

S3E41 Transcript

A Window into MS Research from Johns Hopkins

Geoff Allix (2s):

Welcome to Living Well with MS, the podcast for Overcoming MS and people with multiple sclerosis interested in making healthy lifestyle choices. I'm your host, Geoff Allix. Thank you for joining us for this new episode. I hope it makes you feel more informed and inspired about living a full life with MS. Don't forget to check out our show notes for more information and useful links. You can find these on our website at www.overcomingms.org/podcast. If you enjoy the show, please spread the word about us on your social media channels. That's the kind of viral effect we can all smile about. Finally, don't forget to subscribe to the show on your favorite podcast platform so you never miss an episode.

Geoff Allix (44s):

Now without further ado, on with the show. Joining me on this episode of the Living Well with MS Podcast is Dr. Michael Kornberg. Dr. Kornberg completed his undergraduate studies at Yale University. He then received MD and Ph.D. degrees from the Johns Hopkins School of Medicine and stayed at Johns Hopkins for his neurology residency and a clinical and research fellowship in neuroimmunology. He is committed to a career that combines competent and compassionate care of patients with multiple sclerosis and other immunologic disorders of the nervous system with basic and translational research aimed at developing and improving therapies. He is also the program director of Multiple Sclerosis Review, which is a continuing medical education program accredited by Johns Hopkins. It includes a podcast featuring discussions about clinical topics and patient scenarios with doctors and nurses treating people with MS in order to educate health care providers on the best care for people living with MS.

Geoff Allix (1m 25s):

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Geoff Allix (2m 5s):

Welcome, Dr. Kornberg, and might I call you Michael?

Dr. Michael Kornberg (2m 9s):

Absolutely. Thank you for having me.

Geoff Allix (2m 12s):

To start off with, we've established you work at John Hopkins and that covers a wide range of neurological research, but what are your particular areas of research interests?

Dr. Michael Kornberg (2m 31s):

I specialize in multiple sclerosis both in the clinical work that I do taking care of patients and also in my research. I care almost exclusively for people with MS. I have a research program that, in essence, is attempting to understand particularly progressive disease, the reasons that Myelin Repair fails, and how we can modulate those processes to better treat people with progressive MS. I'm also interested in how dietary therapies and basic metabolism impacts the immune system, and how we can modulate the immune system in people with MS and other auto-immune diseases through metabolism and diet.

Geoff Allix (3m 19s):

Okay. Those are both areas I think which would be particularly interesting to our listeners. Just on the first one, there's an awful lot of drugs and treatments available to try to slow down or prevent MS relapses, lesions, and so on, but remyelination, that's almost the holy grail, I think. A lot of people with MS would certainly see that as "Okay, we're on treatment. We're living a lifestyle. We've lessened the progression, but can we get back anything?"

Geoff Allix (4m 2s):

Do you see that as something that we will see in the relatively near future?

Dr. Michael Kornberg (4m 5s):

I do. I think that relatively near future is obviously subjective to some point. I don't think that we're going to have a remyelinating therapy within the next two to three years, but I think on the timescale of five to 10 years, it's absolutely a possibility. It's easy to, I think, lose sight of how much progress there has been in the MS world in terms of therapeutics.

Dr. Michael Kornberg (4m 44s):

Up until almost 2010, there were really only a handful of therapeutic options for relapsing MS. Within the past 10 years, we've had this explosion of therapies. As a result, I think we are in a pretty good place in terms of the treatments that you discuss, in terms of preventing new attacks of MS, flare-ups, new lesions forming on MRI, which we know makes a big difference in the course of someone's disease. The goal is always going to be to diagnose MS as early as possible and start those treatments as early as possible but we're always going to have a group of people who, unfortunately, have been left with a permanent disability from prior attacks.

