LEUKEMIA & LYMPHOMA SOCIETY®

THE BLOODLINE WITH LLS

A PODCAST FOR PATIENTS AND CAREGIVERS

Episode: 'What Non-Hodgkin Lymphoma (NHL) Patients Should Know During the COVID-19 Pandemic'

Description:

Has the Coronavirus (COVID-19) affected your non-Hodgkin lymphoma treatment? Join Alicia, Lizette and Edith as they speak with Dr. Lori Leslie about non-Hodgkin lymphoma and how patients have been receiving treatment during the coronavirus pandemic. Dr. Leslie is a part of the lymphoma division of the John Theurer Cancer Center in Hackensack NJ. She treats lymphoma and CLL clinically, is the director of the indolent lymphoma and CLL research programs and is heavily involved in the lymphoma CAR-T program. On this episode, Dr. Leslie explains the different types of lymphoma. The doctor informed us on how the coronavirus is affecting lymphoma patients, as well as if lymphoma patients should be taking any extra precautions at this time. Dr. Leslie also updated us about the latest news regarding a vaccine for the coronavirus. During this time, we remain hopeful after hearing Dr. Leslie say that research for lymphoma has continued despite the pandemic, and new treatments were recently approved for lymphoma patients.

Transcript:

Alicia: Welcome to *The Bloodline with LLS*. I'm Alicia.

Edith: I'm Edith.

Lizette: And I'm Lizette. Thank you so much for joining us on this episode.

Alicia: Today we'll be speaking with Dr. Lori Leslie. Dr. Leslie specializes in hematology and medical oncology. Her specific clinical and research interests include Non-Hodgkin lymphoma, Hodgkin lymphoma, and Chronic Lymphocytic Leukemia.

Welcome, Dr. Leslie.

Lori Leslie, MD: Thank you for having me.

Alicia: Of course. Now before we get into today's topic, which will be non-Hodgkin's lymphoma, also known as NHL and COVID, you know, during this time of this

pandemic, we want to get to know our speaker and we definitely like for our listeners to get to know them as well. So, before we get into that, what led you to your profession and interest in hematology/oncology?

Dr. Leslie: So, I am not a type of person who's always, you know envisioned myself or dreamed of becoming a doctor. I didn't have anyone medical in my family growing up, but when I was in high school, I was inspired by my biology teacher during the genetics and cell biology block. I just find cell biology very interesting and fascinating and find that when that is abnormal, you know, that's what basically leads to cancer.

So, going to college, I focused as a chemistry major and focused on biochemistry. Specifically worked in a cancer genetics lab doing some studies on various things and just found what I found most exciting about the field was really that clinical translation from the bench to patients and seeing how you can actually help people. Really enjoy interacting with patients and colleagues on the frontlines in person. So that led me to decide my junior year to go into medicine and took the MCAT and went to med school and, and here I am. It was a pretty easy decision once I decided to go into medicine to do hematology/oncology because I really do find the underlying science fascinating.

And over the last few years, in particular, with the explosion of targeted medications and understanding how we can harness the immune system to treat cancer, it's become even, you know, increasingly interesting and hopeful for our patients.

Alicia: Absolutely. And it, it must be very interesting, you know, seeing it or, beginning it in high school and kind of having your interest peak then, and then seeing all of the research and all the advancements that, that have been made and, , bringing us to this point. So, it must be so great to kind of look back and say, "Wow, here we are now."

Dr. Leslie: I feel very lucky to have found something I was genuinely interested in early on. I think now oncology has become a very competitive field to go into, to fellowships and, and there's people increasingly interested because of all the research that's gone on over the past few decades. So, I just happened to come along at a time where I was, inspired early on and I couldn't be happier with where I ended up.

You know, I met some mentors relatively early on as well. During medical school and residency at Columbia, there was a physician there, Owen O'Connor, who was focused on lymphoma, and Jasmine Zain as well, so they kind of introduced me to the field of lymphoma and CLL as a specialty within oncology. And then going to MD Anderson, I met a number of very inspiring colleagues there – Anas Younes, Michelle Fanale,

Nathan Fowler – among many others who then inspired me to come back to my home state to treat our patients with lymphoma and CLL. I'm from New Jersey, so Hackensack, you know, Andre Goy, Tatyana Feldman very inspiring lymphoma oncologists. We also treat CLL, chronic lymphocytic leukemia in the division, and I've been very lucky to meet people along the way who have helped continue to spark my interest in lymphoma, increasingly so.

