



Multiple Sclerosis Association of America **Webinar Transcript**

Program Title: “What You Need to Know About COVID-19 and MS: Program 3”
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Presenters: Barry Hendin, MD and Carrie Hersh, DO, MSC
MSAA Host: Peter Damiri

Peter Damiri: Hello. And welcome to the Multiple Sclerosis Association of America's live webinar, What You Need to Know About COVID-19 and MS - Program 3. I am your host Peter Damiri, Vice President of Programs and Services and glad to be here on tonight's program.

This third webinar is part of an ongoing series designed to help you stay as informed and updated as possible on the constantly changing news around COVID-19 and how to best manage your MS. On behalf of MSAA and our presenters, we greatly appreciate the opportunity to be back here once again and to continue providing you with timely and urgently needed information.

Also please know that we continue to send our very best wishes to the entire MS community and hope you and your family stay safe and healthy in these uncertain times.

MSAA is extremely honored to welcome back our two MS expert advisers who once again educate and update us about the coronavirus pandemic and its impact on MS and answer your questions during our expanded Q&A session at the end of the program.

At this time I would like to introduce our special guest presenters, Dr. Barry Hendin and Dr. Carrie Hersh. Dr. Barry Hendin is MSAA's Chief Medical Officer and a practicing neurologist at Phoenix Neurological Associates. He is also the director of the Multiple Sclerosis Clinic at Banner University Medical Center and a clinical professor of neurology at the University of Arizona Medical School.

Dr. Carrie Hersh is the chair of MSAA's Health Care Advisory Council. She is a practicing neurologist and assistant professor of neurology for the Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas Nevada.

Dr. Hendin and Dr. Hersh, thank you both so much for being here again tonight and continuing with our ongoing series on this very important issue.

Dr. Hendin: Peter, I also want to tell you how happy I am, and I'm sure Dr. Hersh, to join again with you and people over the telephone who have MS to talk about a very current issue and that is COVID-19 and the MS community. So I'm thrilled to be back again for now Program Number 3 and what we hope will be a continuing exploration of this subject.

Peter Damiri: Great. Thank you so much. Well before we begin, I want to provide a few updates starting off by saying that our last COVID-19 webinar was on April 13th and is archived for those who want to watch it on our website. Also tonight's program will be archived as well and our next webinar in the series, as Dr. Hendin mentioned, will be on Monday, May 11, at 8:00 p.m. Eastern.

And once again, the dynamic duo of Dr. Hendin and Dr. Hersh are back to provide us with the latest updates and their very helpful insights. Registration on the May 11th webinar will be posted soon to our Web site at mysaa.org/coronavirus. I also want to thank our funders Bristol Myers Squibb, EMD Serono and Genentech for making this webinar series possible.

And also just adding another note of an update. We're currently working on trying to get a presenter for our next webinar that we'd like to explore on COVID-19 and its impact on the African American community. And so we are working to get that information secured and then we will post that on our website as soon as possible.

As you may know, MSAA is a national nonprofit organization dedicated to improving lives today for the MS community. In fact, this year marks our 50th Anniversary as an MS organization. Listed here are just some of our many free programs available to people living with MS across the country along with our ongoing updated information on COVID-19.

Also during this time we have extended our help line hours to 8:00 p.m. Eastern between Monday and Friday. I encourage everyone to visit our website at mysaa.org or call us at 1-800-532-7667 to learn more.

And lastly, as mentioned, we are recording and archiving this webinar and will work to post it to our website very soon. Also we have expanded the Q&A session to help address as many questions as we can.

During the program you will need to type your questions into the chat box that you see on the screen. I will ask your questions to the presenters at the end once the Q&A session starts. When typing your questions please try to make them as general as possible so they apply to the larger MS community.

Also if you are experiencing any technical issues with the webinar, please type those concerns into the chat box as well. So with all of that now covered, I am honored to once again introduce Dr. Barry Hendin, who will start the program.

Dr. Hendin: Thank you very much, Peter. I suspect that some of you listening have heard Dr. Hersh and I on the previous two sessions but that for many people this is the first visit to us so it may be worthwhile going over some of the common ground.

What is the coronavirus? What is COVID-19? And what does it mean to the general community and then to the MS community?

So I think at the most elemental level, this COVID-19 is a potentially serious inflammatory disorder that targets the respiratory system. The fact that it targets the respiratory system doesn't mean that it doesn't secondarily involve other parts of the body, which it may.

It's part of a family of coronavirus that in other people may be mild, such as a common cold. But this is a novel mutation of that virus. For those who haven't figured it out already, COVID-19 comes from the name corona, C-O, virus, V-I, disease, 2019. So COVID-19 is coronavirus disease 2019, a disease caused by the coronavirus.