Dr. Michael Kornberg (5m 36s):

We are at a place where I think that over the past five to 10 years, we've gained a lot of knowledge about why Myelin Repair fails in people with MS and what drives that process. There is a big gap between understanding why that happens in a research lab and translating it into something that we can give to patients. I think already, we've made a lot of progress in terms of understanding how to measure Myelin Repair in people. We have a lot of good candidates that we can take from a research lab into clinical trials.

Dr. Michael Kornberg (6m 17s):

I don't think we're a couple of years away, but I certainly think within the next 10 years, it's reasonable to think that we will have therapies for Myelin Repair.

Geoff Allix (6m 29s):

Is it even possible that someone with progressive MS, who might be wheelchair-bound now, that actually there could be some level of reversal of their symptoms, or would it be a stabilization?

Dr. Michael Kornberg (6m 46s):

Yes, so a little of both, but I think it's important to have set reasonable expectations at least, with the caveat of everything I'm saying that this is my opinion. It is my interpretation of the data we have now and what I expect is the progress of what is going to be in the future. There are two separate goals in that that you mentioned, halting progression, and promoting recovery of function. I think to an extent, there might be different therapies that are targeted at those two distinct elements. I do think it is going to be possible to repair myelin and actually lead to the recovery of function.

Dr. Michael Kornberg (7m 34s):

I think it's important to be realistic about what we might be able to expect in that scenario. Those remyelinating therapies are going to be most effective in people earlier on in the disease who have not had a longstanding, severe disability. For the reason being that in later stages of MS, people who've had progressive MS for a long period of time, one big problem is brain atrophy. You actually lose those nerve cells themselves. Whereas it's easier to repair the myelin coating that covers the neuron processes, it's much harder to get neurons to regrow.

Dr. Michael Kornberg (8m 20s):

At the later stages of MS where you just don't have neurons there to remyelinate, that is a big challenge. The goal with remyelinating therapies is still going to be to treat people early on in the course of their disease before they'd gotten to a point where there's been neurodegeneration and we've lost brain tissue that we can't get back. I think along those lines, what I would have in mind, what I would hope for as a realistic goal in 10 years is that if someone has lost vision from an episode of optic neuritis, which is common with MS, we can get their vision to improve.

Dr. Michael Kornberg (9m 7s):

If someone has difficulty walking, that we can create a meaningful improvement in their walking ability. If you're talking about someone who is wheelchair-bound and has been wheelchair-bound for years, getting them out in the chair and walking is a very ambitious goal. I wish I could say that is realistic considering that timeframe, but it's probably not. I have in mind making improvements in people's function that are meaningful to them in their lives, but we have to have some realistic expectations of what that'll mean.

Geoff Allix (9m 46s):

Okay. The other thing you mentioned as a research interest is diet. Now overcoming MS is a lifestyle charity, which includes medication as well. It also will look at diet, exercise, mindfulness. Do you think that diet has a meaningful effect on the progression and the immediate lifestyles to someone with MS?

Dr. Michael Kornberg (10m 19s):

I think it does, but I also think that we don't know nearly enough about what specific diets are best for someone with MS. I think that we have a tendency to get carried away and some of what we extrapolate from what we see in research models vs people. Ultimately, there are certain things we know for certain. We know that people who are overweight or obese tend to have a more significant disability than people who aren't over time.

Dr. Michael Kornberg (10m 59s):

We know that people with certain comorbidities like high blood pressure and high cholesterol develop more disability over time. I'm talking about people with MS who have these co-existing conditions. We know that a healthy diet and a moderate amount of aerobic exercise are generally good for health. They are particularly good for people who have multiple sclerosis. The next question that comes up is, "So what diets are particularly good for MS? What diets protect my brain from being attacked by the immune system, or promote recovery and function?"

Dr. Michael Kornberg (11m 44s):

That's the place where there's a big chasm between what we're finding in the research world and what we've seen in people. I'm someone who is a strong believer in basic cell metabolism. Because of that, diet can have an impact on how the immune system functions and possibly even how the brain repairs itself, but we really don't know in people. People are much more complicated than what we're studying in the lab. We don't yet know which of those diets are helpful, which aren't. We see a lot of things on the internet about this food being pro-inflammatory and this food being anti-inflammatory.