Alicia: Right, right. That's awesome. And we heard so many great things about you and the help and the aid that you provide to patients and caregivers, so thank you for all you do for so many families.

Dr. Leslie: Well thank you to LLS and LRF and many of the other societies that really are that liaison for, for patients to get access to knowledge, support, centers, clinical trials, medications. I mean it's really a critical part of caring for patients that, you know, we couldn't do it without you.

Alicia: Thank you so much for that, doctor. On today's episode, we'll be speaking about non-Hodgkin lymphoma, known as NHL, and what many patients and caregivers should know especially during this coronavirus (COVID-19) pandemic.

For those listening who may be newly diagnosed or not an NHL patient, what is non-Hodgkin lymphoma and how is it treated?

Dr. Leslie: That's a great question. And when I meet a new patient in the office who has not really gone through that question, I go through it in a, a very stepwise fashion just to explain what we're dealing with.

So, lymphoma is a cancer. It's a blood cancer of a type of white blood cell called the lymphocyte. And there are currently probably over a 100 different subtypes of lymphoma, which makes me very happy I only treat lymphoma and CLL because I honestly don't know how general oncologists can keep up with everything in lymphoma and breast cancer and colon cancer, etc.

But, anyway, in lymphomas the main divide is Hodgkin, which accounts for about 10% of cases, and non-Hodgkin, which is much more common, about 90% of cases. And one's not better than the other. They're just different. They present usually different times, you know. In general, Hodgkin slightly more common when you have a young patient, though not always the case.

So, within Hodgkin lymphoma, there's basically just classical Hodgkin and one other subtype. Within non-Hodgkin lymphoma, there's a number of different subtypes, so

the further divide is the type of lymphocyte that's cancerous. It can be either a T-cell or a B-cell. T-cell is rarer, about 15% of cases, and each subtype of T-cell lymphoma is quite rare within that subgroup. There's, you know, numerous different subtypes, probably around 20 or so, with, increasing numbers identified all the time. So the treatment of the T-cell non-Hodgkin lymphomas is very nuanced based on the type you have.

In B-cell non-Hodgkin lymphoma, it's even further divided, and the next division is based on how fast are those lymphoma cells growing. It can be indolent, which is slow growing, versus aggressive, which is fast growing. So, the most common type of aggressive B-cell non-Hodgkin lymphoma is called diffuse large B-cell lymphoma (DLBCL), and those types of lymphomas are typically not observed. If you find someone that has that type of patient, typically they need treatment. And in the first-line setting, that's usually things like chemotherapy.

For indolent lymphomas, or slow-growing B-cell non-Hodgkin lymphomas, it's a little more variable. Some patients, you know, commonly present without any symptoms at all and maybe a lymph node or blood finding was found incidentally when they were getting worked up for something else or at their, you know, routine annual doctor visit.

And in those patients, you have, you know, a small amount of lymphoma and no symptoms from that lymphoma. We can watch and wait, sometimes, and those patients may not even need treatment. Then there's other patients that present with more advanced or, you know, a larger amount of indolent B-cell non-Hodgkin lymphoma, and those patients typically do need treatment. It may be chemotherapy, it may be, you know, an immune type therapy, it may be even an oral therapy in some situations, so it's a much more variable group the indolent B-cell non-Hodgkin lymphomas.

Alicia: Thank you for that breakdown. I know that when patients call LLS or are first speaking to anyone, they know about non-Hodgkin lymphoma because that's what they hear most, but they don't realize how many subtypes there are. So, it's very important for people to understand that there's so many. And, of course, that determines treatment as well.

Dr. Leslie: Yeah. And even patients that have the same type of lymphoma. So, let's say, you know, the most common type of indolent B-cell non-Hodgkin lymphoma is follicular lymphoma, there's a bunch of different types of follicular lymphoma. And even if your friend had follicular lymphoma, their course and treatment could be dramatically different than yours. So, I like to explain to patients not only there's a lot

of types of lymphoma, but even within the same type, there's a lot of variability. So, your treatment is individualized for the specific situation.