It says here in the most elementary way initial symptoms are most commonly fever, persistent cough, shortness of breath but that isn't the exclusive presentation. There are people who present with loss of smell and taste. There are people who present with gastrointestinal illness, diarrhea or some kind of abdominal discomfort. So we should be aware that the most common is fever, cough, shortness of breath but by no means is the exclusive.

The next bullet point really is from the CDC and it is what all of us should be doing. In a changing discussion, Dr. Hersh and I are used to the fact that we're dealing with a new disorder and new disease and that much of what we're talking about has changed over the past couple of months and will be changing over the months ahead.

What isn't changing is common sense and that is people who have to cough or sneeze should cover their mouth and nose, probably by sneezing into their sleeve, not their hand. Avoid touching their mouth and nose and eyes because that's the way to transmit the virus. Wash your hands frequently. Clean surfaces frequently.

This virus is a very contagious virus. If it were not so contagious and not so potentially serious, we wouldn't be having this discussion. But the thing that has brought it to a national level of concern is it is highly contagious and depending upon the individual may be catastrophic.

Most people don't have a serious or a debilitating illness but some can include a fatality. So if a person thinks they might have a coronavirus and COVID-19, what should they do? They should try to keep themselves at home if they're mildly ill and don't have what seems to be life-threatening symptoms, particularly shortness of breath or difficulty getting oxygenation and they should try to basically shelter in place.

We say they should be contacting their clinicians, but we know that it's harder to contact your clinician right now. The usual idea that you run into urgent care or run in to see your physician really has changed during COVID-19 but, again, common sense.

So if you do have symptoms that you think might be COVID-19 and they're mild, it's now a bit easier to get tested. One should try to do that and then use common sense. Hydrate, get sleep, continue to the ability that you're able to get some fresh air and exercise and those are sort of common sense.

Let's see if I can advance this. Let's see.

Peter Damiri: Do you want me to advance it for you, Dr. Hendin?

Dr. Hendin: I think I may have done it. . Oh, success. So I'm going to talk about bullet point two before bullet point one. The slide is entitled Special Considerations for Individuals with MS. So if you drop down to bullet point two, what it says is that having MS doesn't necessarily put you at greater risk for COVID-19 than anybody else around you. But that doesn't apply to everybody with MS.

And certainly if you have MS with a debilitating course and you have difficulty with breathing or difficulty with swallowing, then your risk has gone up because of those increased difficulties. By and large we tell people that having MS does not create a significant increase in risk of getting COVID-19.

We also say that we provide medication for people with MS. And our experience so far is that MS population, when we've looked at the registries, do not look like they are having at this time a worse outcome than the general population.

There are other comorbidities that really do seem to make the difference in outcomes so first and foremost age. People over 60 may have a higher instance of risk and fatal outcome, over age 70 twice that, over age 80 three times that. So age in and of itself is a very important factor in outcome.

And then if you add comorbidities it really does change the outcome further. What do I mean by comorbidities? Things like chronic heart diseases, chronic lung diseases, uncontrolled asthma, uncontrolled diabetes, obesity, smoking, these are things, some of which we should be paying particular attention to now because they make the difference.

You can't keep from getting older. That comes with the territory and we all want to be able to get older. But we should be able to watch over our blood pressure and pay attention to that, watch over our weight, exercise, watch over our asthma and lung diseases and make sure our diabetes is controlled.

So I want to draw attention to the fact that MS does not increase risk in and of itself but that comorbidities become very important and that some of those comorbidities are things that we should have been addressing a year ago and a month ago and should be addressing even more seriously now, including smoking, which carries increasing risk for COVID.

The third bullet point says no consistent guidelines for managing disease-modifying therapies during COVID-19. And what we're saying really is that these are discussions that we hope that each of you will be having with your clinician.

There are opinions out of Italy. There are opinions and guidelines out of England. There are opinions and guidelines out of U.S. They have similar but not the same recommendations. So there are

inconsistencies. But what everybody agrees is you don't stop your disease-modifying therapy or change your disease-modifying therapy without careful discussion with your clinical provider, with your clinician.

Stopping some of the agents, in fact, carries an increase that we call rebound. So if you said are there mixed opinions about which of the agents are safest and which of the agents may carry more risk? Yes. There are some variations or opinions. We're delighted that so far the MS population appears to be doing about as well as the general medical community that gets COVID-19.

Do not stop your medicine. Do not change your medicine without a discussion with your clinicians. Those are the comments that I wanted to make and I'd like to turn this over to Dr. Hersh. Carrie?