Dr. Michael Kornberg (12m 28s):

In my opinion, that goes well beyond what we really know at this point. The way that I counsel my patients is that, as a general rule, the same prescription for general living we would give to everybody, everything in moderation, favor whole foods over processed foods, and getting aerobic exercise. If someone really wants to have a particular diet to follow because for some people that structure is helpful, I always recommend the Mediterranean diet, which is really the only diet that is clearly been shown to have a broad health benefit in people.

Dr. Michael Kornberg (13m 12s):

There are a number of other diets that your listeners might be familiar - the Wahls diet, the Swank diet, the paleo diet. The way that I talk to patients about it is that, generally, if someone commits to one of those diets, usually their diet is improving relative to what it was. They're often going to lose weight. They're often going to feel better. As long as it's not some extreme diet that really carries some potential risk, I am all for it. I just recommend to people that they do what works for them.

Dr. Michael Kornberg (13m 52s):

In my research, I'm particularly interested in the ketogenic diets because of how that might impact the immune system that we've seen in the research model, but I'm very wary when I talk to the patients. You have to understand that things like the ketogenic diets are very high in fat. We don't know what the negative consequences might be of that over time in terms of cholesterol levels and that's all being studied. It's worth talking about your dietary choices with your doctor. We need to understand that we don't have a great deal of knowledge yet about how some of these

diets affect the body over time, but a generally healthy diet is certainly an important part of care for people with MS.

Geoff Allix (14m 46s):

Well, Overcoming MS is based originally on Swank, but essentially a whole food plant-based diet plus seafood. I asked my neurologist when I first decided to go this way, and he said, "Well, there's just no proof out there. We just don't have the evidence base, but ultimately, it's going to be good for you and it will reduce your risk of heart disease, strokes, diabetes, those things. If you looked at the upsides and the downsides, it's not going to do harm. You might miss some of the things that you liked to eat, but other than that, it's not going to do your health any harm."

Geoff Allix (15m 35s):

The problem is getting the research, isn't it? It is very difficult when you can't have the double-blind placebo trial of someone eating one thing or not eating that thing. You'll know if you eat it or not.

Dr. Michael Kornberg (15m 46s):

Yes, that is very hard. Diets studies are really hard, which is why that science is lagging behind but we're getting there. They're not impossible to do. I'm currently doing a dietary study with the ketogenic diet. It's possible but it's much harder than a randomized drug trial.

Geoff Allix (16m 14s):

You mentioned ketogenic diet. There's a lot of people that I come across who are quite successful in their MS treatment who use fasting. Actually, Dr. Valter Longo, who is very much into fasting, was saying that primarily, what you're doing is you're getting the body into that ketogenic state. What I think people traditionally think of as ketogenic, which is that specific diet where you are eating very high fat. Bulletproof coffee is something where people have massive amounts of caffeine with butter in it.

Geoff Allix (16m 56s):

They're specifically very high fat, very low carb diets. Yes, that would get you into ketosis but so would fasting. You don't have to go down this very high saturated fat route. You could actually get some of the benefits in other ways. Fasting isn't a pillar of OMS. It's not something that's particularly mentioned, but I think it's one of those areas of particular interest because so many people are mentioning it. Is that something where you think maybe a fasting method and introducing ketosis through fasting may prove to be something that's the future?

Dr. Michael Kornberg (17m 38s):

Yes, absolutely. I think it may be, but I would still put intermittent fasting in the category of we just don't know whether it is beneficial for people with MS and what the potential downside might be in the long run. I think it is certainly an exciting area of research, not only for MS but for a whole host of human diseases. There certainly is a lot of, at the level of animal models, great evidence.