Alicia: Right, right. And what are the most common subtypes of NHL?

Dr. Leslie: So, the most common subtype of B-cell non-Hodgkin lymphoma that's aggressive is diffuse large B-cell lymphoma. The most common type of indolent B-cell non-Hodgkin lymphoma is follicular lymphoma. Other types of indolent B-cell Non-Hodgkin lymphoma include Marginal zone lymphoma, small lymphocytic lymphoma, lymphoplasmacytic lymphoma, including Waldenström Macroglobulinemia. So even within these sub-subgroups, there's a lot of further subgrouping.

Alicia: Got it. Now, doctor, during this time, of course, like we said earlier, of the coronavirus (COVID-19) pandemic, and there are so many people who are worried about their cancer diagnosis and what that means for them during this time; and because COVID-19, you know, is new, there's not that much information available on how this virus specifically affects cancer patients. However, due to cancer patients being immunocompromised, many, again, are concerned that they are among the group at high risk of contracting the, the virus. So, has there been any update on how the virus is affecting cancer patients, specifically lymphoma patients?

Dr. Leslie: Absolutely. So, this is a very hot topic within healthcare providers, patients, the community in general, especially as certain communities are starting to open up and other communities are starting to see a new flare.

So, in New Jersey, northern New Jersey, we were part of the initial COVID-19 outbreak in the United States. And at that time, really nothing was known. The precautions were very conservative. We were, protecting, you know, people who are potentially immunocompromised universally. A lot of the major societies had recommended complete, you know, isolation – ordering groceries, not leaving the house, that type of thing – until we knew more how this virus was behaving.

We've done many studies across the country, across the world. And I can say that's the one encouraging thing I've seen with the COVID-19 pandemic is that the unity among the scientific community is like nothing I've ever seen with everyone sharing information and really working towards that common goal of figuring out how to treat and prevent this virus. It's been quite uplifting.

But that being said, there's been a lot of studies looking at comorbidities. So, we thought maybe hypertension was a risk factor or, you know, certain medication uses.

Early on nonsteroidal anti-inflammatories or, you know, blood pressure medication called ACE inhibitors or ARBs were thought to be maybe a potential risk for a more severe COVID.

The only thing that has really panned out systemically in most studies is age. So more advanced age usually cut off around 65, so those older than 65, are thought to be at increased risk of severe COVID-19 compared to younger patients. And in my personal experience, treating lymphoma patients throughout this pandemic peak before and afterwards, as, of course, cancer can't wait so we remain open and continue to care for our, our patients and give chemotherapy, I think that we have been true in that, you know, in general, patients who are young, even if on chemotherapy or, pretty profoundly immunocompromised, in general, do relatively well. And patients who are older and immunocompromised typically have a more severe course.

So outside of age, I don't think we've been able to identify a specific factor that makes people at higher risk for severe COVID-19. It's a rapidly emerging field and, and, and the questions are increasing, actually, as we understand more about the novel coronavirus.

Lizette: Sure. Are there extra precautions that lymphoma patients should take? I know that you did mention physical distancing.

Dr. Leslie: Yeah. So, when this pandemic first started in Hackensack, we were very quick to require universal masking for patients and providers, hand hygiene, temperature screening. When anyone walks into the hospital or at the entrance, they're screened whether a visitor, patient, employee, whoever, visitor restrictions. So, no one's for, at, at the peak was allowed to visit patients in the hospital or in the infusion room, you know, outside of specific extenuating circumstances. And that remains true for our immunocompromised patients. We really recommend that they don't have visitors either while in the hospital or the infusion room to help minimize interaction with people in general.

This can be very isolating, particularly for patients who, going through treatment. You know, it's a stressful time always when you're going through a cancer treatment, and then to add a global pandemic on top of it, it's just, it's unimaginable in some situations.

Lizette: Right.