Dr. Hersh: Thank you so much, Dr. Hendin. And before I start delving into the PowerPoint slides I wanted to also say thank you to the MSAA for all of their continued efforts in making sure that our MS community persistently or consistently comes first and their amount of dedication to our MS patients and caregivers, you know, during the uncertain times that we have with COVID-19 is remarkable.

And I just want to say thank you to the MSAA and also thank you to Dr. Hendin. It has been such a pleasure to work with him during these MSAA webinars that we've been holding over the past month to six weeks. And I look forward to continuing to provide some robust information as we continue to move forward.

So with that I will go ahead and I will provide some more specific information as it relates to individual disease-modifying therapies. In the MS community there have been a lot of questions and queries in terms of disease-modifying therapy management.

Should folks continue their DMTs? Should certain DMTs be suspended or held while there is a pandemic going around? And as Dr. Hendin had mentioned during the last slide, generally speaking it is not

recommended that folks stop their disease-modifying therapy or delay their disease-modifying therapy unless there is a specific indication to do so from their MS health care provider.

And the reason for that is because MS as we understand is a chronic long-term clinical diagnosis that can not only result in relapses and new MRI lesions but certainly have a long-term implication in terms of how folks do in the long-term.

And there can certainly be some significant consequences to stopping disease-modifying therapies and there being some, you know, unprecedented relapses in MRI disease activity that could certainly occur if these DMTs are held.

And then for specific disease-modifying therapies which I'll go into certainly this can result in even more significant and disabling and potentially irreversibly disabling relapses if they are held or suspended without an MS health care provider being able to transition them to another disease-modifying therapy.

So all of these things really need to be taken on an individualized basis. And, you know, for the most part the recommendations that we have on the slide here that I'll go through point by point are more generalized blanket statements.

But for individual care in folks who have different comorbidities that Dr. Hendin has mentioned that may predict an increased risk of either susceptibility to the virus or severity of the disease or are in locations where they are unable to self-isolate, you know, those could potentially be even more concerning risk factors than actual disease-modifying therapy itself. So everything really needs to be taken into account and individually stratified.

So overall the risks and benefits of therapy really do need to be discussed with your MS health care provider. And across the MS scientific community we feel based on best clinical practice, speculation and expert opinion that low-risk therapies includes the self-injectable treatments such as the glatiramer

acetates and interferon-beta therapies, teriflunomide, natalizumab and fumarates with the additional recommendation that with the fumarates it really does depend on blood cell counts and whether or not individuals have white blood cell counts that fall within the normal range or whether or not they are low.

And folks who are on fumarates who have low absolute lymphocyte counts may have some additional risk factors compared to folks who are falling within normal ranges. Fortunately the majority of folks who are treated with the fumarates do not tend to see a problem with low absolute lymphocyte counts but every now and then we do see this as a potential adverse effect and we may even see this in the older population a little bit more frequently.

Intermediate risk therapies include the S1P modulators, fingolimod and siponimod, the monoclonal B cell depleting therapies so vedolizumab and rituximab and cladribine. However the risks and benefits, as I mentioned before, really need to be weighed on a more individualized basis and, you know, there have been some speculations whether or not folks who are treated with infusion therapy such as ocrelizumab and rituximab should have their treatment either suspended or delayed.

And, again, this really needs to be on an individualized basis. Are there are other potential risk factors that are involved, either inherent comorbidities in the person, himself or herself, so are they over the age of 60? Do they have uncontrolled diabetes?

Do they have other chronic health and lung diseases that put them at risk? Are they permanently disabled where they may have trouble swallowing or clearing secretions so if they ended up becoming susceptible to the virus would they have an overall disease course not because of the disease-modifying therapy itself because of their level of disability?

And, again, we also have to keep in consideration that, you know, COVID-19 is not going away anytime soon as what has been discussed with other leading experts. And the question is how long can we really

delay someone's treatment? What is considered appropriate? So, again, this really does need to be discussed with your health care provider on an individualized basis.

Another point that I want to make is, you know, therapies including natalizumab and the S1P modulators, fingolimod and siponimod, there are significant risks of what we call rebound disease. So after these treatments are withdrawn or they're stopped suddenly and there isn't another disease-modifying therapy that someone can transition onto, there is a significant risk of a severe clinical relapse that might actually incur more disability compared to when the person started those treatments in the first place.

So, you know, again, there has to be quite a bit of caution when someone is considering either changing their disease-modifying therapy or suspending treatment. And, again, I stress that this really needs to be done with the assistance of an MS health care provider.

Higher risk DMTs include alemtuzumab and hematopoietic stem cell treatment, again, because of the amount of immunosuppression that is involved and with HSCT chemo therapeutic management that needs to be completed before stem cell therapy is actually performed. So specifically in these patient populations, continuing therapy or starting therapy really needs to be weighed individually.