Dr. Michael Kornberg (18m 20s):

You mentioned bulletproof. Looking at intermittent fasting in MS animal models, people who do that research will make the argument that we evolved as humans in an intermittent fasting type of model because when food wasn't so readily available, you can go on these long stretches without eating and the body is designed to work that way. That's a compelling argument, but still, I think we have to be a little bit careful about taking what sounds like a very plausible hypothesis and has some support in animal models and just extrapolating it to people without doing those studies.

Dr. Michael Kornberg (19m 9s):

Again, what I tell people who want to do intermittent fasting is, as long as they are not doing something totally crazy, then I'm all for it. Generally, they are going to be healthier just like we talked about in all those other diets because if you are condensing your eating to eight hours during the day, you eat less, absolutely. There may actually be something about the ketosis that you enter into during those fasting periods that's beneficial, but we just need to

have better evidence in people before we should be recommending that broadly because until we have that data, it all remains an extrapolation.

Dr. Michael Kornberg (19m 58s):

We don't know for certain that there couldn't be any downsides to doing that as well.

Geoff Allix (20m 3s):

Yes. Certainly in my lifetime and certainly going back to my grandparents, the way we eat has changed massively. I've got teenage children and we just ask them earlier what they wanted to eat tonight. We're going to go to the supermarket so they can eat anything. When I was growing up, the vegetables had to be in season. There was a big thing about asparagus because asparagus had a really short season so if you've had it, you had it this time of year. Now, you could have it at any time of year because it's flown here from Peru or Kenya, so you've got the whole globe providing. Somewhere, it's in season around the world.

Geoff Allix (20m 49s):

If you think about it, it's crazy really. I just thought we are asking them what they want to eat tonight, and they have no restriction. They are global. They can eat anything from around the world because all is available locally in a supermarket to us. Yeah, it is such a modern phenomenon. And yeah, maybe there are downsides to that or this, or maybe it's how 100,000 years of human evolution hasn't really prepared us for this sudden consumer state you have.

Dr. Michael Kornberg (21m 23s):

Yeah. Well, one thing that I do feel comfortable saying given the evidence we have now is that I have little doubt that our traditional Western diet that we've come to become accustomed to, because of all of those things you mentioned, it's not ideal. That I think is, is probably fair.

Geoff Allix (21m 44s):

Yeah. I think the processing, as well as another thing, which we don't mention too much on OMS, but if there's a large number of ingredients on the back of the packet, it's probably not very good for you. That doesn't mean that any of those ingredients necessarily you think, oh, well, that's really, really bad, but it's just like, how can something which is an evening meal or be wrapped up in a packet, go in the microwave, be eaten, you look at the used by day and that's three months in the future. Do you think this has, this is not a natural food and, and it has huge numbers of the different ingredients and they're in it. I'm sure it tastes delicious, but it is not traditionally, something that we thought of as food.

Geoff Allix (22m 28s):

I'm sure it tastes delicious, but it is not traditionally what you assume something as food. It's not normal. They did it with, I won't say the brand, but a popular hamburger. They left one out for six months or something.

Dr. Michael Kornberg (22m 45s):

I saw that.

Geoff Allix (22m 46s):

It looked the same. You're like, "Okay. If mold is on to this, then maybe we shouldn't be eating this." Anyway, that's really interesting. This episode is actually going out in the month. We still have themed months and it's a month looking at pregnancy and children. I just want to ask you a bit about pregnancy and MS. If someone has MS, I'm thinking of women here specifically, would it affect them planning to have a baby? How would a pregnancy affect someone with MS?

Dr. Michael Kornberg (23m 27s):

Yes, so that is obviously a very important question particularly when you're talking about a disease that affects primarily women who are the average age of 30 and in that time period to have pregnancies. Women with MS can absolutely get pregnant. Sometimes, it's useful to have some planning and strategy around it. Some basic things to cover, number one, we know that women with MS do not have any greater complications related to pregnancy than

women who do not have MS. That could be a concern for people, and it can be very reassuring that if you are a woman with MS, your pregnancy is just as likely to go smoothly as any other woman.