Dr. Leslie: So, when outside the healthcare environment, outside the hospital, outside, your doctor's office, we recommend kind of usual precautions, so handwashing, don't touch your face, masking, social distancing when able to do so. The same time, especially during the summer in our area, things are relatively well controlled at the moment, numbers are relatively low, so I do actually encourage people to get out a little bit. Maybe see a few family members at an outdoor event where we know transmission is much lower outside than it is inside. If you can go back to work in a safe fashion, you know, try to do that and, try to isolate yourself while there, have the window open, or at least get somewhat back to normal life because the isolation and the stress of this pandemic actually does harm to the immune system. And, of course, whether you're on treatment or recovering from treatment or on observation, we want the immune system as healthy as possible. You know, a healthy well-balanced diet, outdoor exercise, sleep hygiene, and, importantly, stress reduction is really key to do that. So, it's a balance of being cautious but, at the same time, not being almost obsessive about isolating yourself because sometimes I feel for many of our patients that might be doing them a disservice.

Of course, you know, if you're a post allogeneic stem cell transplant or some very specific situation that trying to get back to normal life may be the vast majority of our patients, if anything, it might be a safer environment right now because people who are not going through cancer treatment or chemotherapy or who are not immunocompromised are more likely to be hand washing and masking as well, which before all this certainly was not the case, unfortunately.

Lizette: Well one of the things that really came out in a lot of our COVID-19 programs from the doctors as well as from the, the social workers was that our patients actually were able to adapt to this social distancing or, or physical distancing better than the general population just because if they've gone through a transplant, if they've gone through chemo and they were immunocompromised, doctors you already told them how to take care of themselves in that way; whereas others, like you just said, weren't really in tune with all of these precautions.

Dr. Leslie: I have so many patients who have come in during this time and, you know, we talk about COVID and restrictions and they, they say, "No problem. It's no different than what I've been doing. So, this is -

Lizette: Right.

Dr. Leslie: - "Actually, I'm happy everyone else is doing it now too."

Lizette: Right. Yeah. Actually, some patients have said that they feel, that they have more of a connection now since they were just doing it as patients, but now since everybody is doing it, they feel more connected.

Alicia: And less alone, I'm guessing as well.

Lizette: Yeah.

Alicia: Doctor, this week, we actually or they have been multiple headlines about there being a vaccine that shows, you know, further immune response and that it could be promising. Is that something that's too early to tell or is that something that's also being, you know, considered and thought of for our cancer patients?

Dr. Leslie: So there was an article in *New England Journal of Medicine* about Phase I, the earliest phase of development of a vaccine kind of mimicking one of the coronavirus proteins that would help trick the immune system into creating immune protection. So, I do think it's very encouraging to see the, how rapidly pharmaceutical industries and other kind of donors and sponsors move to try to start working on this vaccine.

There are many different groups working in parallel to try to find the most effective and safest vaccine available, so I'm encouraged to see these initial data showing that there is immune response in a Phase I study. There were some usual side, you know, injection site reactions, fever type of reactions that you see commonly with any sort of vaccine, but some of the questions that we don't know yet in these early studies is how long-lasting is that immunity going to be?

We've done some studies at Hackensack looking at convalescent plasma, so taking immunity from people who have had a robust immune response to coronavirus infection and collecting those antibodies through plasma, you know, a blood product and then giving it to patients who have severe COVID-19 to help them recover. And it's a very promising approach that's been used in the infectious disease world for decades, but it at least provides some rationale that, hopefully, stimulating the immune system by, hopefully, long-lasting antibody production will be a successful approach in coronavirus, you know, COVID-19. But I think it's really too early to say if this is going to be the vaccine or if it's going to be something else, it's certainly too early to decide or predict when that vaccine will actually be available for use.

Alicia: Sure. Our fingers are crossed.

Dr. Leslie: Absolutely. It's very encouraging.

Lizette: And, doctor, is that a killed vaccine then, that our patients would be able to take?

Dr. Leslie: Yeah. So, I personally have not seen any investigation into live virus vaccines for COVID-19. I think some sort of conjugate protein vaccine, an inactivated vaccine will most likely be what comes to market, and that would be something most likely that I would recommend for my patients, who have lymphoma or chronic lymphocytic leukemia. But until we know the details of that for sure, it is very important question and very important to highlight that if it were a live vaccine using, you know, an attenuated or a weakened version of a live virus, that would significantly decrease the amount of people that would be able to get that vaccine.