Right now, as I had mentioned, the points that we have on this slide currently are based on expert opinion and are speculative based on their mechanism of action and how we know the impact to the immune system, whether or not they modulate or change the immune system or whether or not they suppress the immune system.

And not only whether or not they suppress the immune system but what parts of the immune system they actually suppressed and how long-term are those effects, meaning how long is the immune system suppressed for if a patient is exposed to that therapy?

So there are a lot of questions that have been raised and we are doing a lot of work in the MS community to try to gather information in as much of a standardized fashion as possible so that way we can be able to provide more evidence-based guidelines in caring for our patients.

So there have been a lot of strong efforts internationally in order to develop these registries where individual data points are being collected and patient health questionnaires are going out to folks who actually developed the virus so that way we can better understand how folks do in the MS community if they do develop the infection. What are their outcomes and how does that relates to the disease-modifying therapies they're treated with and other comorbidities that Dr. Hendin has talked about?

So there is one leading effort that is a collaboration between the National MS Society and the Consortium of MS centers called COViMS, which is a North American Registry collecting a lot of really robust data on these patients across the United States, Canada and I believe Mexico is also included to include North America.

They have a Web site that is available to all individuals where health care providers are actually able to insert information. But there are some preliminary data that are available to the public. Currently there are 112 patients with MS who have been included in this registry. And it appears that 91.4% of those who have tested positive for COVID-19 have either recovered or are currently recovering.

So as Dr. Hendin had mentioned previously, it does not appear that MS alone is increasing the susceptibility to transmission nor the severity of the disease, but it really is these other risk factors that are playing a more important role.

And there are other individual sites that are developing registries. I know the Cleveland Clinic has developed a very large registry with over 22,000 individuals who are currently, you know, being evaluated and this is across other centers as well.

And hopefully we'll be able to have some more finalized data in the weeks and months ahead. And we'll hopefully be able to report some of that information in the future.

So what can folks do in the meantime when it comes to trying to stay healthy during all of this? This is an uncertain time, a very stressful time for folks around the world. And the good part about this is that the messaging that the MSAA and the MS community at large have been encouraging for quite some time is really no different than what we are encouraging now.

And this isn't just for the MS population. This really is for everybody around the world. And these measures are how to stay physically and emotionally well. There are recommendations to make sure that you are getting plenty of good adequate sleep, trying to remain physically active to the best of your ability.

I know there have been a lot of different virtual exercise platforms that have come onto the Internet. In terms of going outside, I know that that has been a very common question, whether or not it's okay for people to go outside. Yes, it is okay to go outside. Maintaining social distancing is certainly highly recommended, so that's at least 6 feet away from another individual.

If that cannot be done and I know that there are, you know, certain areas of the country that really are mandating wearing a face covering if you're outside at all, that is something that would also be recommended as well.

Managing stress is certainly a huge part of living well and it's a very difficult time for a lot of people. How can people manage stress? Well, you know, trying to remain socially engaged with people so social distancing does not equal social disengagement.

So, fortunately, we live in an environment where we have Facetime and we have Zoom. And we have all of these different virtual platforms that are available so that we can remain connected with our loved

ones. And certainly this can be a part of stress management simply by remaining connected to your friends and family.

If folks do need something that is a little bit more comprehensive, there are certainly other strategies like meditation, self-reflection, guided imagery, deep breathing techniques and mindfulness. And, you know, I certainly encourage you to reach out to your MS health care providers, if there are social workers on-site or a psychologist or health psychologist available in order to provide some more information on some of these platforms. A lot of them are going virtual and readily available to the public.

Other things to stay well, drinking plenty of fluids and eating nutritious food. So, again, this doesn't go beyond what we would recommend to the general public, not just folks with MS but for everybody to make sure that folks are remaining well hydrated and eating healthfully.

So I would say that, you know, these are certainly measures that folks can perform on a daily basis. It gives a sense of control back. And it has been shown that not only can this be fruitful during, you know, these uncertain times in relationship to COVID-19 but certainly for long-term MS care as well.

So with that being said, I will go ahead and ask Peter to assist us with our question and answer session.

Peter Damiri: Great. Thanks, Dr. Hersh, and thank you as well, Dr. Hendin, an excellent presentation from before as well. And we are getting a ton of questions so I'm glad we have an engaged audience.

One question that came in earlier in the program is it safe to do MRIs while COVID-19 is still very strong?

Dr. Hendin: So I'll begin with that and I'm also curious as to Dr. Hersh's thoughts. But we do MRI scans that are both sometimes urgent and sometimes routine. I think most of us feel that routine testing, be that the routine blood draws and routine MRIs can be postponed in some cases or used with a little bit more conservative approach.