Dr. Michael Kornberg (24m 22s):

We know that pregnancy itself generally does not have any long-term impact on your MS so you're not putting yourself at risk of greater disability in the future by having babies. What we do know about pregnancy and MS is that pregnancy itself is almost being on a disease-modifying drug. It protects you from relapses, from MS attacks. We think that pregnancy is naturally in an immunosuppressed state because, obviously, you don't want your immune system attacking the baby in utero.

Dr. Michael Kornberg (25m 2s):

Particularly in the third trimester, the relapse rate goes down significantly compared to what it was before. We do know that the risk of having an MS attack goes up considerably in the few months after giving birth. That three to six months after giving birth, you will see a rebound effect in which the risk of having an attack is actually a bit higher than it was right before you got pregnant. There are associations that women who breastfeed for three to six months tend to have a lower risk of that rebound effect, but we don't know exactly whether that's causal at this point, whether breastfeeding actually does protect you from having an attack.

Dr. Michael Kornberg (25m 57s):

Those are some key features that I think are worth mentioning. Related to all of that is what you do with the disease-modifying therapies that a woman is on before pregnancy and when to restart after the pregnancy. Generally speaking, it's always possible to work around whatever therapy someone is on. Very good MS Neurologists can have some differences in how they practice with regards to the disease-modifying drugs.

Dr. Michael Kornberg (26m 37s):

At this point, we have pretty good evidence that the interferon therapies and tumor acetate seem to be safe even to continue through pregnancy. We have large registries inputting lots of women while pregnant on those medications and there has been no signal in terms of complications with the pregnancy or risks to the baby. For other medications, the general consensus is to stop them roughly 30 days before you were attempting pregnancy. There is some wiggle room there and as a woman considering pregnancy, you just need to talk to your neurologist about it.

Dr. Michael Kornberg (27m 22s):

There are some medications that if you just suddenly stopped them, your risk of an MS attack can go up considerably so thinking about Fingolimod, which goes under the name Gilenya, and other medications like that or Natalizumab, which goes under the trade name Tysabri. If you are on one of those medications, you'd have to strategize for a bit with your MS Neurologists. Then for some of the newer B-cell therapies, or things Ocrelizumab which is Ocrevus, and now there's another form called Kisempta, there are just some timing issues.

Dr. Michael Kornberg (28m 4s):

Generally, if you've got a dose of Ocrevus, I recommend to women that you wait two months until you start trying to conceive because in that case, by the time that the drug can cross the placenta, it's out of your system. There are some strategies involved in terms of when to stop disease-modifying therapy, whether to continue it during pregnancy and then when to restart it afterward. Those are just worth having a plan for but that the bottom line is that women with MS can and should have children and do it in a very safe way.

Dr. Michael Kornberg (28m 48s):

It's very possible. You don't have to worry about risks to the baby or risk to your disability in a general sense.

Geoff Allix (28m 55s):

Okay, excellent. It's worth speaking to your neurologist in the planning phase. To connect with that, normally, connect to the pregnancy, children. I think people with MS are particularly aware of there being some genetic

components, although this was long disregarded. Still, they don't really know what's exactly going on, I believe. Is there a very highly elevated risk for children of people with MS? I am aware because my father had MS.

Geoff Allix (29m 37s):

I know there is a cause-and-effect thing going on here just because you're more like your parents, it doesn't mean that everyone with MS's children will have MS. I've got children so it's a personal concern. You worry, is it more likely that they will get MS? I know there must be some link but that how much riskier is it for children of people with MS?

Dr. Michael Kornberg (30m 2s):

Yes, it's a great question, a very important question. We are starting to understand the genetic relationship of MS in a better way. There certainly is a genetic contribution. We know that early now, we've identified a number of genes that can confirm an increased risk of MS, but there is also a big component to your risk of MS that has nothing to do with connections. Just to give you some key figures, if you have a first-degree relative with MS, for instance, you with your father or you have MS and you are going to have a child, generally, in most studies that had been done, the risk that your child will have MS is somewhere between one and 5%.