And our immunocompromised patients, for anyone not familiar with this concept, is basically, if you give a live vaccine, there's a chance that you can actually cause the disease that you are trying to prevent. It's a weakened version of that virus or infection -, infectious agent, but in a weakened immune system that can still lead to that clinical disease if it's a live infectious agent being used for a vaccine.

For example, you know, the flu vaccine is not a live vaccine. It's an inactivated conjugate vaccine, so it's actually impossible for someone to get the flu virus from getting, from taking the flu vaccine. However, people can have a flu-like reaction when the immune system is revving up and making those antibodies where you feel like you're achy and have a low-grade fever which is not actually, a viral infection but since a lot of the, the symptoms are similar, so that may also be the case with the coronavirus vaccine. At least in the early studies, some patients do have those aches and pains and, and, and fevers, though in the study of the, this first Phase I study of the coronavirus vaccine, it was a, inactivated, non-live, conjugate type of vaccine, so those people weren't actually infected with coronavirus. They just had some of those symptoms.

Lizette: Sure. And how else is COVID-19 impacting the way that doctors are, are providing care to their patients? I know that I've heard that there's been some cancer centers that are kind of refraining from some anti-CD20 antibody maintenance therapy for slow-growing non-Hodgkin lymphoma patients just to allow for B-cell recovery. Are there a lot of different changes or adaptations annotations with the treatment for both slow growing as well as aggressive non-Hodgkin lymphomas?

Dr. Leslie: So, I think the answer to that has been rapidly evolving. My experience, and at Hackensack when we were at the peak of the pandemic, our research program continued. We do a lot of CAR T-cell therapy or clinical trials for aggressive

lymphomas. You know, those patients can't wait, so whether they need a clinical study or chemotherapy or anything else, it was treatment as usual. It's curative disease a lot of the time so you need to give the patient the best treatment choice whether or not we're in the middle of a global pandemic and then just, just try to isolate them in the safest way possible. So, we would test people for coronavirus prior to their, inpatient admission or cycle of chemotherapy. You know, go through the usual precautions at the cancer center in the hospital as well as the patient at home. So that proceeded as normal.

Just focusing a moment on the aggressive lymphomas, I can say once the peak passed and over the past month or two, we, unfortunately, have had an influx of people with aggressive lymphomas that were scared to come in during the pandemic even though they had symptoms and were progressively getting worse and presented with much more advanced disease than they probably would have otherwise. So, we really focused and tried to encourage patients and referring providers and the community to continue connection with your healthcare provider, so these things aren't missed or don't progress, while we're waiting to see what happens with coronavirus.

That's slightly different, as you mentioned, with the indolent lymphomas or the slower-growing lymphomas. If a patient had something found incidentally, certainly we would maybe delay the indication of treatment, if they're minimally symptomatic, a month or two longer than we would have otherwise until we saw how this pandemic was panning out.

CD20 monoclonal antibodies are drugs that target a protein on the surface of B-cells, so they're used throughout B-cell malignancies and help kind of stimulate the immune system to recognize and kill the cancerous cells. One long-term side effect of the CD20 monoclonal antibodies is that they can make your normal B-cells a little more sluggish. And what B-cells do is they make immunoglobulins, which are kind of like your body's natural defense particularly protecting the sinuses, the respiratory tract, so people who have chronically low levels of immunoglobulins, particularly immunoglobulin type G or IgG, can experience increased or prolonged respiratory tract infections or sinus infections.

So, because of that with this respiratory virus, COVID-19, some providers were kind of adjusting how they were using CD20 monoclonal antibodies, hesitating before doing long-term use, for example, as you mentioned with the maintenance. The exact dose we didn't actually change that much. A lot of patients with lymphomas have underlying hypergammaglobulinemia even before their treatment. And if someone's

had treatment with a CD20 monoclonal antibody, that inability to make immunoglobulins from the treatment can be long-lasting, even for years in some patients who've had chemo with a CD20 monoclonal antibody. So, if that's otherwise the best choice for the patient, we would continue and still do that maintenance or CD20 antibody-based therapy. And that might've been because we had these plasma studies available, so that if a patient did get COVID-19 and was not making antibodies, that would be someone that I could enroll in a clinical trial getting convalescent plasma and giving them someone else's antibodies. But, in general, I think it was important to kind of continue what's best for the patient during the pandemic with minimal alterations if possible.