Some of the blood tests we get really are very important. I think, for example, understanding lymphocyte counts for people on lymphocyte depleting agents or getting JC virus testing for people who are on natalizumab.

So some blood tests I actually thought were important and important as scheduled. But this is a time when I ask myself questions about each of the tests I'm doing and ask myself am I requiring a person to go into a medicalized atmosphere that really does create a risk for them greater than what would have been the case a year ago? And on each occasion I have to think about the fact that the risk/benefit ratio of getting the test has now changed.

So the answer is I'm still getting MRIs. I'm still getting blood work. But I'm thinking more carefully about whether or not each of them is necessary. And I would recommend that that discussion be between you and your clinician to find out whether this is a routine test and therefore something that can be postponed or something that is, in fact, more urgent and should be done as scheduled.

Dr. Hersh: Yes, I absolutely agree. I have nothing more to add to that. I'm doing the same thing in my practice.

Peter Damiri: Okay. Very good. Next question, if on an immune modulator, are we more protected against COVID-19?

Dr. Hersh: So I can go ahead and I can start this conversation off. So there have been some studies that have kicked off looking at some various antiviral medications and some of our anti-inflammatory therapies, including some of the disease-modifying therapies that we use for MS. Some of those have been interferon, fingolimod. I believe that there also have been some studies looking into teriflunomide as well.

Currently there are no firm data to show that there are certainly clinically meaningful beneficial outcomes. We certainly don't have that data yet. I would also like to add that the dosing that is required for treatment

of COVID-19 with these disease-modifying therapies, specifically with interferon beta, would have to be at a much larger dose than what is currently being used as an anti-inflammatory agent for MS. So we really do have to, you know, take these data in stride.

Dr. Hendin: So, Carrie, I agree entirely. I want to say there are occasions when I find myself quoting Bob Dylan in the questions about how we are using our agents really falls into that category. In the song The Times are Changing, there's a line that goes, keep your eyes wide, the chance won't come again and don't speak too soon for the wheels still are spinning and there's no telling who that it's naming for the loser now will be later to win.

What that tends to say for me is we're only five months into this pandemic. We are still really trying to understand not just the risks as they relate to MS but the risks as they relate to each of our medications. And in many cases, we're hearing just as Dr. Hersh said, pros and cons.

We know that some of our agents are immunomodulators and not immunosuppressants at all. With respect to the immunosuppressant agents, they have different mechanisms. And the question is whether they could create increased risk, perhaps, or benefit.

We know that the greatest risk for mortality in MS appears to - I'm sorry, in COVID-19, appears to be the cytokine storm that causes a really abrupt and severe inflammation of lungs that's autoimmune or, I should say, that is an immune-mediated problem and not autoimmune so much as immune. It's an immune avalanche.

So in some cases, you might say, "Well, then wouldn't it be beneficial to have something which would quiet the inflammation, quite the immune system?" What I'm really trying to say with all of this is it's complex.

In the midst of the complexity, what Dr. Hersh has already said, and I would add, is we're still learning. That's the reason for the registry that Dr. Hersh mentioned. The registry right now gives us a fairly broad detail about how people are doing but we're going to get more granular. How do they do on each of the agents that we're using? Are the outcomes different at all? We don't know that.

So keep your eyes wide. We are still learning. Don't think we know the answer completely. In the meantime, Dr. Hersh and I treat MS and that is we watch to make sure that people get medication they really need.

Peter Damiri: Well thank you for that and thanks for the Bob Dylan quote. I happen to like him as well so that's awesome.

Dr. Hendin: Good.

Peter Damiri: There are actually quite a few questions around a potential vaccine. And certainly, we've heard that in the news and we all wish for that. So I guess some of the questions are around whether it would be live or not or whether it would be okay for people with MS to take it or not and whether any DMTs would interfere with that or not.

Dr. Hendin: So I'll begin and I really am very interested, Carrie, in your thoughts as well. The answer is that people are really working on trying to find a vaccine. Their estimates in terms of how long it may be before we see that vaccine range from 6 months to 18 months. I just saw something across the news this afternoon that people in Oxford, in England, are rapidly going into trial with a vaccine against the coronavirus that they think may work on this unique mutation.

Having said that we will at some point have a vaccine. I think it will be a non-live vaccine but we will have to wait to see the actuality, which would mean that people would be able to take that who have MS. But if

they are on certain types of lymphocyte depleting agents, it may be - that are permanently used, it may be that their response to the vaccination will be limited.

So at the time when we think about our agents, will some of our agents reduce the power of a vaccine?