Dr. Michael Kornberg (30m 59s):

Three percent is a typical reported number. You have MS. Your child has roughly a 3% risk of having MS. That is much higher than the general population. It's about 10 times higher than the general population so clearly there's added risk there, but I think it's important to emphasize that it means that there's a 97% chance that your child will not have it. Still, the chances are much greater that they would not than they would. I think the most fascinating data we have is with identical twins, one of which developed MS.

Dr. Michael Kornberg (31m 42s):

We know that if one identical twin has MS, it was about a 25% to 30% chance the other twin will. Those are two people that have identical genes. That's a very high risk, 25 to 30%, but clearly, it tells you that there's a lot of factors that have nothing to do with your genes also. There is a genetic risk. It's something worth knowing about, but the bottom line is that chances are your child will not have MS.

Geoff Allix (32m 13s):

Those identical twins, presumably, grew up in the same part of the world, had the same diet, had the same lifestyle. There's a lot of factors going on probably in the first, say, 20 years of their life, which were almost exactly the same because siblings are likely to be treated the same, aren't they? There's that as well. Another unknown is that there does seem to be a geographic component as well, doesn't there? It's how close you are to the equator and certain Western countries have higher instances than others.

Dr. Michael Kornberg (32m 57s):

Yes, absolutely. There's been some debate. The textbook answers have always been that the further away you are from the equator, the higher your risk of MS. That's where this theory came up that vitamin D levels might have something to do with MS because the further away from the equator, the less sunlight you are exposed to. There's been some debate about whether we still see that geographic variant consistently, but along those lines, one of the, I think, more fascinating things about MS epidemiology is that just like you said, different areas of the country have different rates of MS.

Dr. Michael Kornberg (33m 38s):

We know that if you move from your place of birth roughly before puberty, by the age of 11 or 12, you'd take on the risk of the area that you moved to. Whereas if you move after puberty, you maintain that the risk of the place where you came from. It does seem like there's some environmental exposure that happens very early on in life that sets the process rolling.

Geoff Allix (34m 13s):

Yes. I think vitamin D seems to be a hot topic at the moment as well because most people I know with MS are supplementing to some extent with vitamin D. There's another person, Dr. Aaron Boster, who's an MS specialist in

Ohio. One of the things he said is when you're looking at things that you're considering the lifestyle, what potential good does it do you, what potential harm does it do you, know how much it costs you. Look at these things and something like a vitamin D, what potential good is it going to do? Well, it's potentially a lot of things that may be good for your MS.

Geoff Allix (34m 53s):

It might actually help you with other conditions as well. There's a likelihood that we are somewhat deficient, almost everyone because we're walking around fully clothed and in offices, which is not natural for humans, and living a lot further away from the equator would normally be possible. What are the downsides? If you take huge amounts, you can get calcium problems and kidney stones. The cost is fairly low so yes, it is probably worth sensibly supplementing. It shouldn't do too much harm. I think a lot of people with MS are supplementing. Then recently, there are people who have been saying, we are having trouble getting a hold of vitamin D because it's now being widely regarded as helping with coronavirus, COVID-19 symptoms.

Geoff Allix (35m 43s):

The mass population has started to buy it because I think they're pretty certain that there is some connection with your vitamin D levels, but again, they don't know what's the cause and effect. They are saying, is it because you have low vitamin D that you got coronavirus, or was it the coronavirus that has caused your vitamin D levels to go down? Again, does it hurt to take a small amount of vitamin D? Probably not.