Lizette: Sure. And how about treatments such as transplantations as well as CAR T-cell therapy for non-Hodgkin lymphoma?

Dr. Leslie: So, we have a large transplant program at Hackensack John Theurer Cancer Center and a large CAR T program as well. That remained active as usual throughout the pandemic and that's because usually patients who need a cellular therapy, whether it's transplant that could be autologous, you know, their own immune system or allogeneic, someone else's immune system or CAR T-cell therapy, typically those are more aggressive situations where you don't have extra time to wait.

So, Dr. Donato, who runs our cellular therapy program, very quickly made sure to isolate the transplant unit, as it already was; it has its own air supply. There were some changes in terms of if you're using cells from someone else like an allo transplant, the way they would process and store the cells before giving to a patient was slightly different just to make sure they weren't potentially contaminated with COVID-19. Everyone got tested before being admitted to the transplant floor or cellular therapy floor.

We were doing some autologous stem cell transplants and even CAR T-cell therapy as an outpatient where patients would stay in an apartment and then come to the day room every day to be evaluated but wouldn't have to stay in the hospital. We really paused that during COVID-19 'cause we wanted to minimize exposure to the outside world, so those are all being done in the hospital; but we've been able to maintain our program, both standard of care and clinical trials, for cellular therapies during this time.

Lizette: That's great. I know that you mentioned, also, that at this point you're limiting guests or the patient's caregiver. And a lot of times patient's caregiver is the one that goes into the appointment and may take notes and, you know, may be the

one with a lot of the questions for the healthcare team. Are there any ways to keep not just patients engaged with you but also caregivers at this point?

Dr. Leslie: Absolutely. I think there are a few things that have been very helpful and, actually, after, hopefully, all this passes will actually stay as opportunities to have more support for the patient.

So, one is telemedicine. I really enjoy telemedicine. In certain situations, of course, the physical exam is critical for our patients with lymphoma, but if I can do a consult or a follow-up with a patient on telemed, they can have their family present, I can pull in people who are in another state. We can really have family meetings that way. You know, it's not ideal, but it does give opportunity for everyone to ask their questions directly in a way they can, they can see each other, they can see me. And I think that really helps the interaction with families.

When patients are in the hospital, we do have video availability, whether it be a, some sort of tablet to be able to do a FaceTime, a face-to-face video follow-up while on rounds to discuss with the patient and their families. If the family is not available, I always call them after rounding with the patient and make sure they don't have additional questions.

In the clinic, we do now allow visitors to come in the actual exam room with the patient and the provider, usually one visitor; and if they want additional family members to join, they have them call in on some sort of video conference. But in the actual discussion room we allow that but just not in the treatment area.

And the, the hospital has started to open up to allow one visitor by appointment only for most patients but because of the immunocompromised nature of cancer patients in general, we've asked to maintain the no visitor policy on the oncology floor specifically. If someone has a roommate or someone walks by, you know, all patients may not consent to having those visitors there and so it makes it challenging to allow people to come visit the floor without having ability to, you know, test everyone for coronavirus and have 100% sensitive tests before they come in to visit.

Lizette: Sure.

Edith: Doctor, what are common questions you hear from patients, especially now in the midst of the pandemic?

Dr. Leslie: I think some of the most common questions at the beginning were, "Am I at risk for severe COVID because I have cancer, because I'm on chemo, because I

have high blood pressure?" whatever the situation may be. And my answer is still, "We don't really know. You know, follow-up with guidelines, additional precautions can be taken." But as this emerges and areas are reopening, or not, depending on what's going on, the most common questions right now have become, "Can I go back to work? What do I do when I go back to work? Can my caregiver go back to work? Should my kids go to school when the fall comes? Can they go to camp?" So, I think it's more trying to mitigate the risk of exposure as things open up, at least in, in New Jersey, have become by far the most common questions. It's really challenging to answer that generally because our patients are slightly different and a lot of it has to do with the patient's own level of comfort and their underlying immune system.