Yes. Will shorter-term immunosuppression from which you can recover or the use of any (homologating) agents interfere with a vaccination? The answer is less likely.

So I think it's still a matter of question. But it makes us look at each of the agents again and say, do all the agents behave the same? Certainly not. Will some interfere with vaccination? Probably yes. Or others not? Probably yes. Carrie?

Dr. Hersh: Yes, exactly. No, that's exactly my sentiment as well. You know it's very interesting because there have certainly been clinical trials that have come out with our existing disease-modifying therapies, specifically our B cell depleting agents like ocrelizumab, and in being able to determine whether or not someone who is on one of these therapies has any decreased ability to not respond against, you know, common vaccinations that we use including the key dot vaccine, which is the tetanus, diphtheria, pertussis vaccine and the seasonal influenza vaccine.

And, you know, based on the robustness of the studies, we've been able to change our practice in the MS field to advise our patients who are getting the influenza, the seasonal influenza vaccine to try to time that vaccine so that it is within a certain time frame before their next ocrelizumab infusion or rituximab infusion. You know, some of those guidelines are about four to six weeks prior to their infusion.

So it will be interesting to see in terms of the immunosuppressant agents that are specifically impacting our memory cells, our memory B cells, and whether or not we'll be able to recommend this vaccination in a different timely fashion just like our other monoclonal B cell depleting agents or whether or not there would have to be some other schedule involved.

So I think that's a long way to say that we still need data. And currently it's too soon to be able to answer those questions, specifically because we don't have a vaccine yet. But, of course, we want to be forward-thinking in trying to determine how will this impact our population with MS who are on certain immunosuppressant therapies?

Peter Damiri: Yes. Absolutely. Next question. I have primary progressive MS. There are two medications due out in the fall. Is it safe to try a brand new DMT at that time?

Dr. Hendin: So at this moment in time there is only one medication approved for primary progressive MS, and that's the ocrelizumab. I can't tell you that I anticipate this with any clarity that we'll have before the end of the year another agent for primary progressive MS.

We have agents alternatively for secondary progressive MS, for a particularly active secondarily progressive MS. But my answer here is that for an individual, the question really would always be the following.

Carrie, I heard one of your colleagues from Cleveland, Robert Fox, talking about the use of agents such as ocrelizumab in primary progressive MS. And he said in a telecast, I think that requires a lot of thinking. First of all, it's the only agent for primary progressive MS. And I don't anticipate we'll have another.

But the benefit in terms of reduction of progression is real but modest. And in an individual who was worried about the threat of COVID, I think that they sit down with their clinician and say here's my age. Here's my comorbidity. Here's what I hope to achieve from this agent. Is this still the appropriate agent for me?

What I find is that I was trying to make risk-benefit assessments from the first day I started in medicine until today. But now a new complexity is added and that is what will it - will those same judgments now

have an additional risk that I need to take into account that is COVID-19? The answer is at least it's worth discussing.

Peter Damiri: Okay. Thank you so much. The next question, what if we work in health care with hands-on patients? There were a couple of questions about people going back to work or working as an essential employee and what should they do in terms of precautions?

Dr. Hersh: So I think that at the very least the CDC's precautions in terms of being able to remain socially distant, frequently wash hands with antimicrobial soap and water, use hand sanitizers and use a mouth or face covering when someone is anticipating that they're going to be in an environment or socially distancing is going to be difficult are certainly precautions that should continue to be maintained.

The advice that I'm usually giving my patients in my practice for those who are concerned about their work environment is first speaking with their human resources department if they have one available or their employer about any kind of work accommodations that can be made if they are concerned about their safety either because they're working too closely with individuals or they don't get breaks so they can't frequently wash their hands.

If work accommodations cannot be met and a person with MS continues to be concerned about their potential risk, this might be a time to either speak with their MS health care provider or if there is a social worker who is part of the MS team in terms of what other options are available.

I would say that, again, this really is on an individualized basis in terms of whether or not it's recommended that the person continues to work from home if they are an essential worker versus, you know, being able to feel confident that they can continue to work in the workplace safely.

Some of those factors do include the comorbidities that we have discussed during this presentation. So age is certainly a factor in other health care or health comorbidities such as diabetes, obesity, asthma and chronic heart and lung disease.

And then, of course, you know, who was in the household? Are there, you know, elderly folks in the household? Are there concerns about potentially bringing something into the house even if the person remains asymptomatic? So there are certainly a lot of factors that have to be taken into place.

When it comes to disease-modifying therapies, you know, specifically for the non-immunosuppressant medications, again, that includes glatiramer acetate, interferon beta, natalizumab, teriflunomide, the fumarates if the lymphocyte counts aren't low and even the S1P modulators as long as the lymphocyte counts are within acceptable limits of the MS health care provider. I'm not so concerned about those individuals being in the workplace so long as they can continue CDC recommended guidelines.

