laboratory based because I think these experiments are tough to do. My sense is that people that have bites from multiple nymphs or larvae are are actually more likely to develop the alpha gal allergy response.

And so it does, it does heighten my concern when I hear that story clinically. Right. And, and and of course the problem is with the larvae. I mean the, the nymphs are small enough, but the larvae the size of a pinhead and you can get a thousand larvae on your leg going through woods and you don't, you won't even barely see them.

and, and the last time I looked at the transmission rates for some of these, it was like around a 1% or less, but but still, you get enough of them on you, right?

There is a possibility of transmission and never even seen it. Yeah, I think I think you're that idea of enough of them on you is is in some ways how I conceptualize this allergic response that that the number of bites probably raises your risk.

And even if they are larvae or nymphs. Right. Well, the good news and I and I didn't know this, by the way, I had I was curious about the people who avoid the allergen for years, whether they could get over it.

But so it's not necessarily a life sentence. And that's extremely good news for people that it's not the memory cells, right? It's the plasma blasts that are actually, you know, creating the allergen.

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That's really good news for people to say, hey, listen, I got to wear light clothing, tuck it in. Premature treating clothing, picaridin on the skin. Regular tick checks especially cause Powassan virus is transmitted within 15 minutes.

Right. Rickettsia is transmitted within ten minutes. And. And the winner of all of them is really a harm side. Relapsing fever within five minutes. So I mean, it's not like the tickets still be on you for a half hour or more.

You may not get Lyme for a half hour, but even there, what's now concerning me is these ticks at a partially fed where the organisms moved from the mid gut into the salivary glands.

Right. They're already there when they're biting. And I think that's going to be one of these issues of like, people may be getting faster transmission of some of these.

And I think is being recognized from when the ticks are partially fed. Yeah. I think it's a really valid concern. And and my hope is that we can really start to do some more in-depth lab studies to, to get at some of these details that we see when we take care of, of patients and can we develop, you know, almost like more accurate models of what's happening in the real world.

just like you mentioned, with a partial blood meal and, and can we try to replicate that in the lab to inform, hopefully good advice for our people right now.

So this this was great, Scott. And thank you for, you know, all of these updated developments. So apart from Zola, which, you know, again, I'm really happy to hear that there's a new treatment on board that that can help these patients.

In fact, this woman down in the Carolinas, I'm in a, once it's approved by the FDA. And fortunately, she's been good, but I want to let her know about it.

any other new developments? you know, before we end our talk today that you think, like, where the research needs to go or when, in fact, where you could even use research moneys because, you know, hopefully these kind of conversations will stimulate more research, because the fact that it's spreading so quickly and can be theoretically life threatening.

I think we do need more research. Where else do you think the research needs to go? If you had unlimited funds at this point, what would you be doing right in your laboratory these days? Yeah.

So two two main things come to mind. One is the idea that we don't really understand or know yet what the risk of a single tick bite that is a lone star tick.

What's your risk as a as a, as an infected person or bitten person of developing alpha gal allergy and the resulting syndrome. Right. So, you know, I think I credit Steve Rich a lot, at UMass when he talks about surveillance is great, but we need to know about human biting ticks.

So what is that risk of the the attached tick bite in areas like Montauk or Central Carolina where these ticks are really prevalent. So we want to study people longitudinally to help inform that I think really critical number of of, you know, what is my risk from a specific bite.

This the second thing that that funding would really be helpful for is I think we need to start working. And we're doing some preliminary studies already on developing basically and, and an allergy shot or in some ways to think about it as a vaccine for the tick saliva itself.

Because, you know, we we have a very similar approach for patients that are allergic to bees or wasps or yellowjackets. Right. We can't prevent that. First allergic reaction to the bee sting, but we can then put them on allergy shots for bee venom so that if they are stung again, they don't develop that allergic response.

So the corollary that we want to do is look, we can't prevent perhaps that initial episode of of your alpha gal syndrome. But if we could then put you on allergy shots that center on the tick saliva, the hope would be that future tick bites don't then perpetuate the allergy.

So that would be a real win. I think, for for helping people truly treat and perhaps cure their alpha gal syndrome. Right. And you probably know, I mean, the researchers have been looking at this tick spit vaccine.

Actually, I've been following it. My God, it's going to be a decade or longer. but, you know, I always see that there's some funding. There's not funding. It looks like it's moving ahead.

but I don't, you know, I don't see anything in the pipeline immediately that looks like it's coming out. But the truth is, is it's the most logical, vaccine to put out there is because of all of these organisms that are now showing up in all these ticks.

It's one way to basically stop it all in its tracks. If you could get the tick to fall off the minute that the saliva got in there right before it had a chance to inject all the organisms.

That's right. If you could recruit those immune cells, then I think you're absolutely right. You you prevent the the entire cascade of things that happen thereafter.

So, you know, I think our conversation today, considering how Alpha Gal is spreading and, you know, with your number of at least a half a million, I think that's really a great point for researchers and for people looking to fund, that, that this is something that we really should be putting more time and effort into.

I, I certainly would be lining up, you know, to get one of these vaccines at this point once it's available, because it's

just getting worse with climate change, and it's something we're all going to need to protect ourselves against. So yeah. Yeah.

Absolutely agree. Yeah. Scott this was wonderful. It was great. It was great connecting you and having a conversation on this. Thanks for hosting me today. I appreciate it.

Oh it's it's really wonderful. So for everybody listening, we've all had the pleasure of listening to Dr. Scott Commins, from the UNC Allergy & Immunology group. He was one to really one of the first leading researchers talking about alpha gal.

We've discussed today, prevention, risk symptoms and treatment options. Scott, really wonderful news that you're making some headway with Zoller and starting new treatments, and that it may not be a life sentence for people for their whole lives.

That's really good news for people who suffer from it. So thank you for taking the time today. I look forward to seeing more of your research. And, let's let's connect soon and hopefully, maybe we can help each other along the way.

Sounds great. My pleasure. Thank you. Okay. Have a great day.