There have been some, some statements that have come out recently, like addressing the school situation, by American Academy of Pediatrics that they are encouraging that it should be in-person instruction this fall and, you know, there's different guidelines or recommendations provided for pre-K versus kindergarten through third versus more middle school versus more high school.

In general, social isolation or social distancing when possible has been shown to be beneficial though might not always be realistic in the school environment. So, I try to encourage patients that, you know, physicians are encouraged kids can go back to school in a safe way. And whether or not you're immunocompromised at home that this, these have been recommended as, as a potentially safe thing to do by American Academy of Pediatrics and also that, as this evolves, we may go back to distance learning again. And the flexibility is going to need to remain moving forward as this evolves.

In terms of going back to work, similarly, like can your work environment, can you wear a mask? Is everyone around you masked? Can you be outside when possible? Can you open a door? Is there a, a larger space or are you crowded with a lot of people? Are they doing any sort of screening like temperature checks or asking about contacts before you come in? And if that really can't be achieved in a safe way, then I do recommend, if possible, you know, patients stay remote.

I hesitate to recommend that patients don't work or stay remote because for some people if we say that now, their situation's not going to change in a few years. And, and my, my feeling is that COVID-19 is going to be circulating in the viral repertoire, whatever time of year it ends up peaking for years to come probably whether or not there's a vaccine. So being overly restrictive now may potentially cause people to lose their job when they didn't need to otherwise or to keep their young children home

when it wasn't necessarily warranted and then maybe, you know, that could have some consequences moving forward. So, it's really a common question, an excellent question and the most challenging question that I'm encountering right now because no one knows the answer.

Edith: For the patients and caregivers listening today, what progress has been made in treatment for cancer patients despite this pandemic?

Dr. Leslie: So, research has continued despite this pandemic. Aggressive lymphomas, CAR T-cell programs have all pretty much continued despite this. During the peaks at times, the indolent lymphoma programs have maybe temporarily paused. If it wasn't an emergency for patients to come in, we've maybe watched and waited a little longer, but, in general, research has continued to advance.

What I have found very refreshing is just the flexibility that everyone has. Typically, research is very strict in terms of when you need to come in in a certain window and getting scanned at a certain place and getting your medication specifically from whatever center you're treated at; it can't be mailed to you. And the regulatory agencies and pharmaceutical companies have really shifted quickly to make continuing research realistic and practical despite this pandemic. So, you know, having scans done at maybe a different facility that brings people in one at a time and adheres to more of a, distancing protocol or having medications, when appropriate, shipped directly to the patient in certain situations to avoid that one extra visit to the healthcare facility to pick it up, or allowing certain visits where you don't have to have a physical exam where you physically touch the patient be telemedicine instead of an actual visit. And that flexibility has allowed us to continue advancing the field of lymphoma despite this pandemic.

Even within the last two weeks, the FDA has approved, two new oral agents for the treatment of patients with relapsed-refractory lymphoma, so it really is still rapidly progressing.

Edith: Doctor, is there anything that you'd like to share with our listeners that we haven't discussed?

Dr. Leslie: I just want to say hang in there. Things will get better. This is a very stressful time and progress is certainly being made in treating lymphoma, in treating coronavirus. This will pass and, the restrictions are certainly warranted. The masks work. Washing hands works. Personally, I was a little skeptical at the beginning of the pandemic they would be so effective, but it's really effective. We've looked at the

rate of infection, even in the frontline workers who had protective equipment, and it's incredibly low. So, so there's a lot of encouraging information coming out. We're learning more about coronavirus, and just hang in there.

Alicia: Thank you so much, doctor, for joining us on this episode to discuss non-Hodgkin lymphoma during this current pandemic and for everything that you do for patients and their families.

Dr. Leslie: Well thank you guys for having me and for everything you do as well. And thank you to the patients.

Alicia: Absolutely. And for those listening who would like to learn more about non-Hodgkin lymphoma, please visit www.lls.org/lymphoma. And here at LLS, we are closely, monitoring the coronavirus (COVID-19) pandemic. So for more information about support and educational resources, please visit www.lls.org/coronavirus. Thank you so much for listening.