However in my patient populations who are on immunosuppressant therapies and if they really are concerned about their health risks then we try to help support our patients in trying to get work accommodations arranged for them so they can continue working from home and providing for themselves and their families.

Peter Damiri: Great answer. Thank you for that. Another question, does hot temperature affect the COVID-19 virus?

Dr. Hendin: So there are a lot of things that, again, I - one of the things I want to keep emphasizing is that we are trying to understand a novel mutation of a virus that's been around clinically for, I guess, probably 4-1/2 months.

And there is speculation that like influenzas that there will be some seasonal variation, that we'll see a decrease during hot weather. But we know that this has been able to take hold and spread in cold climates and in hot humid climates.

So I don't think that heat or humidity will be a sufficient answer. May it modify the disease? It's possible. May summertime and people being more spread out modify the disease? It's possible. But right now I would say don't count on it. and presume that this virus will be around and will probably sort of reoccur seasonably for a while until either we have what's called herd immunity, which is when enough of us have it or until we have a vaccine that will protect some of us from it.

The answer is don't count on heat and humidity to drastically change the course although I hope it may mitigate it a little.

Dr. Hersh: So, Peter, if I would be able to insert a question here just because it does relate to some of the statements Dr. Hendin and I have been making throughout the program. Someone had asked what are normal lymphocyte counts? Because I know that I have reiterated this quite a bit, at least during the times that I have spoken.

So normal lymphocyte counts, there is a specific range that is reported when an individual gets a complete blood count plus auto diff. And this is part of the routine screening and monitoring while folks are on most disease-modifying therapies, not all of them being glatiramer acetate.

That normal range sometimes is a little bit when you compare one particular lab to another lab. Usually speaking that lower limit of normal for lymphocyte counts is about 1.0 but some labs you'll actually see it going down to about 0.8.

So that normal - and for the relevance of MS we're usually looking at the lower limit of normal, not the upper limit of normal. But the lower limit of normal is usually anywhere between 0.8 to 1.0 just to answer someone's question as it pertains to some of the comments that I've made.

Dr. Hendin: And, Carrie, I think I'd like to insert an answer to a question probably that has - whether or not that it's been asked tonight, it's asked all the time, and that is the question of if you do get COVID-19, are there any proven therapies, be that hydroxychloroquine or antiviral agents such as remdesivir or convalescent plasma?

I think what everybody needs to know is that these are being investigated and that they should not be taken outside of really a scientific protocol. I think there was some initial enthusiasm for hydroxychloroquine, Plaquenil. But there has now been some skepticism as to whether there is benefit or alternatively risk outweighing benefit. I think that there is still some interest, but without positive results, sufficient positive results, in an antiviral such as remdesivir.

I think that there is still interest in convalescent plasma. But it's still not yet a recommended scientifically demonstrated study with a clear outcome while we await vaccination. And so the things that we should be doing are the things we should have done all along.

We should stop smoking. Start exercising. Get your weight down. Control your diabetes. Control your hypertension. Make sure your health is intact. Maintain those things which are part of good health because that means that you are kind of pre-habilitating, making it less likely that if you get COVID that you will be one of the people that's barely impacted.

Peter Damiri: Thank you, Dr. Hendin. I appreciate that. And one last combination question from the audience and then I had a few wrap-up questions myself. So if you do happen to have COVID-19, should you avoid taking ibuprofen and would any deep breathing exercises help with the lungs?

Dr. Hendin: So I'll answer if I can, Carrie, on the ibuprofen. Although I think we've discussed this together and have the same, and I'll let you take on deep breathing. The answer for the ibuprofen is there was a French concern, out of the country France, that ibuprofen might lead to poor outcomes.

That's not been demonstrated elsewhere and the findings were anecdotal. So really right now there is no clear evidence that ibuprofen or non-steroid anti-inflammatory agents are harmful. But if there is concern from the individual, it's easy to take Tylenol instead, acetaminophen.

Carrie, what do you think about deep breathing?

Dr. Hersh: I think that's a great question. As far as I know, there certainly aren't any data to show that deep breathing has an impact on transmission on the severity of MS. I understand where the question is coming from in terms of improving on lung capacity. And I would not want to venture a guess in terms of whether it has any robust improvement in one's susceptibility.

My gut would say probably not. I think that where it is helpful is for stress management techniques. And Dr. Hendin and myself and certainly the entire MSAA community are all very strong believers in long-term physical and mental health, not only for folks with MS but for the larger general community.