Dr. Michael Kornberg (36m 16s):

Yeah. I think you've said that all very eloquently. From my perspective, that's exactly how I've raised it for the people that I take care of with MS. It's that there's this very clear association that people with lower vitamin D levels have a greater risk for MS. Those who have MS tend to do worse. We don't know for certain how much of a difference it makes it to give them vitamin D. There's some research suggesting that, as you mentioned, having a low vitamin D level is related to your risk for MS, but it doesn't necessarily help it taking supplements. On the flip side, as long as you are not overdosing, just like you said, there's no downside to it.

Dr. Michael Kornberg (37m 3s):

It can only help. There are no risks so generally, I do have all my patients take the vitamin D supplements if their levels are low. I think that's exactly my take on it as well.

Geoff Allix (37m 17s):

Okay. Another area I'll be particularly interested in is where you see things going in the future. In the relatively short term, in five to 10 years, is there anything on the horizon where you think that there's a new treatment or any changes to advice you'd be giving to people with MS upcoming?

Dr. Michael Kornberg (37m 47s):

There are a number of interesting things on the immediate horizon. If I'm really thinking of the short-term horizon or the next couple of years, there's been this debate in MS care between two strategies of therapies. One is called the escalation approach where you start with an MS treatment that maybe has low risk but is also overall less effective, then you only escalate someone with something more aggressive if they have a breakthrough disease, meaning they have an attack or they have new lesions on their MRI.

Dr. Michael Kornberg (38m 32s):

The other camp says we should be starting everyone on these high efficacy therapies very early on in order to stamp out their disease early on. The whole field has moved more towards being aggressive early on. Talking about Dr. Giovannoni earlier, and he certainly was a proponent of being aggressive early on. My own view is that there are still some unknowns there in terms of long-term safety. There are studies ongoing right now to randomize people in between those approaches, meaning an escalation approach versus a higher efficacy approach, to figure out if we can identify patients that we know need an aggressive therapy early on and are going to benefit from it, and those who may be better off starting with the safer option.

Dr. Michael Kornberg (39m 30s):

I think that's one big debate that will likely have an answer to some extent within the next few years. Along those lines, there's been some interest in blood stem cell transplant as a way to almost cure MS. I use that in a very cautious way, cure the underlying problem in MS, meaning to reboot the immune system.

Geoff Allix (40m 5s):

Homeopathic stem cell therapy?

Dr. Michael Kornberg (40m 7s):

It's nanopoeitic. It just means blood stem cells. The idea is that people are treated with high doses of essentially chemotherapy agents to basically obliterate your immune system to get rid of all of those autoreactive cells. Then they're given back their own homeopathic stem cells from their bone marrow to repopulate their immune system. It's like rebooting a computer. The hope is that you now solve their auto-immunity problem. It doesn't mean that you're going to repair the damage that's already been done but the hope is that you're preventing further damage. There are studies going on to compare that approach to standard therapy.

Dr. Michael Kornberg (40m 53s):

I think that it might make a practical difference in care over the next few years. In terms of new therapies, there are a number of things on the horizon that may or may not have a big impact over the next few years. There are a number of therapies that are being designed largely for relapsing MS but there's some, at least, a reason to believe or some hope that they might have a role in progressive disease. There is a new class of drugs called BTK inhibitors that targets cells in the brain that we think play a role in progressive disease.

Dr. Michael Kornberg (41m 39s):

There's some hope there. There are some treatments being tested that target immune cells that have been infected with the Epstein-Barr virus (EBV). There's this long-standing association between EBV and MS risks so there's some interest there in terms of what that might mean, even for progressive MS. There's a number of other treatments that are targeted either at preventing brain atrophy or myelin repair that I think in the span of five or six years, we'll have some data about it. I don't think those are going to be home runs in that period of time, but I think they're going to possibly give us something to actually protect the brain beyond just our treatment of the immune system, essentially.

Dr. Michael Kornberg (42m 29s):

That's a little summary of what I see happening over the next few years.

Geoff Allix (42m 38s):

Okay. Finally, so we're quite a long way into the coronavirus COVID-19 pandemic now. Depending on what part of the world you're from, mostly we're well into a vaccination response now. Something that's particularly of interest to people with MS is would they take a vaccine? Depending on what disease-modifying therapy they are on, whether that would have an effect, and which vaccines? Are some vaccines safer than other vaccines? Would you encourage people generally to get vaccinated if they're on a disease-modifying therapy?

Dr. Michael Kornberg (43m 19s):

The short answer is yes, absolutely. People should get vaccinated. The longer answer is that when it comes to vaccinations and MS, there are generally two concerns that arise, both for people with MS and the doctors that care for them. One is the concern about whether a vaccine might actually induce a relapse and induce a flare-up. That has been a concern for decades. There is a theoretical basis for it that you think of MS as an autoimmune disease. If you're giving someone a vaccine that's designed to create an inflammatory immune response, could you trigger a relapse?

Dr. Michael Kornberg (44m 1s):

Generally speaking, when we look at a wide variety of vaccines in terms of the risk of causing an MS attack, we don't see any risk there. That has been very well studied with the flu vaccine, but it's been studied with a number of other

vaccines. Generally speaking, we have not seen any increased risk of MS attack with a vaccine. Extrapolating from that, we think that the COVID vaccine will be safe from that perspective. There now has been one study and it was real, where they vaccinated the majority of the population. One study is looking specifically at people with MS who have gotten COVID vaccines there, and there has not been any increased risk of having an attack from the vaccine.

Dr. Michael Kornberg (44m 52s):

Generally speaking, there's not a reason to be concerned about that. The other concern is if you're on a medication that affects your immune system, is the vaccine going to be as effective? There are some considerations there so generally, we know that people on medicines like Interferons, Glatiramer acetate, <inaudible> or Tecfidera, those kinds of immunomodulatory treatments don't have any impact on vaccine response. They're not going to decrease the efficacy of the vaccine. There are certain medications that you do have to think about timing and the potential for affecting your response to the vaccine, most notably is the B cell therapy.

Dr. Michael Kornberg (45m 42s):

That's Ocrevus, now Kesimpta, or someone who is on Rituximab. Those work by getting rid of cells that are important for antibody production. We know from other vaccines that they can decrease your response to the vaccine. We think that by delaying your vaccine, depending on the guidelines, from four to 12 weeks after your dose, you might be more likely to have a protective response. If you're about to start on one of those medications, if you can, getting vaccinated before you start on the medication.

Dr. Michael Kornberg (46m 23s):

The bottom line is that even for people on those medications, they may not have the same level of a protective response as someone else, but most people still developed some level of a protective response. It's still worth being vaccinated. We think everyone should get vaccinated. Depending on your medication, there may be some timing issues that are worth discussing with your neurologist.

Geoff Allix (46m 52s):

Okay. That's very reassuring. I've been vaccinated so I'm glad to hear that. With that, thank you very much for joining us, Dr. Michael Kornberg.

Dr. Michael Kornberg (47m 5s):

It was my pleasure. Thank you for having me.

Geoff Allix (48m 13s):

Thank you for listening to this episode of Living Well with MS. Please check out this episode's show notes at www.overcomingms.org/podcast. You'll find all sorts of useful links and bonus information there. Do you have questions about this episode or ideas about future ones? Email us at podcast@overcomingms.org. We'd love to hear from you. You can also subscribe to the show on your favorite podcast platform, so you never miss an episode. Living Well with MS is kindly supported by a grant from the Happy Charitable Trust. If you'd to support the Overcoming MS charity and help keep our podcast advertising free, you can donate online at www.overcomingms.org/donate. Thank you for your support. Living Well with MS is produced by Overcoming MS, the world's leading multiple sclerosis healthy lifestyle charity. We are here to help inform, support, and empower everyone affected by MS. To find out more and subscribe to our e-newsletter, please visit our website at www.overcomingms.org. Thanks again for tuning in and see you next time.