And stress management during this time, including deep breathing, guided imagery, mindfulness, hobbies, remaining in touch with loved ones are all very important strategies to be implementing on a daily basis while we all, you know, have to deal with the current situation as it is.

But I think that's a great question. I would say based on my own thoughts, it probably doesn't have very much to do with COVID-19 susceptibility but will certainly help with long-term mental health care.

Peter Damiri: Great. Thank you both for that. And a general question for both of you, have you made any changes to your MS practice and patient care routines as a result of the COVID-19 pandemic?

Dr. Hendin: I can be fairly brief in that regard. There are changes. Number one, I have been used to seeing people face to face for a long career. I'm now doing almost all of my work by telemedicine. When I'm lucky - a vet that is with a good image in front of me of the person I'm seeing and vice versa. Sometimes it's a telephone alone.

I expect that that will be modified in some ways in the time ahead. I am trying to medicalize my patients as little as possible. And that means that I really do think twice about sending them in for blood studies and MRI's. I'm still ordering both - I'm still getting both. But I have a thought in front of each one now so it's not routine but a question of what potential risk am I exposing them to.

In terms of medications that I'm using I go back to the fact that again a Bob Dylan quote which is, "When you have firm not foundation. When the winds have changes shift." What we have a firm foundation about how to treat MS. We want to start treating early. We want to maintain people on a therapy that doesn't disrupt their quality of life. And at the risk of MS is one which is known so that I don't stop my medicines or change medicines.

Except by the criteria which I've always used. I do ask the question about risk-benefit ratio. More than I - I want more risk to that question. And then I have been and will be even more paying attention to comorbidity.

It's always been a focus and that is we are not doing our job if we only focus on MS and disease-modifying therapies and we lose track of their diabetes, their hypertension, their heart disease, their smoking, their obesity. Their exercise patterns, their family, their mental health, their social welfare. Those things become even more glaring important in the Covid-19 era. Even though they were always important. Carrie?

Dr. Hersh: Yeah it - in order, well I'm trying to remain conscientious of the time since it's a little after six but I would say that my - my overall practice is very similar to what Dr. Hendin had just summarized.

I have also gone mostly virtual, only bringing patients in where it is either urgent or there really is a necessity for being able to evaluate someone face to face. In terms of disease-modifying therapy practice, I'm also a strong believer in early disease-modifying therapy.

And early highly effective disease-modifying therapy. That certainly hasn't changed. The reason for that - especially when we're thinking about the era that we're in is that again MS is long term and MS will continue to be here in the next year, five years, 10 years, 20 years down the line.

And we really want to be careful about our choices in disease-modifying therapies because from a long term standpoint that might have some serious implications and one's level of disability down the road. So we all have to remain conscientious of what we're currently having to deal with but also paying very close attention to what we already understand about MS.

We already know from previous clinical trials and robust studies that early more highly effective therapy does better. So from that standpoint that really has not changed very much in terms of MRIs and lab work, like you Dr. Hendin, I'm being conscientious of what needs to be done now versus what can maybe wait in a month or two.

But I would also say that you know folks who are disease-modifying therapy they still need to be monitored so any delays or push backs need to be weighed on an individualized basis. And I absolutely agree with you in terms of comorbidity management. And making sure that we continue to encourage healthy lifestyle practices.

Peter Damiri: Great, thank you both and just want to give both of you an opportunity to provide any remaining closing comments.

Dr. Hendin: Well, my closing comment really is what a pleasure it is again working with Dr. Hersh and you Peter.

And to further the mission of MSAA, and really trying to educate people with MS about what is a concerning issue for everybody in America but also with unique perspectives on how it is if you have MS or treat MS.

So I am thrilled that there are people - a number of people who have phoned in from across the country but remain educated about this and our commitment to keep on with their education. Thanks.

Dr. Hersh: And I would just add to the entire community MS and otherwise please continue to be well and safe and stay strong we will get through this.

Peter Damiri: Great, well thank you both. Well we have reached the end of our program tonight and I want to thank everyone for joining and for your great questions. Had a lot of great question tonight.

And especially thank Dr. Barry Hendin and Dr. Carrie Hersh for educating us about the coronavirus, it's impact on MS, and ways for us to stay safe and healthy during this critically important time. I also want to thank our funding partners Bristol Myers Squibb, EMD Serono, and Genentech for supporting this webinar series.

As a reminder our next webinar on COVID-19 is on Monday May 11th at 08:00 PM eastern. You can sign up for updates on this and additional coronavirus information by going to MyMSAA.org/coronavirus.

Also as mentioned tonight's webinar will be archived on our website very soon. And finally please consider completing a very brief evaluation survey that is coming up next. So on behalf of MSAA, thank you so much again for watching and please stay safe.